Sexually Transmitted Infections

Management Guidelines

Second Edition

2019

National STD / AIDS Control Programme

Sri Lanka College of Sexual Health and HIV Medicine

Ministry of Health
Sri Lanka

National
STD/AIDS
Control
Programme

World Health
Organization

Sexually Transmitted Infections

Management Guidelines

National STD/AIDS Control Programme

Sri Lanka College of Sexual Health and HIV Medicine.

2019

Second edition – 2019

Published by -National STD/AIDS Control Programme &
Sri Lanka College of Sexual Health and HIV Medicine.
Sponsored by- WHO and Ministry of Health Nutrition and Indigenous Medicine Sri Lanka

Edited by
Dr. G. Weerasinghe
Dr. Nalaka Abeygunasekara
Dr. Geethani Samaraweera
Dr. Nimali Widanage
Dr. W.S.C. Dileka
Dr. K.A.C.R. Wijesekara
Dr. H.M.A.H. Karunaratne

First edition – 2009
Published by - Sri Lanka College of Venereologists
Sponsored by – WHO

Preface

Sexually transmitted infections (STIs) constitute an important health threat, both directly and through their potentiating effect on HIV transmission. Failure to diagnose and treat STIs at an early stage may lead to serious complications and sequelae including ectopic pregnancy, fetal wastage, infertility, anogenital cancers as well as neonatal and infant infections.

It is important to maintain services for STI prevention and control as persons with STIs are at increased risk of acquiring or transmitting HIV infection through high-risk sexual behaviours and the co-factor effect of an existing STI. STI services are one of the key entry points for HIV prevention.

In order to provide quality care for STIs, guidelines based on identified patterns of infections must be made available to health care providers. Components of comprehensive STI case management include; making a correct and timely diagnosis, providing effective treatment, reducing/preventing risk behaviour through education, counseling, promoting and providing condoms and ensuring that sexual partners are notified and treated.

In 2000, the National STD/AIDS Control Programme (NSACP) published a guide for the Management of Sexually Transmitted Diseases. Since then, new data from surveillance and research has become available to merit a review and update. The Sri Lanka College of Venereologists (SLCV) undertook the responsibility to revise the STI guidelines. The updated/revised guidelines address sexually transmitted infections in children, management of adult victims of sexual assault, emergency contraception, health education and counseling, and records and reporting thereby providing a more comprehensive tool to address the expanding needs of STI service delivery.

The guidelines are intended to serve as a resource for STI service providers working mainly in settings where laboratory support is available.

The SLCV sincerely appreciates the commitment of those who contributed to this publication. Support from the World Health Organization to the SLCV for this endeavour is gratefully acknowledged.

Dr. Iyanthi Abeyewickreme

Message from the Director NSACP

National STD /AIDS control programme (NSACP) along with 33 branch STD clinics distributed in all 25 districts of Sri Lanka provide comprehensive STI and HIV care services throughout the country. NSACP provides necessary technical support, training and prepares national guidelines for management of STI and HIV.

In order to maintain quality STI care services, the guidelines are updated regularly to include new research evidence. The sexually transmitted disease management guidelines that was last updated by Sri Lanka collage of Venereologist in 2009 was revised and updated by NSACP and this publication is the second edition of the previous guideline published in 2009.

As the director NSACP I would like to appreciate the commitment and dedication of all contributors in updating this guideline. The financial and technical support provided by Ministry of Health and World Health Organization (WHO) is also highly acknowledged.

Dr. Rasanjalee Hettiarachchi

Director

National STD/AIDS Control Programme

Sexually Transmitted Infections Management Guidelines - 2nd Edition

Guidelines on management of sexually transmitted infections published by World Health Organization (WHO) , British Association for Sexual Health and HIV (BASHH), Centers for Disease Control (CDC) and standard text books and articles were used for reference.

Contributors

Dr. L . Rajapaksa

Dr. G. Weerasinghe

Dr. K.A.M. Ariyarathne

Dr. Jayanthi Alwitigala

Dr. J.Ranathunga

Dr. Nalaka Abeygunasekara

Dr. Ajith Karawita

Dr. Himali Perera

Dr. D.O.C.Alwis

Dr. Darshanie Wijayawickrama

Dr. Gayani Nanayakkara

Dr. Geethani Samaraweera

Dr. Chandrika Jayakody

Dr. Chithran Hathurusinghe

Dr. Dharshini Mallikaarachchi

Dr. Manjula Rajapaksa

Dr. Lasanthi Gunarathne

Dr. Priyantha Weerasinghe

Dr. Nimali Jayasuriya

Dr. Manjula Rajapaksa

Dr. Dilmini Mendis

Dr. Shyama Somawardana

Dr. Umedha Jayasinghe

Dr. Prageeth Premadasa

Dr. Vino Dharmakulasinghe

Coordinated by

Dr. G. weerasinghe

Dr. Geethani Samaraweera

Dr. W.S.C Dileka

Dr. K.A.C.R. Wijesekara

Dr. Piyumika Godakandaarachchi

Dr. Inoka Munasinghe

Dr. Asangi Dayaratne

Sexually Transmitted Infections Management Guidelines- First edition

Contributors

Dr. I. Abeyewickreme

Dr. S.Mananwatte

Dr. K. Buddhakorala

Dr. L. Rajapaksa

Dr. C. D. Wickramasuriya

Dr. K. A. M. Ariyaratna

Dr. G . Weerasinghe

Dr. G . Pathirana

Dr. N. Abeygunasekara

Dr. D. Barlow

Dr. B. T. Goh

Dr. V. Harindra

The Sri Lanka College of Venereologists acknowledges the support extended for preparation of these guidelines by

Dr. J. Ranatunga

Dr. P. A. Dharmasiri

Dr. A. Karawita

Dr. M. Gunathilaka

Dr. N. Punchihewa

Edited by

Dr. I. Abeyewickreme

Abbreviations

ABST	antibiotic sensitivity test
AGW	anogenital warts
AIN	anal intraepithelial neoplasia
ALT	alanine transaminase
ART	antiretroviral therapy
Bd	bis in die/twice a day
BFP	biological false positive
BHT	bed head ticket
BIT	burrow ink test
BMI	body mass index
BOO	bladder outflow obstruction
BPH	benign prostatic hyperplasia
BV	bacterial vaginosis
CAP	chronic abacterial prostatitis
CBP	chronic bacterial prostatitis
cccDNA	covalently closed circular DNA
CHC	combined hormonal contraceptives
CIN	cervical intraepithelial neoplasia
CNS	central nervous system
COC	combined oral contraceptive pill
CP	chronic prostatitis
CPPS	chronic pelvic pain syndrome
CRP	C-reactive protein
CS	congenital syphilis
CSF	cerebrospinal fluid
CSW	commercial sex worker
CT	computed tomography
CTP	combined transdermal patch
CV	cardiovascular
CVR	combined vaginal ring
DC	differential count
DE	delayed ejacualation
DFA	direct fluorescent antibody
DGI	disseminated gonococcal infection
DM	diabetes mellitus
DMPA	depo medroxy progesterone acetate
DNA	deoxyribonucleic acid
DRE	digital rectal examination
DVIN	vulval intraepithelial neoplasia,differentiated type
EC	emergency contraception
ECG	electrocardiogram
ECP	emergency contraceptive pills
ED	erectile dysfunction
EIA	enzyme immuno assay
ELISA	enzyme linked immuno-sorbent assay
EPS	expressed prostatic secretions
ESR	erythrocyte sedimentation rate
FA	fluorescein-labelled antibody
FBC	full blood count
FBS	fasting blood sugar
FCU	first catch urine
FPU	first pass urine
FSD	female sexual dysfunction
FSH	follicle stimulating hormone
GC	gonococcal
GI	gastrointestinal
GI	granuloma inguinale
GnRH	gonadotropin-releasing hormone
HAART	highly active antiretroviral therapy
HAV	hepatitis A virus
HbA1c	hemoglobin A1c
HBIG	hepatitis B immune globulin
HBV	hepatitis B virus
Hcg	human chorionic gonadotropin
HCV	hepatitis C virus

HCW	healthcare worker
Hep B S Ag	hepatitis B surface antigen
Hep C Ab	hepatitis C antibody
HIV	human Immunodeficiency Virus
HPV	human papillomavirus
HSDD	hypoactive sexual desire disorder
HSIL	high-grade squamous intraepithelial lesion
HSUP	high-sensitivity urine pregnancy test
HSV	herpes simplex virus
IELT	intravaginal ejaculatory latency time
IIEF	international index of erectile function
IM	intra muscular
IMP	implants
IRIS	immune reconstitution inflammatory syndrome
IUD	intra uterine device
IV	intra venous
IVDU	intravenous drug use
JMO	judicial medical officer
KOH	potassium hydroxide
LARC	long-acting reversible method of contraception
LCR	ligase chain reaction
LEEP	loop electrosurgical excision procedure
LFT	liver function test
LGBT	lesbian, gay, bisexual and transgender
LGV	lymphogranuloma venereum
LH	luteinizing hormone
LI-ESW	low intensity extracorporeal shockwave
LMP	last menstrual period
LNG-EC	levonogestrol-only emergency contraceptive
LS	lichen sclerosis
LSIL	low-grade squamous intraepithelial lesion
LUTS	lower urinary tract symptoms
MAOI	monoamine oxidase inhibitors
MIC	minimum inhibitory concentration
MIF	microimmunofluorescence
MLEF	medico legal examination form
MRI	magnetic resonance image
MSD	male sexual dysfunction
MSM	men who sex with men
MSU	mid-stream sample of urine
MTM	modified Thayer and Martin
NAAT	nucleic acid amplification test
NGU	non-gonococcal urethritis
NSAID	non-steroidal anti-inflammatory drugs
NYC	New York City
OCP	oral Contraceptive Pill
ON	ophthalmia neonatorum
OPD	outpatient department
PAIN	perianal intraepithelial neoplasia
PCIS	penile carcinoma in situ
PCR	polymerase chain reaction
PCU	primary care unit
PDE	phosphodiesterase
PE	premature ejaculation
PEPSE	post exposure prophylaxis following sexual exposure
PGE1	prostaglandin E1
PID	pelvic inflammatory disease
PIN	penile intraepithelial neoplasia
PMNL	polymorpho-nuclear leukocytes
PN	partner notification
PO	per oral
POA	period of amenorrhoea
POP	progesterone only pills
PROM	premature rupture of membrane

PSA	prostate specific antigen
PLHIV	people living with HIV
Qds	quarter die sumendus/four times a day
RE	retrograde ejaculation
ReA	reactive arthritis
REM	rapid eye movement
RFT	renal function test
RLA	retroperitoneal lymphadenectomy
RNA	ribonucleic acid
RP	radical prostatectomy
RPR	rapid plasma reagin
SAPHO	syndrome of synovitis, acne, pustulosis, hyperostosis, osteitis
SARA	sexually acquired reactive arthritis
SCC	squamous cell carcinoma
SCI	spinal cord injury
SSRI	selective serotonin reuptake inhibitor
ST	sensitivity test
STD	sexually transmitted disease
STI	sexually transmitted infection
TAF	tenofovir alafenamide
TCA	trichloroacetic acid
TDF	tenofovir disoproxil fumarate
TENS	transcutaneous electrical nerve stimulation
TGM	transgender men
TGW	transgender women
TIA	transient ischemic attack
Tid	ter in die/ three times a day
TM	thayer martin
TNF	tumour necrosis factor
TOC	test of cure
TPHA	Treponema pallidum haem-agglutination test
TPPA	Treponema pallidum particle - agglutination test
TRUS	transrectal ultrasound
TSH	thyroid stimulating hormone
TURP	transurethral resection of prostate
TV	Trichomonas vaginalis
UFR	urine full report
UPSI	unprotected sexual intercourse
USS	ultra sound scan
UTI	urinary tract infection
VaIN	vaginal intraepithelial neoplasia
VB	voided bladder
VDRL	venereal disease research laboratory
VIN	vulval intraepithelial neoplasia
VTE	venous thromboembolism
VVS	vulvo-vaginal swab
WBC	white blood cells
WSW	women who have sex with women

Contents

1. Assessment of STD clinic attendees

1.1. Physical environment

A welcoming, comfortable, confidential and conducive physical environment should be created to facilitate good history taking. Patient consultations should take place in adequate privacy. Presence of students and observers should be allowed only with patient's consent, and if the patient refuses the patient's wish should be respected.

All clinics should have a confidentiality policy that should be displayed in the waiting area or otherwise made available to patients. All patients should be offered a chaperone for any intimate examination. If the patient requests, a clinician of their preferred gender, that should be provided where possible.

1.2. Assure confidentiality

Confidentiality of the patient information has to be maintained in all the times. The duty of confidentiality to the patient is absolute, except in very specific circumstances, such as when it is in the patient's or public's interest. This might include child protection cases, or cases where another individual is placed at risk of an infection. If it is in the patient's interest, where another health care worker to be informed, their consent to disclosure should be sorted. Seek advice from a consultant, in special situations when it is necessary to inform a third party in patient's or another individual's interest.

Preserving the confidentiality of the index patient during consultation is of utmost important in managing the sexual contacts. This can be difficult in certain situations, where a patient attends as a contact of an infected person but does not know the reason for attendance. The treating clinician should not try to divulge the identity of the index patient even if raised by the sexual contact.

1.3. Practice of good communication skills

Good communication skills are important in overall management of the patient. These include both verbal and nonverbal skills.

Initial greeting, maintaining eye contact, using appropriate body language and demonstrating non-judgmental attitudes, respect and attention to patients are important nonverbal communication skills that STD care providers should develop and practice.

Care should be taken to avoid conflicts between clinician's values and attitudes towards sexuality and different sexual behaviours of the patient.

Although many patients who are referred to or voluntarily attended to sexual health clinics will expect to be asked sensitive questions regarding their sexual behaviour, this may not always be the case. Therefore, the consultation should always start with less intrusive questions and then move on to sensitive questions such as sexual behaviour. The presence of anxiety and distress in the patient need to be identified and responded appropriately. Consultation should be initiated with open questions, exploration of initial concerns and then to be moved on to more closed ended questions as the consultation continues. Explaining the rationale for some of the questions asked, considering the use of sexually explicit language within the sexual history consultations

and use of language that is clear, understandable, which both clinician and patient are comfortable are some of the verbal communication skills that should be employed in sexual history taking. Components of history taking

Cross check the data entered at registration for their accuracy and consistency.

Note the reason/s for attendance:

- Voluntary - symptomatic, general check-up, having other concerns
- Referral - OPD, hospital ward, general practitioner, court, prison, blood bank, medico-legal purpose etc.
- Contacts of STD clinic attendees

1.3.1. Presenting complaint

If symptomatic:

Nature, duration, severity of symptoms, involvement of other relevant sites, similar episodes earlier, any treatment taken and if so, details of treatment and the duration, partner/s been symptomatic at present or past.

Due to the possibility of presence of more than one STI, inquire for the presence of other specific genital symptoms as well.

In women the following should be asked:

- Contraception method and duration of use
- Menstrual history; first day of the last menstrual period (LMP), duration, length of the cycle, regular/ irregular, inter menstrual bleeding
- Details of previous pregnancies and their outcome
- Post coital bleeding
- Date of last cervical cytology and results

1.3.2. Previous STIs

name/s or symptom/s, date of diagnosis, details of treatment, prior HIV/VDRL/TPPA tests, approximate dates and results

1.3.3. Past medical and surgical history

- Past history of transfusing blood or blood products – reason, date/s, within Sri Lanka government or private hospital, overseas; the name of the country
- Presence of any other significant illness e.g., bronchial asthma
- Current medications, any long-term medications

1.3.4. Allergy to drugs

Identify the drug and type of reaction

1.3.5. Social history

Occupation, education, residence, details of partner/s, travelled abroad, recreational activities

1.3.6. Alcohol and recreational drug history

Substance used, route/s, duration, current use, date of last used

1.3.7. Sexual history

Taking a proper sexual history is essential in the management of STIs. However, discussing very personal issues related to sex and sexuality is challenging as some patients may find some questions offensive. Therefore, the reasons for asking such questions should be clearly explained to all patients as indicated below:

- Gender of the partner/s; to identify gay/bisexual men in order to take rectal and pharyngeal samples, undertake hepatitis screening and recommend vaccination.
- Sites of sexual exposure (oral, vaginal, anal) ;to identify which sites need to be sampled.
- The relationship with the partner/s and the duration of relationship ; to facilitate partner notification.
- Details of condom use ;to facilitate condom promotion and risk assessment.
- The date and time of LSE ; to discuss the need for repeat testing if still within 'window' period and to help in assessing the need for emergency contraception and post-exposure prophylaxis for HIV where relevant.

All individuals should be asked about following:

- **Details of the last sexual exposure (LSE)** - date or period, gender of the partner, type of partner -marital/ regular/ casual / CSW, and site/s of exposure, details of condom use and reasons for not using
- **Details of previous sexual exposures** - during past one month, three months, twelve months and lifetime with gender of the partners, type of partners - marital/ regular/ casual / CSW, site/s of exposure, details of condom use and reasons for not using
- **Details of first sexual exposure** - date or age of patient, gender of the partner, type of partner (marital/ regular/ casual / CSW), site/s of exposure, details of condom use and reasons for not using
- **Details of sexual contacts overseas** - date/s or period/s, gender, type, sites of exposure, condom use
- Attempts should be made to get accurate details of all sexual partners during the recommended look back period as mentioned under each STIs to facilitates effective partner notification and management.

1.3.8. After the sexual history is completed, the clinician should:

Check with the patient that they have no other concerns that have not yet been discussed. These may include psychosocial concerns, issues about 'coming out', safety in relationships, information about STI transmission.

Explain the need for, and nature of a clinical examination and investigations that are going to be done.

The method of conveying test results to the patient should be agreed.

1.4. Examination of the patient

- Where possible, try to comply with the patients' requests for a male or female doctor.
- Always offer patients a chaperone.
- Take time to describe the examination procedure to the patient; what will happen: when, by whom, and for what reason and get the consent.
- Assure the privacy of the patient.
- Carry out a thorough general examination – eyes, mouth, skin (specifically palms and soles), lymph nodes, joints etc.
- Systemic examination – Respiratory /Cardiovascular/ Nervous systems when indicated. Examination of the abdomen is particularly important
- Do a complete genital examination including the perineal and peri-anal area
- Take the appropriate specimens during examination.

1.4.1. Genital examination of a male patient

Adequate exposure is important during clinical examination. Expose the patient preferably from umbilicus to the knees.

Inspection:

- Pubic area – ulcers, vesicles, warts, nits, folliculitis, other skin lesions.
- Inguinal region – erythema, swelling, ulcers, rashes
- Shaft of the penis – any structural abnormality, swelling, rash, ulcers, warts, other lesions
- Prepuce – fissuring, ulcers, warts, phimosis, paraphimosis, posthitis, other skin lesions
- Glans penis – oedema, ulcers, warts, balanitis, macules, papules, other skin lesions
- Coronal sulcus – ulcers, warts, pearly penile papules
- Urethral meatus – discharge, oedema, erythema, warts, ulcers. If no discharge milk the urethra and look for discharge at the meatus
- Scrotum – erythema, skin rash, skin lesions, swelling
- Perineal area – ulcers, warts, rash, other skin lesions
- Perianal area – discharge, ulcers, warty lesion, rash, other skin lesions, patulous anus, fissures, fistulas, haemorrhoids
- Rectum if indicated – proctoscopic examination to look for oedema, erythema of the rectal mucosa, presence of ulcers, warty lesions, pus, blood

Palpation

- During palpation pay attention to the following areas:
- Genital ulcers - tenderness, induration
- Inguinal region- lymph nodes – size, tenderness, discrete or matted, mobile or fixed, firm or soft, fluctuant or not (rule out hernia)
- Scrotum - palpate the testes and look for consistency, tenderness. Rule out hydrocele, varicocele, hernia, torsion and testicular tumors in patients with scrotal swelling. Palpate the scrotum in the lying down and standing positions.
- Spermatic cord – tenderness, thickening, varicoceles
- Epididymis – tenderness, swelling, cysts

1.4.2. Genital examination of a female patient

Woman should be placed in the lithotomy position for genital examination.

Inspection

- Abdomen – scars
- Pubic area – ulcers, vesicles, warts, pediculosis, folliculitis, other skin lesions.
- Inguinal region – erythema, swelling, ulcers, rashes
- Labia majora and minora - erythema, oedema, ulcers, warts, fissuring and other skin lesions
- Urethral meatus – discharge, warts, furuncle and other lesions
- Vaginal introitus – discharge, erythema, warts
- Bartholin gland – enlargement, tenderness, duct opening, discharge
- Perineal area – ulcers, warts, rash, other skin lesions
- Perianal area – discharge, ulcers, warty lesions, rash, other skin lesions, patulous anus, fissures, fistulas, haemorrhoids

Palpation

During palpation pay attention to the following areas:

- Lower abdomen - tenderness, guarding and palpable masses
- Genital ulcers - tenderness, induration
- Inguinal region - lymph nodes – size, tender or not, discrete or mattered, mobile or fixed, firm, soft, fluctuant (rule out hernia)
- Bartholian glands - lies beneath the posterior half of the labia major, palpable when it is enlarged or fibrotic

Speculum examination

- Done with consent of the patient, who had penetrative vaginal sex.
- Check whether the patient has passed urine before inserting the speculum
- Use a sterile speculum
- Wet with clean water before inserting. Avoid any other lubricant.
- Clean the introitus with cotton swabs.
- Insert the speculum preferably handle down-ward to avoid pressing on the sensitive areas like clitoris and urethra
- Inspect the vagina - look for the presence of erythema, warty lesions, and note the nature, quantity, colour and odour of the discharge.
- Take the appropriate vaginal specimens as described in the chapter on laboratory diagnosis of STIs
- Inspect the cervix - look for the presence of discharge, oedema, erythema, ectopy, warty lesions, ulcers. If you are having difficulty visualizing the cervix, ask the patient to place their clenched fists beneath their bottom to tilt the pelvis and bring the cervix into view.
- Take the appropriate cervical specimens as described in the chapter on laboratory diagnosis of STIs.

Pap smear test

- The best time to schedule the Pap smear is between 10 and 20 days after the onset of menstruation. If a woman is still menstruating, Pap test should be postponed, and the woman should be advised to have a Pap test at the earliest opportunity
- If an infection is present preferably treat the infection before performing the test.
- However, in patients whose follow up is uncertain; Pap test should not be postponed due to the presence of a muco-purulent discharge. The test can be performed after careful removal of the discharge with a saline-soaked cotton swab.
- The sequence of obtaining the Pap smear in relation to collection of other cervico- vaginal specimens does not appear to influence Pap test results or their interpretation. Therefore, Pap smear can be done after collecting cultures or specimens for STIs.
- Women who have undergone hysterectomy, should receive regular Pap smear if cervix is intact.
- Pap smear can be performed during pregnancy.

Making the smear

- Do not use lubricants other than water to moisten the speculum
- Once the speculum is inserted entire transformation zone of the cervix should be visualized
- Place the thinner extended prong (narrow end) of the Ayre's spatula on to the cervical os and rotate the spatula 360 degrees clockwise, gently scraping the entire circumference of the squamo-columnar junction and then a reverse anticlockwise rotation towards the opposite direction should also perform immediately
- Use the broader end of the spatula when sampling patulous or multiparous cervix. A thorough scraping of the whole area of the ectocervix can be obtained by using the broad end of the spatula in backward and forward movement.
- In post-menopausal women with no visible transformation zone endocervical brush may be a suitable alternative
- Once the sample is taken, quickly make a thin smear on a glass slide by holding the spatula flatly over the upper half of the glass slide spreading the mucus material evenly in a flat motion. If the reverse rotation of the spatula is done, make a similar smear on the lower half of the same glass slide using the other side of the spatula. Large clumps of material should be thinned out carefully avoiding damage to the cells
- Fix immediately with spray or immerse the slide fully in 95% ethanol or isopropyl alcohol.
- Once the vaginal and cervical examination and sampling is over, slowly withdraw the speculum and do a bimanual pelvic examination

1.4.3. Bimanual pelvic examination

- note any tenderness or warmth in the vagina
- feel the consistence of the cervix
- move the cervix and check for cervical motion tenderness
- feel the size and position of the uterus, check the mobility, note any tenderness
- feel the ovaries and tubes and tenderness of the lateral fornices

2. Syphilis

Syphilis is a systemic disease caused by spirochete *Treponema pallidum* subspecies pallidum. It is transmitted from one person to another during sexual intercourse, during pregnancy from mother to child or via infected blood and rarely through direct inoculation from an infectious lesion. The incubation period is 9 -90 days.

Classification

Early acquired syphilis
Primary
Secondary
Early Latent
Late acquired syphilis
Late latent
Tertiary Syphilis
Gummatous
Cardiovascular
Neurological
Congenital syphilis
Early - diagnosed in the first two years of life
Late- Presenting after two years of life

2.1. Early Syphilis

2.1.1. Clinical features

Primary syphilis

Following contact, *T. pallidum* invades through the mucosal surface or abraded skin and produce an ulcer known as the 'chancre'. Chancre is typically ano-genital, single, painless and indurated with a clean base discharging clear serum. However, chancres may also present as multiple, painful, purulent, destructive lesions and sometimes they may be found at extragenital sites (mainly oral). Primary syphilis may present as syphilitic balanitis of Follman. Non tender regional lymphadenopathy is common. Any anogenital ulcer should be considered to be syphilitic unless proven otherwise.

Secondary syphilis

Secondary syphilis is characterized by multisystem involvement approximately 4–10 weeks after the appearance of the initial chancre

- Skin rash often presents with a generalized maculo-papular (50–70%), papular (12%) or macular (10%) rash that does not usually itch. The rash can affect the palms and soles (11–70%) and also hair follicles, resulting in patchy alopecia.
- Generalized lymphadenopathy,
- mucocutaneous lesions such as mucous patches (buccal, lingual and genital)
- condylomata lata which affecting warm, moist areas- highly infectious
- hepatitis
- glomerulonephritis,
- splenomegaly
- neurological complications- anterior uveitis, meningitis and cranial nerve palsies

Early Latent syphilis

Latent syphilis is characterized by positive serological tests for syphilis without any clinical features. Syphilis acquired within the preceding two years is referred to as early latent syphilis.

Diagnosis of early latent syphilis can be made in a patient who had one of the following criteria within previous 24 months

1. A documented seroconversion or fourfold or greater increase in titre of a nontreponemal test
2. Unequivocal symptoms of primary or secondary syphilis
3. A sex partner documented to have primary, secondary or early latent syphilis
4. Reactive treponemal test from a person whose only possible exposure occurred within the previous 24 months.

2.1.2. Diagnosis

See lab Diagnosis chapter.

2.1.3. Management

Recommended treatment for early syphilis

- ☐ Benzathine penicillin 2.4 MU single dose intramuscularly after sensitivity test (ST)

Penicillin Allergy

- ☐ Doxycycline 100mg twice daily for 14 days
- ☐ Azithromycin 2g PO stat or Azithromycin 500mg daily for 10 days. (There are reported cases of resistance development. Not recommended in HIV, pregnancy and for MSM)
- ☐ Erythromycin 500mg qds for 14 days (used when doxycycline is contraindicated)

Neurological/ophthalmic involvement in early syphilis should be treated as for neurosyphilis (see neurosyphilis). HIV positive individuals should be treated as same as HIV negative individuals.

In pregnancy

Benzathine penicillin single dose is the treatment (as above) during first and second trimesters. However, when maternal treatment is initiated in the third trimester, a second dose of benzathine penicillin is to be given 1 week after the first dose.

2.1.4. Follow-Up

There is very little evidence to advice regarding the duration of sexual abstinence required following treatment. However, patients should be advised to refrain from sexual contact of any kind until the lesions of early syphilis (if they were present) are fully healed or until two weeks following treatment completion.

For early syphilis, minimum clinical and serological (VDRL) follow-up should be at months 1, 2, 3, 6 and 12, then 6 monthly until VDRL negative or serofast (usually for 2yrs).

A sustained fourfold or greater increase in the VDRL titre suggests re-infection or treatment failure.

Specific treponemal tests may remain positive for life following effective treatment. Therefore, proper documentation in the clinic records as well as providing the patient with a document confirming the treatment given are required to prevent unnecessary retreatment.

Those with concomitant HIV infection should be followed up annually for life.

2.1.5. Management of sexual partners

Partner notification in early syphilis

Patients with early syphilis are infectious. Therefore, contacts of early syphilis should be treated epidemiologically irrespective of their serologic results. For patients with primary syphilis, sexual partners within the past three months should be notified as the incubation period is up to 90 days. Partner notification may have to extend to 2 years for patients in secondary syphilis with clinical relapse or in early latent syphilis. For purposes of partner notification and epidemiological treatment of exposed sex partners, patients with syphilis of unknown duration who have high nontreponemal serologic test titres (i.e., >1:32) can be assumed to have early syphilis.

Recommended regimen for epidemiological treatment

Benzathine penicillin 2.4 MU single dose intramuscularly after ST.

Penicillin allergy

- ☐ Doxycycline 100mg twice daily for 14 days

2.1.6. Reactions to treatment

Allergic reaction to penicillin

Patients should be warned of possible reactions to treatment. Facilities for resuscitation and treatment of anaphylaxis should be available in the treatment area. All patients should be kept on clinic premises for at least15 minutes after receiving their first injection to observe for immediate adverse reactions. In addition, patients should be advised to seek urgent medical attention if they experience shortness of breath, itchy wheals on their skin, facial swelling or tightness in their chest or throat.

Jarisch Herxheimer reaction

Jarisch Herxheimer reaction is an acute febrile illness with headache, myalgia, chills and rigors which resolves within 24 hours. This is common in early syphilis but is usually not important unless there is neurological or ophthalmic involvement or in pregnancy where it may cause fetal distress and premature labour. It is uncommon in late syphilis but can potentially be life threatening if there is involvement of strategic sites (eg ; coronary ostia, larynx, and nervous system). Prednisolone can reduce the febrile episode but is not proven to ameliorate local inflammation. Severe clinical deterioration in early syphilis with optic neuritis and uveitis has been reported following treatment. In patients with cardiovascular or neurological involvement including optic neuritis, inpatient management is advisable. Management should include antipyretics and reassurance. Steroids are recommended when there is neurological or cardiovascular involvement and some physicians recommend this treatment in pregnancy when additional fetal monitoring is required. Prednisolone 40 – 60 mg daily for 3 days can be used. Anti - treponemal treatment has to be started 24 hours after commencing prednisolone.

2.2. Late disease

2.2.1. Late latent syphilis or latent syphilis of unknown duration

Latent syphilis is defined as syphilis characterized by sero-reactivity without other evidence of disease. Syphilis acquired more than two years ago is referred to as late latent syphilis. Patients with latent syphilis need a complete clinical examination to exclude other stages of syphilis. It is difficult to distinguish late latent syphilis from early latent syphilis (for more details see early latent syphilis) Non treponemal serologic titers are usually higher during early latent syphilis than late latent syphilis. However, early latent syphilis cannot be reliably distinguished from late latent syphilis solely on the basis of nontreponemal titres.

Recommended treatment for late latent syphilis or latent syphilis of unknown duration

- ☐ Benzathine penicillin 2.4 MU intramuscularly after ST weekly for 3 weeks

If a patient misses a dose of penicillin in a course of weekly therapy of benzathine penicillin; an interval of 10-14 days between doses might be acceptable before restarting the sequence of injections. However, missed doses are not acceptable for pregnant patients. Pregnant women who miss any dose must repeat the full course of therapy.

- ☐ Doxycycline 100 mg twice daily for 28 days
- ☐ Erythromycin 500mg qds for 28 days (used when doxycycline is contraindicated)

Follow up

VDRL testing should be repeated in 3, 6, 12, 18 and 24 months.

2.3. Tertiary syphilis

Late disease occurs in nearly one-third of untreated patients about 20–40 years after initial infection and clinical manifestations of late syphilis are rarely seen due to the use of treponemocidal antibiotics for other indications.

1. Gummatous disease - They can occur anywhere, but most often affect skin and bones
2. Cardiovascular disease - Aortitis (usually ascending aorta), aortic regurgitation, heart failure, coronary ostial stenosis and aneurysm may develop.
3. Neurological disease - These can be,
   a) Asymptomatic - Abnormal CSF with no signs or symptoms.
   b) Meningovascular - Focal arteritis inducing infarction or meningeal inflammation
   c) Parenchymous (general paresis/Tabes dorsalis)

Evaluation of cardiovascular, neurological or ophthalmic involvement

Patients with syphilis who have symptoms or signs of cardiovascular involvement should have a full cardiovascular assessment by a cardiologist. Patients should have a thorough neurological examination if they have symptoms suggestive of neurological involvement.

Once neurosyphilis is diagnosed, necessary investigations should be performed to rule-out possible cardiovascular syphilis.

2.3.1. Gummatous and cardiovascular syphilis

Gummatous syphilis

Gummata usually occur 10-15 years after infection. They are inflammatory granulomatous destructive lesions which can occur in any organ but most commonly affect bone and skin.

Diagnosis of syphilitic gummata is usually made on clinical grounds. X rays and ultrasound scan (USS) may be helpful in detecting lesions in bone and internal organs. Histological examination of a lesion may suggest this diagnosis and *T.pallidum* may be identified within the nodules by PCR.

Gummata affecting vital organs should be managed in collaboration with the appropriate specialist.

Cardiovascular Syphilis

Syphilis of cardiovascular system clinically manifests after a latent period of 15-30 yrs. Cardiovascular syphilis may lead to aortitis, aortic aneurysm, aortic regurgitation, coronary artery stenosis and myocarditis. Clinical features depend on the underlying condition.

The diagnosis is made by the presence of the clinical features of cardiovascular syphilis combined with positive syphilis serology. In addition, ECG, chest X-ray and 2D echocardiogram are helpful.

All patients with cardiovascular and gummatous syphilis must undergo CSF examination to exclude neurosyphilis.

Recommended treatment for cardiovascular and gummatous syphilis

- ☐ Benzathine penicillin 2.4 MU intramuscularly, weekly for 3 weeks

Penicillin Allergy

- ☐ Doxycycline 100 mg twice daily for 28 days

Cardiovascular lesions may progress despite adequate treatment for syphilis. Steroid therapy is recommended in cardiovascular syphilis to prevent potential consequences of Jarisch Herxheimer reaction. All patients with suspected cardiovascular syphilis should be reviewed by a cardiologist.

2.3.2. Neurosyphilis

CNS involvement can occur during any stage of syphilis. There are several types of neurosyphilis including asymptomatic neurosyphilis, acute meningitis, meningovascular syphilis, general paresis, tabes dorsalis and ocular manifestations. Clinical features differ according to the type. All patients with suspected neurosyphilis should be reviewed by a neurologist.

Diagnosis of neurosyphilis

Patients should have a thorough neurological examination to rule out focal neurological signs or papilloedema that may indicate raised intracranial pressure. If such signs are present a CT head or magnetic resonance imaging (MRI) of the brain should be performed prior to lumbar puncture. Routine CSF examination of patients with latent syphilis is not recommended. CSF tests can only support clinical diagnosis.

Indications for CSF examination:

- Neurologic signs and symptoms (e.g., cranial nerve dysfunction, meningitis, stroke, and hearing loss) or ophthalmic disease (e.g., uveitis, iritis, neuroretinitis, and optic neuritis) (1,2)
- Evidence of active tertiary syphilis (e.g. cardiovascular syphilis and gumma)
- Treatment failure
- In order to interpret accurately, it is vital that the CSF should not be macroscopically contaminated with blood. CSF changes in neurosyphilis:
- Raised lymphocyte count (>5 cells/mm3).
- Raised proteins (> 45 mg / dl)
- Positive VDRL test in CSF is almost diagnostic of neurosyphilis. However, a negative test will not exclude it.
- A negative treponemal test excludes neurosyphilis, but a positive test does not confirm the diagnosis.
- Neurosyphilis is unlikely when the CSF, TPPA titre is less than 1:320.

Recommended regimen

- ☐ Aqueous crystalline penicillin 4 million units IV every 4 hourly for 14 days.

Penicillin allergy

- ☐ Doxycycline 200 mg twice daily for 28 days.

Follow up

If CSF pleocytosis was present initially, a CSF examination should be repeated every 6 months until the cell count is normal. Follow-up CSF examinations also can be used to evaluate changes in the VDRL or protein after therapy; however, changes in these two parameters occur more slowly than cell counts, and persistent abnormalities might be less important.

CSF abnormalities of HIV infected persons (with neurosyphilis) might persist for an extended period and close clinical follow-up is warranted.

2.3.3. Management of sexual partners in late syphilis

All late syphilis patients should have a partner notification (PN) interview at the time of diagnosis by a trained healthcare professional. Partners should be screen and treat if positive for syphilis.

2.4. Congenital syphilis

All pregnant women should have serological screening for syphilis at their first antenatal assessment.

Fetal infection usually occurs late in pregnancy, but it has been reported in as early as 8–9 weeks of gestation also. This may result in polyhydramnios, miscarriage, pre-term labour, stillbirth and hydrops and placental oedema. Clinical features

- Jaundice, anaemia, generalised lymphadenopathy, hepatosplenomegaly, non-immune hydrops, pyrexia, failure to move an extremity (pseudoparalysis of Parrot), low birth weight.
- Skin rash (usually maculo-papular, but almost any form of rash is possible). Vesicles or bullae may be present.
- Condylomata lata (flat, wart-like plaques in moist areas such as the perineum).
- Osteochondritis, periostitis (elbows, knees, wrists).
- Ulceration of the nasal mucosa, rhinitis ('snuffles' usually presents after the first week of life).

2.4.1. Diagnosis of congenital syphilis

Darkfield microscopy

By demonstrating the presence of *T. Pallidum* in the dark field microscopy in a specimen taken from suspicious lesions or body fluids (e.g., nasal discharge)

Serology

1. Non treponemal serologic titre (VDRL) four-fold higher than that of the mother at the time of delivery
2. Presence of IgM antibodies in the infant
3. Rising non-treponemal antibodies in the infant

Further evaluation is recommended in the following situations

- if the infant or child has signs or symptoms of congenital syphilis
- If there is no documented maternal treatment in pregnancy
- if the mother was treated within four weeks of delivery
- if the maternal treatment was inadequate (with a nonpenicillin regimen or insufficient penicillin dosing) or inadequately documented; or a fourfold decline in titre following therapy was not documented (possibly due to inadequate treatment).
- Following additional investigations are recommended in such situations
- Blood: full blood count, liver function, electrolytes
- CSF: cells, protein, serological tests VDRL, TPPA)
- X-rays of long bones
- Ophthalmic assessment as indicated

2.4.2. Treatment

- ☐ If the baby presents within first seven days of delivery, treat with Aqueous crystalline penicillin 50,000 units / kg intravenous, 12 hourly for 7 days and then 50,000 units / kg IV, 8 (eight) hourly for 3 days (altogether for 10 days.)
- ☐ If the baby presents between 8-30 days of delivery treat with Aqueous crystalline penicillin 50,000 units / kg IV, 8 (eight) hourly for 10 days.
- ☐ If the baby presents more than one month after delivery, treat with Aqueous crystalline penicillin 50,000 units / kg IV, 4-6 (four-six) hourly for 10 days. This treatment should be given to,
    - all symptomatic babies
    - asymptomatic babies
        - with serologic evidence
        - whose mother was treated < 4 weeks prior to delivery
        - whose mother was not treated/ or treatment was not completed during the pregnancy
        - whose mother was treated with a non-penicillin regimen

Untested older siblings should be screened for congenital syphilis. When CS is diagnosed in an older child or in an adult, they should undergo thorough evaluation including lumbar puncture and long born radiography. They should be managed as for late syphilis but the parents, all siblings and any sexual partner(s) should be screened for syphilis.

Asymptomatic babies born to mothers who received adequate treatment for syphilis 4 weeks prior to delivery with no serologic evidence, should be treated with a single dose of Benzathine penicillin 50,000 units / kg intramuscularly.

2.4.3. Follow-Up

All neonates with reactive nontreponemal tests should receive careful follow-up examinations and serologic nontreponemal testing every 2–3 months until the test becomes nonreactive. In the neonate who was not treated because congenital syphilis was considered less likely or unlikely, nontreponemal antibody titres should decline by age 3 months and be nonreactive by age 6 months, indicating that the reactive test result was caused by passive transfer of maternal IgG antibody. If the nontreponemal test is still reactive, the infant is likely to be infected and should be treated. For treated neonates that exhibit persistent nontreponemal test titres by 6–12 months re-evaluation with CSF examination and retreatment with a 10-day course of a penicillin G regimen may be indicated. Neonates with a negative nontreponemal test at birth and whose mothers were sero reactive at delivery should be retested at 3 months to rule out serologically negative incubating congenital syphilis at the time of birth.

If drug administration is interrupted for more than one day at any point during the treatment course in late syphilis and congenital syphilis, it is recommended that the entire course is restarted.

3. Genital Herpes

3.1. Introduction

Genital herpes is a chronic lifelong viral infection. Infection may be primary or non-primary. Disease episodes may be initial or recurrent and symptomatic or asymptomatic.

Initial episode:

The first episode with either HSV-1 or HSV-2. Depending on whether the individual has had prior exposure to the other type, this is further subdivided into primary infection and non-primary infection.

Primary infection:

First infection with either HSV-1 or HSV-2 in an individual with no pre-existing antibodies to either type.

Non-primary infection:

First infection with either HSV-1 or HSV-2 in an individual with pre-existing antibodies to the other type.

Recurrent episode:

Recurrence of clinical symptoms due to reactivation of pre-existent HSV-1 or HSV-2 infection after a period of latency.

3.2. Aetiology

Herpes simplex virus type 1 (HSV-1, the usual cause of oro-labial herpes)

Herpes simplex virus type 2 (HSV-2, usually associated with sexual transmission)

3.3. Natural history

It is likely that the majority of infections are acquired sub-clinically as at least 80% of persons seropositive for HSV type-specific antibodies are unaware that they have been infected.

Following primary infection, the virus becomes latent in local sensory ganglia, periodically reactivating to cause symptomatic lesions or asymptomatic, but infectious, viral shedding.

The incubation period ranges from 2 days to 2 weeks.

Genital HSV due to HSV2 is more likely to recur compared to HSV 1.

The majority of individuals found to be seropositive for HSV-2 type-specific antibodies subsequently develop symptomatic lesion. However, recurrence rate decline over time in most individuals although this pattern is variable

HSV2 infected patients with HIV have increase asymptomatic and symptomatic shedding especially if they are seropositive for HSV1 and with low CD4 counts.

3.4. Clinical Features

Symptoms

The patient may be asymptomatic and the disease may be unrecognized.

Local symptoms consist of painful blistering and ulceration of the external genitalia or perianal region (+/- cervix/rectum). dysuria, vaginal or urethral discharge.

Systemic symptoms such as fever and myalgia are much more common in primary than in initial or recurrent disease.

Signs

Tender, small, multiple, non indurated ulcers

Tender inguinal lymphadenitis,

In the first episode, lesions and lymphadenitis are usually bilateral.

In recurrent disease, it is usual for lesions to affect favoured sites and be unilateral for each episode. Lymphadenitis occurs in around 30% of patients

3.5. Complications

- Superinfection of lesions with candida and streptococcal species
- Vulval adhesions, phimosis and paraphimosis
- Autonomic neuropathy, resulting in urinary retention.
- Autoinoculation to fingers and adjacent skin.This can happen when the skin is inflamed or damaged in both primary and recurrent disease.
- Keratitis
- Aseptic meningitis

3.6. Atypical Genital Herpes

The lesions of recurrent episodes may be small and may resemble non-specific erythema, erosions or fissures.

3.7. Herpes proctitis

HSV is a significant cause of proctitis in MSM.

3.8. Diagnosis of Genital Herpes

Clinical history and appearance often typical.

Clinical features suggestive of HSV and presence of multinuclear giant cells in a scraping from lesions stained with Giemsa stain is helpful in diagnosing HSV infection.

Virus detection and typing using NAAT is the test of choice if available. This will directly demonstrate HSV in swabs taken from the base of the anogenital lesion or the rectal mucosa in

the case of proctitis. The method needs less stringent conditions for sample storage and transport than virus culture and new real-time PCR assays are rapid and highly specific.

Culture becomes less sensitive as lesions age. The specificity is nearly 100%, but is influenced by virus shedding, specimen quality, sample storage, and conditions of transport. Therefore, a negative culture does not exclude the diagnosis.

The detection of HSV1 IgG or HSV-2 IgG or both in a single serum sample represents previous exposure to HSV. As IgM detection is unreliable, it is difficult to say whether the infection is recent. However, collection of serum samples a few weeks apart can be used to show seroconversion and hence, recent primary infection. HSV-2 antibodies are indicative of genital herpes while HSV-1 antibodies do not differentiate between genital and oropharyngeal infection. Caution is needed in interpreting serology results because even highly sensitive and specific assays have poor predictive values in low prevalence populations. In patients with a low likelihood of genital herpes, a positive HSV-2 antibody result should be confirmed in a repeat sample or by a different assay.

Serology may be helpful in the following situations

- Recurrent genital disease of unknown cause
- For counselling patients with initial episodes of disease
- Investigating asymptomatic partners of patients with genital herpes, including women who are planning a pregnancy or are pregnant

3.9. Management

3.9.1. First Episode Genital Herpes

General advice

- Saline wash - two to four times a day
- Analgesics
- Topical anaesthetic agents e.g. 5% lidocaine
- Keep the area clean and dry
- Antiviral drugs
- Oral antiviral drugs are indicated as early as possible of the start of the episode while new lesions are still forming or if systemic symptoms persist
- Topical agents are less effective than oral agents and combining oral and topical treatment has no additional benefit over oral treatment alone.
- Intravenous therapy is indicated only when the patient cannot swallow or tolerate oral medication because of vomiting.

Recommended regimens (usually for 7 days)

- ☐ Aciclovir 400 mg three times daily
- ☐ Aciclovir 200 mg five times daily
- ☐ Valaciclovir 500 mg twice daily
- ☐ Famciclovir 250 mg three times daily

3.9.2. Management of complications

If super-added secondary bacterial infection is present, treat with appropriate antibiotics - preferably non- treponemocidal, like cotrimoxazole or ciprofloxacin.

If fungal infection is suspected treat with an antifungal- fluconazole (avoid topical antifungals).

Hospitalization may be required for urinary retention, meningitis, and severe constitutional symptoms.

If catheterization is required, suprapubic catheterization is preferred to prevent the theoretical risk of ascending infection.

3.10. Follow up

Usually, patients are reviewed after 5-7 days. If severe lesions are present, it is advisable to review on the third day. In females look for evidence of labial adhesions.

3.11. Recurrent Genital Herpes

Recurrences are self-limiting and generally cause minor symptoms.

Following strategies can be used to manage recurrences according to the recurrence frequency, symptom severity and relationship status.

1. Supportive therapy only
2. Episodic antiviral treatment
3. Suppressive antiviral therapy

Best strategy to manage patients need to be selected according to the symptoms.

3.11.1. Supportive therapy

- General advice
- Saline baths
- Analgesia
- 5% Lidocaine ointment

3.11.2. Episodic antiviral treatment (started during prodrome is more effective)

Recommended regimens (all for five days)

- ☐ Aciclovir 400 mg three times daily
- ☐ Valaciclovir 500 mg twice daily
- ☐ Aciclovir 200 mg five times daily
- ☐ Famciclvior 125mg twice daily

Short course therapies

- ☐ Aciclovir 800mg three times daily for 2days
- ☐ Valaciclovir 500 mg bd for 3 days

3.11.3. Suppressive antiviral therapy

For patients who have had six or more recurrences per year or for patients suffering from psychological morbidity due to HSV recurrences, suppressive therapy may be considered.
Recommended regimens

- ☐ Aciclovir 400mg twice daily
- ☐ Aciclovir 200mg four times daily
- ☐ Famciclovir 250mg twice daily
- ☐ Valaciclovir 500mg once daily

If breakthrough recurrences occur on standard treatment, the daily dosage should be increased eg. Acyclovir 400mg three times daily.

Full suppressive effect is usually obtained 5 days into treatment.

Suppressive therapy should be discontinued after a maximum of a year to reassess recurrence frequency.

The minimum period of assessment should include two recurrences. Patients who continue to have unacceptably high rates of recurrences may restart treatment.

Safety and efficacy of acyclovir suppressive therapy were documented as for as long as 6 years. Suppressive therapy has shown to improve the quality of life of patients with frequent recurrences compared to episodic treatment.

3.12. Herpes Proctitis

As HSV is a common cause of proctitis among MSM, consider empirical treatment for HSV in the presence of symptomatic proctitis. Treatment is as for genital Herpes infection.

3.13. Prevention of transmission

Infected patients should be informed that correct and consistent use of male condoms might reduce the risk of HSV transmission.

Acyclovir, Valciclovir and Famciclovir can be used to reduced symptomatic and asymptomatic viral shedding

3.14. Counselling

Diagnosis often causes considerable distress. Counselling should cover:

- The use of antiviral drugs for symptom control.
- Discussion of the risks of transmission by sexual contact.
- Abstinence from sexual contact during lesion recurrences or prodromes.
- Transmission may occur as a result of asymptomatic viral shedding.
- Seropositive patients with unrecognized recurrences can be taught to recognize symptomatic episodes after counselling and this may prevent onward transmission.
- The possible benefit of condoms in reducing transmission, emphasizing that their use cannot completely prevent transmission.

- Disclosure is advised in all relationship
- Discussion on disclosure and transmission should be documented
- Pregnancy issues –male partners with infection should be informed about the importance of not transmitting a new infection to someone who is pregnant.
- Following strategies can be used to prevent HSV transmission during pregnancy.
    - Consistent and correct use of condoms during pregnancy especially in the last trimester
    - Abstinence of sex at the time of lesion recurrences and in the last six weeks of pregnancy
    - If the partner has a history of oro-facial HSV, oro-genital transmission to pregnant women
    - should be considered and strategies to avoid transmission need to be discussed.

3.15. Partner management

Sex partners of patients who have genital herpes could be benefited from evaluation and counselling.

Symptomatic partners should be evaluated and treated.

3.16. Management of herpes in pregnancy

Genital herpes in pregnancy should be managed according to clinical stage; first episode or recurrent episode. Accurate clinical classification between first and recurrent episodes may be difficult. Therefore, viral isolation and testing of paired sera may be helpful. Management of women with suspected genital herpes should always be carried out in consultation with a Venereologist.

3.16.1. First Episode genital herpes in pregnancy

First and second-trimester acquisition

- Women with suspected genital herpes need to be referred to the closest STD clinic for further management
- Management should be in line with the clinical condition with the use of either oral or intravenous acyclovir.
- Paracetamol and topical lidocaine 2% gel can be offered for symptomatic relief
- Although acyclovir is not licensed for use in pregnancy, there is substantial clinical experience supporting its safety.
- Daily suppressive therapy with acyclovir 400 mg tid from 36 weeks' gestation may be considered to reduce the HSV lesions at term, therefore reduce the need of a caesarean section and reduced asymptomatic shedding close to the delivery.
- The obstetrician should be informed about the diagnosis
- Vaginal delivery should be anticipated.
- However, if lesions are present at the onset of labour, delivery by CS is recommended.

Third trimester acquisition

Management of the woman should be according to her clinical condition and usually with

- ☐ acyclovir 400mg three times daily for 7 days.

However, in third trimester acquisitions, treatment will usually continue with acyclovir 400mg three times daily suppressive therapy until delivery.

Caesarean section should be offered to all women presenting with first-episode genital herpes lesions during the third trimester especially for women who develop lesions within 6 weeks of expected delivery.

However, when facilities available, HSV type specific antibody IgG and HSV PCR test from genital ulcers could be used to differentiate primary infection from the recurrences.

The presence of antibodies of the same type as the HSV isolated from genital swabs would confirm this episode to be a recurrence rather than a primary infection and elective caesarean section would not be indicated to prevent neonatal transmission.

However, as it will take a few days to give the results of these infection, the initial plan should be based on the assumption that all first episode lesions are primary genital herpes.

Later on the plan can be modified if the results confirmed the lesions are recurrent rather than a primary.

In all cases, the paediatrician should be informed.

HIV-positive women with primary genital HSV infection in the last trimester of pregnancy should be managed according to the recommendations for all women with primary genital HSV infection

3.16.2. Recurrent Genital Herpes in pregnancy

- Mothers should be informed that the risk of transmission of HSV to the baby is very low (0-3%).
- Supportive treatment with saline bathing and analgesia alone is usually sufficient and antiviral treatment may be indicated if genital lesions are severe.
- Acyclovir 400mg three times daily should be considered from 36 weeks as suppressive therapy and this will reduce the viral shedding and recurrences at the time of delivery hence the need of a caesarean section.
- Symptomatic recurrences during the third trimester are likely to be brief and vaginal delivery is appropriate if no lesions are present at delivery.
- Caesarean section should be considered for women with recurrent genital herpes lesions at the onset of labour.
- Recurrent genital herpes at any other time during pregnancy is not an indication for delivery by CS.

3.16.3. Women with HIV and have a history of genital herpes

- should be offered daily suppressive acyclovir 400 mg three times daily from 32 weeks of gestation to reduce the risk of transmission of HIV infection, especially in women where vaginal delivery is planned.
- The early initiation of suppressive therapy should be considered in view of the increased possibility of preterm labour in HIV-positive women.
- The mode of delivery should be in line with “Guideline of management of pregnant women with HIV in Sri Lanka” and, recommendations according to obstetric and other factors.

3.16.4. Management of women with primary or recurrent genital lesions at the onset of labour

General management

- History should be taken to differentiate whether the lesions are primary lesions or recurrences.
- A viral swab from the lesions should be taken when the HSV PCR facilities are available since the result may
- influence the management of the neonate.
- The neonatologist should be informed

Primary episode

- Caesarian section should be recommended for all women who present with the primary infection of genital HSV in the third trimester especially at the time of delivery or within 6 weeks of the expected delivery.
- Benefits of doing a caesarian section may be reduced if the membranes have ruptured for greater than 4 hours however, there may be some benefit in performing a caesarian section even after this.
- Intravenous aciclovir given intrapartum to the mother (5 mg/kg every 8 hours) and to the neonate (intravenous aciclovir 20 mg/kg every 8 hours) may be considered for those mothers who had a vaginal delivery
- In women who deliver vaginally in the presence of primary genital herpes lesions, invasive procedures (application of fetal scalp electrodes, fetal blood sampling, artificial rupture of membranes and/or instrumental deliveries) should be avoided.

Recurrent lesions

- When a mother has recurrent genital lesion at the onset of labour it is preferable to undergo caesarian section in order to minimize possible transmission to the baby.
- The mode of delivery should be decided after discussing the risk and benefits of doing a caesarian section versus vaginal delivery with the mother. When taking the decision, very low risk of HSV transmission associated with vaginal delivery (0-3%) should set against the obstetric risk factors and the risks associated with caesarean section.
- It has been reported that invasive procedures (fetal blood sampling, application of fetal scalp electrodes, artificial rupture of membranes and/or instrumental deliveries) increase the risk of neonatal HSV infection. however, as the risk is very low the increased risk associated with invasive procedures is unlikely to be clinically significant so they may be used if required
- For the women who had spontaneous rupture of membranes, by expediting the delivery, the duration of potential exposure of the fetus to HSV can be minimized.
- In case of PROM occur before 37 weeks of POA, if the decision is made for immediate delivery then the anticipated benefits of caesarian section will remain. If there is a delay in delivery, the mother should be recommended to receive intravenous aciclovir 5 mg/kg every 8 hours.

3.16.5. Management of the neonate

In all cases, the neonatal team should be informed

Management of babies born by caesarean section in mothers with primary HSV infection in the third trimester

As babies are at low-risk conservative management is adequate.

Liaise with the neonatal team.

Swabs from the neonate are not indicated.

No active treatment is required for the baby and the baby can be discharged if neonatal examination at 24 hours of age is normal and once feeding is established.

Parents should be educated regarding good hand hygiene to reduce risk of postnatal infection.

Parents should be advised to seek medical help if they noticed any abnormality in skin, eye and mucous membranes of the baby or if baby develops lethargy/irritability or poor feeding.

Management of babies born by spontaneous vaginal delivery in mothers with a primary HSV infection within the previous 6 weeks

These babies are at high risk of vertically transmitted HSV infection

- If the baby is well:
- Swabs of the skin, conjunctiva, oropharynx and rectum should be sent for herpes simplex PCR.
- But a lumbar puncture is not needed
- Empirical treatment with intravenous acyclovir (20 mg/kg every 8 hours) should be initiated until evidence of active infection is ruled out.
- Strict infection control procedures need to be practiced.
- Breastfeeding is recommended unless the mother has herpetic lesions around the nipples.
- Parents should be warned to report any early signs of infection such as poor feeding, lethargy, fever or any suspicious lesions.
- If the baby is unwell or presents with skin lesions:
- Swabs of the skin, lesions, conjunctiva, oropharynx and rectum should be sent for herpes simplex PCR.
- A lumbar puncture should be performed even in the absence of features of CNS infection.
- Intravenous acyclovir (20 mg/kg every 8 hours) should be initiated until evidence of active infection is ruled out.
- Treatment needs to be continued for 14 days if the infection is limited to the skin and mucous membranes but if CNS involvement or disseminated infection is present treatment should continue for a total of 21 days.

Management of babies born to mothers with recurrent HSV infection in pregnancy with or without active lesions at delivery

- Examine the baby carefully for evidence of neonatal HSV.
- As the baby is at a very low-risk, conservative management is recommended.
- Surface swabs from the neonate are not indicated.
- No active treatment is advised for the baby.
- Normal postnatal care of the baby is advised, and baby can be discharged if the neonatal examination at 24 hours of age is normal and once feeding is established.

- Parents should be educated regarding good hand hygiene to reduce the risk of postnatal infection.
- Parents should be advised to seek medical help if they have noticed any abnormality in skin, eye and mucous membranes or if the baby develops lethargy/irritability or poor feeding.

In cases where there are concerns regarding the neonate (clinical evidence of sepsis, poor feeding)

- Liaise with the neonatal team.
- In addition to considering bacterial sepsis, HSV infection should be considered.
- Surface swabs and blood for HSV culture and PCR.
- Intravenous acyclovir (20 mg/kg every 8 hours) should be given while awaiting cultures.
- Further management by the neonatal team according to condition of the baby and test results.

3.16.6. Prevention of postnatal transmission

Neonatal herpes may occur as a result of nosocomial or community acquired infection. Mothers, staff and other relatives/friends with active HSV infections such as orolabial herpes or herpetic whitlow should avoid direct contact between lesions and the neonate.

3.17. Management of genital herpes in people with HIV

Standard systemic antiviral drugs used to treat genital herpes in HIV uninfected patients have been successful in treating genital herpes in PLHIV. However, resistance to anti-herpes drugs is more common in those with HIV co-infection.

3.17.1. First episode genital herpes

In the absence of HIV therapy, primary genital herpes may be severe and prolonged with risk of progressive, multifocal and coalescing mucocutaneous anogenital lesions. Moreover, serious and potentially life-threatening systemic complications, such as fulminant hepatitis, pneumonia, neurological disease and disseminated infection have been reported.

Prompt initiation of therapy is recommended if herpes is suspected clinically. If new lesions are still forming after 3-5 days, consider increasing the dose of HSV therapy as susceptibility testing is not available.

In patients with advanced HIV, doubling the standard dose of antiviral should be considered.

Definitive studies in PLHIV are lacking.

Recommended regimens

- ☐ Acyclovir 400 mg five times daily for 7-10days.
- ☐ Valaciclovir 500mg - 1g twice daily for 10 days
- ☐ Famciclovir 250-500mg three times daily for 10 days

Therapy should be continued until all lesions have re-epithelialized.

In severe cases, initiation of therapy with Acyclovir 5-10 mg/kg body weight IV every 8 hours may be necessary. Induction therapy should be continued intravenously for 2-7 days, or until

clinical improvement, and followed by oral antiviral therapy to complete a minimum of 10 days total treatment.

3.17.2. Recurrent Genital Herpes

Both clinical and subclinical reactivations of genital herpes are more frequent in HIV patients and may lead to persistent and progressive anogenital mucocutaneous lesions, especially with CD4 cell counts less than

50 per cubic millimetre. Optimizing the control of HIV replication with combination antiretroviral therapy is of fundamental importance for the management of recurrent genital herpes. HAART will reduce the frequency of clinical recurrences but has less effect upon asymptomatic viral shedding. Thereafter, specific antiviral drugs can be used for either episodic or suppressive treatment.

Episodic Treatment

When there is no evidence of immune failure standard dose of antivirals should suffice. In those with advanced disease it may be necessary to double the standard dose and to continue therapy beyond 5 days.

Recommended regimen

- ☐ Acyclovir 400 mg three times daily for 5-10 days
- ☐ Famciclovir 250 mg twice daily for 5-10 days
- ☐ Valaciclovir 500mg twice daily for 5-10 days

Suppressive Treatment

The efficacy of suppressive antiviral therapy in HIV patients appears to be less than in HIV-negative people. Recommended drug regimens for daily suppressive treatment.

- ☐ Acyclovir 400mg twice to three times a day
- ☐ Valaciclovir 500 mg twice a day

If these antivirals do not control the recurrences, the first option should be to double the dose. If control still not achieved, then famciclovir 500 mg twice a day can be tried.

3.17.3. Drug resistant genital herpes

In prospective studies, acyclovir-resistant strains have been found in around 5-7% isolates from genital herpes lesions in HIV-infected persons. In such instances, an opinion should be sought from consultant Venereologist.

4. Gonorrhoea

4.1. Aetiology

Gonorrhoea is caused by the Gram-negative diplococcus, *Neisseria gonorrhoeae*. The primary sites of infection are the columnar epithelium-lined mucous membranes of the urethra, endocervix, rectum, pharynx and conjunctiva. Transmission is by direct inoculation of secretions containing organisms, from one mucous membrane to another. Secondary infection to other anatomical sites, through systemic or transluminal spread, can also occur. Secondary infection to other anatomical sites, through systemic or transluminal spread, has also been reported.

4.2. Clinical features

Symptoms in men	
Urethral infection	urethral discharge (80%) and/or dysuria (50%). Starting within 2 -5 days of exposure. can be asymptomatic (<10%).
Rectal infection	Usually asymptomatic, anal discharge (12%) or perianal/anal pain or discomfort (7%).
Pharyngeal infection	usually asymptomatic (>90%)
Symptoms in women	
Endocervical infection	Frequently asymptomatic (up to 50%). Increased or altered vaginal discharge (up to 50%). lower abdominal pain (up to 25%). Intermenstrual bleeding or menorrhagia rarely. Urethral infection
Urethral infection	dysuria (12%) but not frequency.
Rectal infection	frequently asymptomatic. More frequently develops by transmucosal spread than from anal intercourse
Pharyngeal infection	asymptomatic (>90%)

Neisseria gonorrhoeae may co-exist with other genital mucosal pathogens, notably *Chlamydia trachomatis, Trichomonas vaginalis, Mycoplasma genitalium* and *Candida albicans* and there may be symptoms attributable to co-infecting pathogen/s.

Signs of uncomplicated infection in men	
Urethral infection	a mucopurulent or purulent urethral discharge is commonly evident.
Signs of uncomplicated infection in women	
Endocervical infection	commonly no abnormal findings are present on examination, mucopurulent endocervical discharge and easily induced endocervical bleeding (<50%). pelvic/lower abdominal tenderness (<5%).

4.3. Complications

4.3.1. Local complications in male

Transluminal spread of *N. gonorrhoeae* may occur from the urethra to involve the epididymis, urethral glands, Tyson gland, and prostate in men (1% or less)

- Tysonitis – Infection of Tyson's gland situated on both sides of the frenum
- Littritis – Infection of the Littre's gland is a common complication of anterior urethritis. Littre's gland surrounds the urethra into in to which they open.
- Cowperitis – infection of the cowpers glands which are situated in the perineum and open into the posterior urethra
- Some patients may present with Penile cellulitis.

4.3.2. Complications in females

Spread of *N. gonorrhoeae* may occur from the endocervix to the endometrium and pelvic organs in women (probably <10%) leading to Pelvic Inflammatory Disease.

- Infection of the Bartholin glands may cause Bartholin abscess
- Pain or swelling in the lower part of the labia majora filling the posterior one-third of the groove between the labia majora and minora
- Tenderness in the lower part of labia
- If the condition progress to abscess formation redness of the overlying skin, acute tenderness, swelling becomes fluctuant

4.3.3. Haematogenous dissemination

Haematogenous dissemination leading to disseminated gonococcal infection (<1%) may occur from infected mucous membranes, resulting in skin lesions, arthralgia, arthritis and tenosynovitis.

4.4. Diagnosis.

The definitive diagnosis is established by the identification of *N. gonorrhoeae* at an infected site, either by nucleic acid amplification test (NAAT) or by culture.

4.4.1. Collection of specimens

Appropriate sites for specimen collection depend on the sex, age and sexual practices of the individual as well as the clinical manifestations of the infection.

Women: The primary collection site in women is the endocervical canal. The secondary sites include the urethra, rectum and oropharynx.

heterosexual men: In heterosexual men, material should be collected from the urethra. homosexual men: The primary sites in homosexual men are the urethra, rectum and oropharynx.

Sterile cotton swabs can be used for specimen collection.

Endocervix – The use of antiseptics, analgesics and lubricants when collecting specimens should be avoided. Use a vaginal speculum, which may be moistened with warm water. After inserting the speculum, clean the exocervix with a cotton swab. Insert a swab 2cm into the cervical canal. Rotate and move the swab gently from side to side for 5-10 seconds to allow absorption of the exudates.

Urethra – Take urethral specimens at least one hour after the patient has passed urine. If a discharge is evident collect pus directly on a swab. If not, milk the urethra to evacuate exudates. Still, if no discharge is obtained, insert a thin swab 1 cm into the urethra and gently rotate the swab for 5-10 seconds. In women, massage the urethra against the pubic symphysis and use the same technique as for men

Rectum– Insert a cotton swab 3cm into the anal canal and rotate it for 10 seconds to collect exudates from the crypts just inside the anal ring. If faecal contamination occurs, discard the swab and use another to obtain the specimen.

Vagina – Vaginal specimens are recommended for women who have had a hysterectomy and for prepubertal girls.

For women who have had a hysterectomy - use a speculum and swab the posterior fornix for a few seconds.

For prepubertal girls ; gonococcal vulvo vaginitis may occur in girls prior to puberty. Discharge can be collected with a swab without the use of a speculum.

Oropharynx – Swab the region of the tonsillar crypts and the posterior pharynx.

4.4.2. Transport of Specimens

Before inoculating on to the culture medium, a smear for microscopy should be made. To obtain a thin homogenous film, roll the swab on to a clean slide, and allow the smear to air dry.

The highest yield of gonococci is obtained when specimens are inoculated directly on to a culture medium in the consultation room. Roll the swab containing the specimen over approximately ¼ of the surface of the plate. When rolling the swab, care should be taken not to dig into the medium. The inoculated plate should be sent to the laboratory immediately for further streaking and incubation.

If this is not practicable, the swabs should be inserted into a transport medium (Amies) and transported at room temperature, to reach the laboratory within 24-48 hours

4.4.3. Investigations

Microscopy

Microscopy of Gram-stained genital specimens allows direct visualization of *N. gonorrhoeae* as monomorphic Gram-negative diplococci within polymorphonuclear leukocytes

Sensitivity and specificity of a gram stained smear are 95% and 97%, respectively, of urethral discharge from a symptomatic male. Therefore, a gram stain of a male urethral specimen that shows polymorphonuclear leucocytes with intracellular gram-negative diplococci can be considered diagnostic in symptomatic men. Microscopy of penile urethral smears in those without symptoms is less sensitive (50 - 75%) therefore, it is not recommended in asymptomatic individuals. In women, microscopy has poor sensitivity for the identification of gonococcal infection: 37–50% for endocervical smears and 20% for urethral smears.

In asymptomatic patients of both sexes, the sensitivity of gram stain smear is extremely low, and it should therefore not be considered as a diagnostic test.

Ano-rectal smears and microscopy should be offered if rectal symptoms are present. The sensitivity of microscopy for detecting asymptomatic rectal infection is low and is not recommended. Direct microscopic examination is not recommended for pharyngeal infections.

NAAT

Detection of *N. gonorrhoeae* can be achieved by NAATs or culture. NAATs are generally more sensitive than culture and offer testing on a wider range of specimen types. NAATs show high sensitivity (.96%) in both symptomatic and asymptomatic infection. They show equivalent sensitivity in urine and urethral swab specimens from men and in vaginal and endocervical swabs from women. The test sensitivity in female urine is significantly lower and urine is not the optimal specimen in women

Persons undergoing testing for genital tract gonorrhoea are usually also tested for infection with *C. trachomatis*. NAATs are the standard test methodology for *C. trachomatis* testing and commercial tests offer dual capability to also test for *N. gonorrhoeae* on the same sample. NAATs are significantly more sensitive than culture for detecting *N. gonorrhoeae* in the rectum and pharynx although are not yet licensed for use at these sites.

Culture

The primary role of culture is for antimicrobial susceptibility testing, which is of increasing importance as antimicrobial resistance in *N.gonorrhoeae* continue to evolve and spread. All individuals with gonorrhoea diagnosed by NAAT should have a culture taken for susceptibility testing prior to treatment.

Culture offers a reliable, sensitive (>95%) and relatively cheap diagnostic test that also allows antimicrobial sensitivity testing. Selective culture media such as Thayer Martin (TM), modified Thayer Martin (MTM) and New York City (NYC) containing antimicrobials are often used for routine isolation of gonococci. Presumptive identification of colonies can be made by a Gram stain and an oxidase test. It is necessary to confirm the identification with carbohydrate degradation tests. Culture is considered the gold standard for the diagnosis of infection with *N. gonorrhoeae* in genital as well as non-genital sites.

4.5. Management

4.5.1. General Advice

Patients should be given a detailed explanation of their condition with particular emphasis on the long-term implications for the health of themselves, their partner(s) and children. Preferably this should be reinforced with clear and accurate written information.

Patients should be advised to avoid unprotected sexual intercourse until they and their partner(s) have completed treatment. and follow-up.

4.5.2. Further Investigations

Screening for other coincident sexually transmitted infections should routinely be performed.

4.5.3. Treatment

Indications for therapy:

- a positive microscopy
- a positive culture for *N. gonorrhoeae*,
- a positive NAAT
- on epidemiological grounds,
    - if a recent sexual partner has confirmed gonococcal infection or
    - parents of the baby who has ophthalmia neonatorum due to *Neisseria gonorrhoeae*.

For both males and females, on the first day of examination if gram stain smear is positive, a presumptive diagnosis of gonococcal infection is made and treatment for Gonorrhoea should be commenced.

Confirmatory diagnosis can be made only on a positive culture result. This is especially important in medico-legal cases.

If culture and NAAT testing are not available and considering the low sensitivity of microscopy for GC, it may be justifiable to treat for presumptive GC if classical clinical symptoms present at the time of examination/ history of classical symptoms with partial treatment despite negative microscopy results.

Recommended treatments for uncomplicated anogenital infection

- ☐ Cefixime 400mg orally as a single dose with Azithromycin 2g single dose

N. gonorrhoeae has progressively exhibited reduced sensitivity and resistance to many classes of antimicrobials. Azithromycin is recommended as co-treatment irrespective of the results of chlamydia testing to delay the onset of widespread cephalosporin resistance.

Alternative

- ☐ Ceftriaxone 1 g intramuscularly as a single dose
- ☐ Gentamycin 240 mg intramuscularly plus azithromycin 2 g
- ☐ Spectinomycin 2 g intramuscularly as a single dose plus azithromycin 2 g

Other single-dose cephalosporin regimens, notably cefotaxime 500 mg intramuscularly as a single dose or cefoxitin 2 g intramuscularly as a single dose plus probenecid 1 g oral.

Recommended treatment for pharyngeal infection

- ☐ Ceftriaxone 1 g as a single dose

Drug Allergy

Third generation cephalosporins such as cefixime and ceftriaxone show negligible cross-allergy with penicillins. Contraindications to the administration of ceftriaxone are hypersensitivity to any cephalosporin or previous immediate and/or severe hypersensitivity reaction to a penicillin or other beta-lactam drug.

Recommended treatments for patients giving a history of such hypersensitivity:

- ☐ Gentamycin 240 mg intramuscularly plus azithromycin 2 g
- ☐ Azithromycin 2 g oral as a single dose
- ☐ Spectinomycin 2g IM as a single dose

Ceftriaxone in a single injection provides sustained, high bactericidal levels in the blood. Extensive clinical experience indicates that ceftriaxone is safe and effective for the treatment of uncomplicated gonorrhoea at all anatomic sites, curing 98.9% of uncomplicated urogenital and ano rectal infections.

Ceftriaxone is the drug of choice for rectal, pharyngeal and ophthalmic

Antimicrobial therapy should take account of local patterns of antimicrobial sensitivity to *N. gonorrhoeae*. The chosen regimen should eliminate infection in at least 95% of those presenting in the local community.

4.5.4. Co-infection with Chlamydia trachomatis

Genital infection with *C. trachomatis* commonly accompanies genital gonococcal infection (up to 35 %of men and 41% of women with gonorrhoea). Screening for *C. trachomatis* should routinely be performed on adults with gonorrhoea and treatment given to eradicate possible co-infection.

Anti Chlamydial treatment

As co-infection with *chlamydia trachomatis* occurs in about 15-35%, give treatment for chlamydial infection on the same day (for both males and females).

As individual has already received azithromycin 2 g for gonorrhoea then this should be sufficient to treat chlamydia.

If azithromycin cannot be given in combination with first line/alternative treatment add;

- ☐ Doxycyclin 100mg twice a day for 7 days

Alternative treatment

- ☐ Erythromycin 500mg 6 hourly for 7 days

4.6. Management of complications of gonorrhoea

Seek advice from a Consultant Venereologist

4.6.1. Recommended therapy for management of local complication of males

- ☐ Ceftriaxone 1 g single dose IM stat (or for 3 days)

4.6.2. Management of epididymo - orchitis:

- ☐ Ceftriaxone 1 g intramuscularly as a single dose in addition to the regimen chosen to treat epididymo-orchitis

  (Refer chapter 13)

4.6.3. Management of Bartholin gland infection

If increasing in size aspiration with a wide bore needle under local anesthesia may be considered.

In recurring attacks, marsupialization needs to be considered.

Recommended therapy

- ☐ Ceftriaxone 1 g IM for 3 days and
- ☐ Doxycycline 100 mg twice a day for 7 days

As anaerobic bacteria and sometimes *Trichomonas vaginalis* may cause bartholinitis

- ☐ Metronidazole 400 mg twice a day orally for 5 days may be added.

4.6.4. Management of PID (refer chapter 12)

4.6.5. Disseminated gonococcal infection (DGI)

DGI results from gonococcal bacteraemia. DGI presents with petechial or pustular acral skin lesions, asymmetrical arthralgia, tenosynovitis or septic arthritis. The infection is complicated occasionally by perihepatitis and rarely by endocarditis or meningitis. Some strains of *N.gonorrhoeae* that cause DGI may cause minimal genital inflammation.

Hospitalization is recommended for initial therapy. Patients should be examined for clinical evidence of endocarditis and meningitis. Patients treated for DGI should be treated presumptively for concurrent *C.trachomatis* infection, unless appropriate testing excludes this infection.

Recommended regimen for DGI

- ☐ Ceftriaxone 1 g IM/IV every 24 hours

  To be continued for 24-48 hours after improvement is noted, at which time therapy may be switched to cefixime 400mg orally twice daily to complete at least one week treatment.

  or

- ☐ Spectinomycin 2g intramuscularly every 12 hourly

4.6.6. Recommended regimen for Gonococcal meningitis and Endocarditis

- ☐ Ceftriaxone 1-2 g IV every 12 hourly for 10-14 days for meningitis and at least 4 weeks for endocarditis.

4.6.7. Recommended regimen for Gonococcal conjunctivitis

- ☐ Ceftriaxone 1 g IM stat

4.7. Pregnancy and Breastfeeding

Pregnant women should not be treated with tetracycline antimicrobials.

4.8. HIV infection

Management is the same as in HIV negative

4.9. Sexual partners

Partner notification should be pursued in all patients identified with gonococcal infection. Action and outcomes should be documented.

Male patients with symptomatic urethral infection should notify all partners with whom they had sexual contact within the preceding 2 weeks or their last partner if longer.

Patients with infection at other sites or asymptomatic infection should notify all partners within the preceding 3 months.

Sexual partners should be treated epidemiologically for gonorrhoea.

4.10. Follow up

Patients should be assessed after treatment

- To confirm compliance with treatment
- To ensure the resolution of symptoms
- To enquire about adverse reactions
- To retake the sexual history to explore the possibility of re-infection
- To pursue partner notification and health promotion

4.10.1. First Follow up

- Three days after commencement of initial therapy
- Clinical examination
- urethral smear for gram stain

Method and timing of TOC

A positive TOC could be due to treatment failure, reinfection or residual non-viable organism and should be interpreted in the clinical context

Test of cure (TOC) –

- Culture tests should be performed at least 72 hours after completion of antimicrobial therapy from all infected sites.
- Persisting symptoms or signs – test with culture, performed at least 72 hours after completion of therapy. It should be used if symptoms or signs are present at the time of TOC.
- If asymptomatic – test with NAATs where available, followed by culture if NAAT-positive.
- The time to a negative TOC using NAATs is variable and there are limited data to inform optimum time to TOC. However, most individuals should be negative seven days following treatment where RNA NAAT is used and 14 days following treatment when using a DNA NAAT.
- Note that infection identified after treatment may well be due to reinfection.
- Seek advice from a consultant Venereologist.

5. Chlamydia trachomatis infection

5.1. Aetiology

Genital Chlamydial infection is caused by the obligate intracellular bacterium *C. trachomatis*. Serotypes D–K cause urogenital infection, while serovars L1-L3 cause LGV. Infection is primarily through penetrative sexual intercourse, although the organism can be detected in the conjunctiva and nasopharynx without concomitant genital infection.

Chlamydia is the most commonly reported curable bacterial STI in the western world but prevalence in Sri Lanka is not known due to limited availability of Chlamydia testing.

5.2. Clinical features

The majority of individuals with chlamydial infection are asymptomatic. However, symptoms and signs include the following

Symptoms in women	**Symptoms in men**
Increased vaginal discharge Post-coital and intermenstrual bleeding Dysuria Lower abdominal pain Deep dyspareunia	Urethral discharge Dysuria
Signs in women	**Signs in men**
Mucopurulent cervicitis with or without contact bleeding Pelvic tenderness Cervical motion tenderness	Urethral discharge

5.3. Extra-genital infections

5.3.1. Rectal infections

Rectal infection is usually asymptomatic, but anal discharge and anorectal discomfort may occur

5.3.2. Pharyngeal infections

Pharyngeal infection, as in the rectum, is usually asymptomatic.

5.3.3. Conjunctival infections

Chlamydial conjunctivitis in adults is usually sexually acquired. The usual presentation is of unilateral chronic, low-grade irritation; however, the condition may be bilateral.

5.4. Complications

5.4.1. Women

- PID, endometritis, salpingitis
- Tubal infertility
- Ectopic pregnancy
- Sexually acquired reactive arthritis (SARA) (<1%)
- Perihepatitis.

5.4.2. Men

- Sexually Acquired Reactive Arthritis
- Epididymo-orchitis.

5.5. Diagnosis

The current standard of care for all cases, including medico-legal cases and extra-genital infections, is Nucleic Acid Amplification Tests (NAAT). Although no test is 100% sensitive or specific, NAATs are known to be more sensitive and specific than Enzyme Immuno Assay(EIAs)

Screening using EIA is no longer acceptable. Since the positive predictive value is high in high-prevalent settings, re-testing using a second NAAT with a different target is not recommended except for medico-legal cases.

5.5.1. Window period.

It is recommended that patients undergo testing for chlamydia when they first present and that if there is concern about a sexual exposure within the last two weeks, that they return for a repeat NAAT test two weeks after the exposure.

5.5.2. Sample collection

Vulvo-vaginal swabs (VVS).

A vulvo-vaginal sample is the specimen of choice in women. This is collected by inserting a dry swab about 2–3 inches into the vagina and gently rotating for 10 to 30s. VVS has a sensitivity of 96–98% and can be either taken by the patient or a healthcare worker (HCW). Several studies indicate that VVS sensitivities are higher than those of cervical swabs, as they pick up organisms in other parts of the genital tract. Self-taken VVS are more acceptable to women than urine or cervical specimens.

Endocervical swabs.

These have been shown to be less sensitive than VVS (see above), and require a speculum examination performed by an HCW.

First-catch urine

FCU in men is reported to be as, or more sensitive than urethral sampling. Urine samples are easy to collect, do not cause discomfort and thus are preferable to urethral swabs. To collect FCU, patients should be instructed to hold their urine for at least 1h before being tested. The first 20ml of the urinary stream should be captured as the earliest portion of the FCU contains the highest organism load.

Urethral swabs.

Urethral swabs, if taken, should be inserted 1 cm inside the urethra and rotated once before removal. Studies of self-taken penile-meatal swabs have yielded good results but maybe less acceptable to patients compared to urine.

Extra-genital sampling

Rectal swabs. NAATs are the assays of choice for both genital and extra-genital samples, though the sensitivities are variable. Rectal swabs can be obtained via proctoscopy or taken 'blind' by the patient or an HCW. LGV testing should be performed in individuals with proctitis.

Medico-legal cases

For medico-legal cases, a NAAT should be taken from all the sites where penetration has occurred. Due to the low sensitivity of culture (60–80%) and its lack of availability in many centers, this technique is no longer recommended. In medico-legal cases, for best practice, a reactive NAAT result should be confirmed using a different target to ensure reproducibility

5.6. Management

5.6.1. General advice

Ideally, treatment should be effective (microbiological cure rate >95%), easy to take (not more than twice daily), with a low side-effect profile and cause minimal interference with daily lifestyle.

Uncomplicated genital infection with *C. trachomatis* is not an indication for removal of an IUD.

Patients should be advised to avoid sexual intercourse (including oral sex) until they and their partner(s) have completed treatment (or wait seven days if treated with azithromycin).

Patients should be given detailed information on the natural history of chlamydia infection, as well as its transmission, treatment and complications

5.6.2. Treatment of uncomplicated genital, rectal and pharyngeal infection and epidemiological treatment

Recommended regimens

- ☐ Doxycycline 100mg bd for seven days (contraindicated in pregnancy) OR
- ☐ Azithromycin 1g orally as a single dose followed by 500mg daily for 2 days

Alternative regimens (if either of the above treatments is contraindicated):

- ☐ Erythromycin 500mg bd for 10–14 days OR
- ☐ Ofloxacin 200mg bd or 400mg once daily for seven days

5.6.3. HIV-positive individuals

HIV-positive individuals with genital and pharyngeal chlamydial infection should be managed in the same way as HIV-negative individuals.

5.6.4. Pregnancy and breastfeeding

Doxycycline and ofloxacin are contraindicated in pregnancy.

Recommended regimens

- ☐ Azithromycin 1g orally as a single dose followed by 500mg daily for 2 days OR
- ☐ Erythromycin 500mg four times daily for seven days OR
- ☐ Erythromycin 500mg twice daily for 14 days OR
- ☐ Amoxicillin 500mg three times a day for seven days

5.6.5. Treatment of chlamydia and gonorrhoea co-infection (Refer chapter 4)

5.6.6. Test of Cure (TOC)

TOC is not routinely recommended for uncomplicated genital chlamydia infection, because residual, nonviable chlamydial DNA may be detected by NAAT for 3–5 weeks following treatment.

TOC is recommended in pregnancy, where poor compliance is suspected and where symptoms persist

There are few data on the optimum time to perform a TOC; however, for the reasons discussed above, this should be deferred for at least three weeks after treatment is completed.

5.6.7. Vertical transmission and management of the neonate (refer chapter 11)

5.6.8. Contact tracing and treatment

Management of sexual partners.

All patients identified with *C. trachomatis* should have partner notification (PN) discussed at the time of diagnosis by a trained healthcare professional. The method and outcome of PN for each partner/contact should be documented. All sexual partners should be offered and encouraged to take up, full STI screening, including HIV testing.

Look-back period

Male index cases with urethral symptoms: all contacts since, and in the four weeks prior to, the onset of symptoms.

All other index cases (i.e. all females, asymptomatic males and males with symptoms at other sites, including rectal, throat and eye): all contacts in the six months prior to presentation.

5.7. Follow-up

Side-effects and importance of complying fully with treatment and what to do if a dose is missed. The importance of sexual partner(s) being evaluated and treated.

6. Non-gonococcal urethritis/Cervicitis

6.1. Introduction

Urethritis or inflammation of the urethra is a multifactorial condition which can be sexually acquired. It is characterised by discharge and/or dysuria but may be asymptomatic. Urethral inflammation can occur without a known pathogen being isolated in a significant number of patients even using more sensitive detection methods.

Urethritis is described as either gonococcal, when *Neisseria gonorrhoeae* is detected, or nongonococcal (NGU) when it is not.

6.2. Aetiology

Following organisms have been identified as common pathogens causing NGU.

- *C.trachomatis*
- *M.genitalium*
- Ureaplasma
- Adenoviruses
- *T.vaginalis*
- Herpes simplex virus

The commonest organisms implicated in Western countries are *C. trachomatis* and *M. genitalium* with the latter perhaps causing more symptoms.

Epstein Barr virus *N. meningitidis*, Haemophilus sp., Candida sp, urinary tract infections, urethral stricture and foreign bodies have been reported in a few cases and probably account for a small proportion of NGU. Bacterial vaginosis-associated bacteria may also cause NGU in some men.

6.3. Clinical features

Symptoms	Signs
Urethral discharge Dysuria Urethral irritation/discomfort Some are asymptomatic	Urethral discharge. This may have not been noticed by the patient or may only be present on urethral massage Erythema and oedema of urethral meatus (Meatitis) Balanoposthistis

6.4. Complications

- Epididymo-orchitis
- Sexually acquired reactive arthritis (Reiter's syndrome)
- Prostatitis

These are occurring in fewer than1%of cases.

6.5. Investigations and Diagnosis

Only symptomatic patients and/or those with a visible discharge or presence of balano-posthitis should be assessed for the presence of urethritis. The diagnosis of urethritis must be confirmed by demonstrating polymorpho-nuclear leucocytes(PMNL)in the anterior urethra. This can be by means of:

1. **A Gram stained urethral smear containing 5 or more PMNL per high-power(x1000) microscopic field** (averaged over five fields with greatest concentration of PMNL)

   and/or

2. **Gram stained preparation from a centrifuged sample of a first passed urine (FPU) specimen, containing 10 or more PMNL per high-power(x1000) microscopic field** (averaged over five fields with greatest concentration of PMNL). Instead, a FPU specimen can be examined for threads and if present these can be Gram-stained.

Either test can be used: both tests will identify cases missed by the other test.

The quality of the smear is heavily dependent on how the smear is taken. Either a 5mm plastic, platinum loop or cotton-tipped swab can be used and should be introduced about 1 cm into the urethra.

The sensitivity of the smear test is affected by the period since last passing urine. The optimum time to obtain a urethral smear after 2-4 hours of last pass urine.

If urethritis is not detected in symptomatic patients, they should be advised to attend the clinic holding urine overnight to retest with urethral smear and early morning urine sample.

A mid-stream sample of urine (MSU) should be taken if a urinary tract infection is suspected. Such as, for example, if the patient complains of severe dysuria, haematuria (microscopic or macroscopic), nocturia, urinary frequency, urgency, or has not been sexually exposed.

The traditional two-glass test adds little value to the diagnosis.

All patients should be tested for *N. gonorrhoeae* (culture or NAAT) and *C. trachomatis* (NAAT) if available. If positive, management should be as specified in the STI management guideline-Sri Lanka.

Tests for *M. genitalium* and *U. urealyticum* are currently not widely available even in developed countries. However, testing male patients with urethritis for *M. genitalium* (and for macrolide resistance if detected) would be helpful in management and should be performed if available.

6.6. Management

6.6.1. General Advice

The following should be discussed:

- An explanation of the causes of NGU, including non-infective causes, and possible short term and long-term implications for the health of the patient and his partner.
- The side-effects of treatment and the importance of complying fully with it.
- The importance of their sex partner(s) being evaluated and treated
- Advice to abstain from sexual intercourse, or if that is not acceptable, the consistent use of condoms, until he has completed therapy and his partner(s) have been treated and till next follow-up.
- Safer sex
- The importance of complying with any follow-up arrangements made

6.6.2. Further investigations

Screen for other sexually transmitted infections.

6.6.3. Treatment

Treatment should be initiated as soon as the diagnosis is made and without waiting for the results of tests for Chlamydia and *N.gonorrhoeae.*

It is important to note that the inflammatory exudates may persist for an unknown length of time even when the causative organism has been eliminated.

Optimal management of NGU requires testing for *M. genitalium*, in addition to *C.trachomatis*, and the provision of appropriate antimicrobial therapy in the presence of a positive test.

Recommended treatment for first episode

- ☐ Doxycycline 100mg twice daily for 7 days

Alternative treatments

- ☐ Azithromycin 1g stat then 500mg once daily for the next 2 days (three days total treatment)

  or

- ☐ Ofloxacin 200mg twice a day or 400 mg once a day for 7 days

*There are emerging data regarding the prevalence of pre-treatment macrolide resistance in *M.genitalium*, conceivably due to the widespread use of azithromycin 1g , therefore extended regimen is recommended.

6.6.4. HIV infection

Management is same as in HIV negative.

6.7. Sexual contacts/partners

All sexual partners at risk should be assessed and offered epidemiological treatment with

- ☐ Doxycycline 100mg bd for 7 days

Alternative therapy

- ☐ Azithromycin 1 g stat then 500mg once daily for next 2 days

The duration of "look back" is arbitrary; 12 weeks is suggested for symptomatic men.

6.8. Follow-up for patients with NGU

Follow up after one to two weeks is important in order to assess compliance with therapy and the response to therapy. Patients who have not completed their medication or who have had unprotected sexual intercourse with an untreated partner should be re-treated with appropriate partner notification and management.

6.9. Persistent/recurrent NGU

This is empirically defined as persistent or recurrent symptomatic urethritis occurring 30-90 days following treatment of acute NGU. Its aetiology is probably multifactorial.

6.9.1. Diagnosis of persistent/recurrent NGU

Urethral smear and FPU specimen need to be evaluated for polymorphs as for NGU. If patients are symptomatic with no objective evidence of NGU an early morning smear should be undertaken and if negative, reassure. Wet smear or urine deposit for TV may be helpful in arriving at a diagnosis.

6.9.2. Management of persistent/recurrent NGU

Any treatment of persistent NGU should cover *M. genitalium* and *T. vaginalis* and/or bacterial vaginosis associated bacteria.

Ensure that the patient has completed the initial course of therapy and that re-infection is not a possible cause.

Only treat if patient has definite symptoms of urethritis and either physical signs on examination or microscopic evidence of urethritis.

Recommended treatments

If previously treated with doxycycline

- ☐ Azithromycin 1g stat then 500mg once daily for the next 2 days

plus

- ☐ Metronidazole 400mg twice daily for five days

Azithromycin should be started within 2 weeks of finishing doxycycline. This is not necessary if the person has tested *Mycoplasma genitalium* negative.

If previously treated with azithromycin:

- ☐ Doxycycline100mg twice daily for 7 days,

  Plus

- ☐ Metronidazole 400mg twice daily for 5 days

If not responding

- ☐ Moxifloxacin 400mg once daily for 10 days,

  Plus

- ☐ Metronidazole 400mg twice daily for five days

6.9.3. Continuing symptoms

There is only limited evidence on how best to manage patients who either remain symptomatic following a second course of treatment or who have frequent recurrences after treatment.

If the patient has urinary flow problems refer to urologist.

Chronic abacterial prostatitis and psychosexual causes should be considered in the differential diagnosis.

For men with persistent or recurrent urethritis, currently there is no evidence that retreatment of an appropriately treated sexual partner is beneficial.

As there is no evidence that female partners of men with persistent/recurrent NGU are at increased risk of pelvic inflammatory disease, they do not need to be retreated, if they have been treated appropriately at first.

It is likely that re-treatment of the sexual partner and index case will be beneficial if persistent/recurrent NGU in the index case resolves following extended therapy but subsequently recurs.

7. Genital Warts

7.1. Aetiology

Ano-genital warts are benign epithelial skin tumours caused by human papillomavirus (HPV). More than 100 genotypes of HPV have been identified. Most ano-genital warts are caused by HPV types 6 and 11. Some lesions may contain oncogenic types (e.g., HPV 16, 18) associated with genital tract dysplasia and cancers. Ano-genital warts are the 'tip of the iceberg' of genital infection with HPV, as many more people without warts have subclinical disease or latent infection. The mode of transmission is most often by sexual contact but HPV may be transmitted perinatally. HPV might be transmitted without penetration and oral sex. There is no good evidence to support transmission from fomites.

7.2. Clinical features

Symptoms

Patients may present with new lumps / growths on the genital mucosa.

Many are asymptomatic.

A large majority of patients with genital warts may experience little physical discomfort, but they may be disfiguring and psychologically distressing.

Ano-genital warts may be associated with irritation and soreness especially around the anus.

Symptoms such as bleeding from the urethra or anus, or distortion of urine flow may indicate internal lesions.

Signs

Warts may be single or multiple.

Those on the warm, moist, non-hair bearing skin tend to be soft and non-keratinised and those on the dry hairy skin are firm and keratinised.

More commonly warts present as soft cauliflower-like growths of varying size.

Less commonly, the warts are flat, plaque-like or pigmented.

Lesions may be broad based or pedunculated.

Rarely, warts may grow more rapidly and infiltrate local tissue or cause local erosion (Buschke-Lowenstein lesion).

Possible Sites

Lesions most commonly seen at the site of trauma at sexual intercourse but may occur at any site in the genital area.

Perianal lesions - common in both sexes but are seen more commonly in homosexual men.

Warts in the anal canal are associated with penetrative anal sex, and may indicate the need for samples to be taken from the ano-rectal region for other STIs, e.g. *N. gonorrhoeae* or *C. trachomatis.*

Occult lesions may be seen on the vagina, cervix, urethral meatus, and anal canal.

Extragenital lesions may be seen on the oral cavity, larynx, conjunctivae, and nasal cavity.

7.3. Diagnosis

Diagnosis is generally by visual inspection. However, some require examination under magnification.

Biopsy may be required to confirm the diagnosis in following circumstances

- If the diagnosis is uncertain
- Lesions do not respond to standard therapy
- The disease worsens during therapy
- The patient is immunocompromise
- Warts are atypical, pigmented, indurated, fixed, bleeding or ulcerated

It may be advisable to take a biopsy for histological verification in cases that do not respond to treatment.

Some patients present with intraepithelial neoplastic lesions in the anogenital region, either with or without coincidental benign warts. This includes intraepithelial neoplasia affecting the vulva (VIN), vagina (VaIN), perianal area (PAIN), anus (AIN) and penis (PIN). The diagnosis of intraepithelial neoplasia is made through histology. The presence of pigmentation, depigmentation, pruritus, underlying immune-deficiency, prior history of intraepithelial neoplasia on the same or distant anogenital sites, may raise suspicion of anogenital neoplasia.

7.4. Assessment of lesions

Examine the external ano-genital and surrounding skin under a good light, use magnifying glass as indicated.

Vaginal speculum examination should be carried out in females

In both sexes, proctoscopy may be indicated if history of receptive anal sex or following clearance of perianal warts. Meatoscopy and proctoscopy should be performed if there is a history of distortion of urine flow or bleeding from the urethra or anus respectively. Occasionally, urethroscopy is indicated for more proximal warts.

Classify warts as to morphology

Record lesions on genital maps at each visit indicating approximate number, distribution, and response to treatment

Examine extragenital sites (e.g. oral cavity) if clinically indicated.

7.5. Differential diagnosis

- Condylomata lata of secondary syphilis
- Pearly penile papillae
- Fordyce spots
- Molluscum contagiosum
- Vestibular papillomatosis
- Skin tags
- Malignancy

7.6. Management

7.6.1. General advice

Patients should be given a detailed explanation of their condition with particular emphasis on the long term implications for the health of themselves and their partners. This should be reinforced by giving them clear and accurate written information where possible.

Condoms have been shown to protect against the acquisition of HPV infection. Condom usage may prove beneficial and their use advisable, particularly in new relationships.

Latex condoms may be weakened if in contact with imiquimod

For most patients the psychological impact of warts is more distressing than the disease. Counselling is very important in the management of such patients.

Smokers may respond less well to treatment than non-smokers.

7.6.2. Further investigations

Screening for other concurrent sexually transmitted infections (STI) Cervical cytology is recommended for females.

The application of 5% acetic acid usually turns HPV-infected genital mucosal tissue to a whitish colour. However, the specificity and sensitivity of this procedure has not been defined. Therefore, the routine use of acetic acid to detect HPV infection is not recommended (unless there is a clinical indication).

7.6.3. Treatment

The primary goal:

Treatment choice depends on the morphology, number, and distribution of warts and patient preference. Treatment decisions should be made after discussing the appropriate options with the patient, taking into account their preference and convenience.

No definitive evidence suggests that any of the available treatments are superior to any other. No single treatment is ideal for all patients or all warts.

All treatments have failure and relapse rates.

Treatment may involve discomfort and local skin reactions.

Soft non-keratinized warts respond well to podophyllin and trichloroacetic acid.

Keratinized lesions are better treated with physical ablative methods such as cryotherapy, excision, or electrocautery

Local anaesthetic creams plus or minus injection with an injectable local anaesthetic (e.g. 2% lignocaine) could be used before ablative therapy to minimize discomfort. Avoid using adrenaline- containing anaesthetics for lesions on the penis and around the clitoris.

Imiquimod may be suitable for both keratinized and non-keratinized warts.

Imiquimod for up to 16 weeks are suitable for home treatment by patients. If chosen, the patient should be given a demonstration on lesion finding and treatment application.

An acceptable alternative for some patients is to forego treatment and wait for spontaneous resolution, particularly for warts in the vagina and anal canal.

Caution should be exercised using any modality of treatment because of the danger of oedema and necrosis of surrounding tissue. This is most pronounced with agents such as trichloroacetic acid, but can also be seen with other treatments including cryotherapy.

7.7. Treatments available

Treatment regimens are classified into patient applied and provider applied modalities.

7.7.1. Patient applied methods

1. Podophyllotoxin

A purified extract of podophyllin in the form of a 0.5% solution for 4 week cycles or 0.15% cream for 5 week cycles is suitable for patient applied treatment. Supervision by medical staff is recommended when the lesion area treated is greater than 4 cm2.

Treatment cycle consists of twice daily applications for 3 days, followed by 4 days rest for 4-5 cycles.

Discontinue treatment if significant side effects (e.g., soreness, ulceration)

Unprotected sexual contact should be avoided soon after application because of a possible irritant effect on the partner.

Podophyllotoxin is currently not available in STD clinics in Sri Lanka

Podophyllotoxin is not recommended for extragenital lesions such as anal warts and should not be used in pregnancy.

2. Imiquimod

Imiquimod is an immune response modifier.

Available as a 5% cream, it induces a cytokine response when applied to skin infected with HPV

Suitable for use on all external AGW but is not recommended for internal use

Cream is applied to lesions three times weekly (Every other day) at bed time and treatment area should be washed with soap and water 6-10 hours later. Treatment can be continued for up to 16 weeks.

Response to treatment may be delayed for some weeks.

Unprotected sexual intercourse should be avoided soon after application because of a possible irritant effect on the partner.

Latex condoms may be weakened if in contact with imiquimod.

Imiquimod is contraindicated in pregnancy

7.7.2. Provider applied treatment

1. Podophyllin

Podophyllin is a non-standardised cytotoxic compound.

It has been associated with severe local reactions.

Serious systemic adverse events have occurred when used outside guidelines.

Podophyllin is no longer recommended for internal lesions.

15-25% solution can be carefully applied to lesions, in clinic, once or twice weekly.

Caution:

Podophyllin has caused serious systemic side effects if applied in excess. Increased systemic absorption is likely if used internally. Limit application to 10 cm2 or 0.5 ml for external warts.

Treatment area should be washed 4 hours later

Podophyllin should be avoided on the vagina, cervix, in the anal canal, and for intra meatal warts.

Podophyllin is contraindicated in pregnancy.

2. Trichloroacetic acid

Trichloroacetic acid (TCA) 80-90% solution is suitable for weekly application in a specialist clinicsetting only. It acts as a caustic agent resulting in cellular necrosis.

An intense burning sensation may be experienced for 5-10 minutes after application.

Ulceration penetrating into the dermis may occur, and it is therefore not recommended for large volume warts.

TCA can be used at most anatomical sites.

Seek consultant opinion before using TCA for internal lesions.

Caution

TCA is extremely corrosive to the skin. Careful application and protection of the surrounding skin with petroleum jelly is recommended. A neutralising agent, for example sodium bicarbonate or talcum powder, should always be available in case of excess application or spills.

3. Interferons

Various regimens have been described using interferons alfa, beta, and gamma as creams and as intra-lesional or systemic injection. Interferons are currently not available for use in STD clinics in Sri Lanka

Interferons are not recommended for routine management of anogenital warts and should only be used on expert advice.

4. Physical ablation

a) Cryotherapy

Using a liquid nitrogen spray or a cryoprobe causes cytolysis at the dermal epidermal junction resulting in necrosis.

Treatment should be applied until a "halo" of freezing has been established a few millimetres round the treated lesion.

A freeze thaw technique should be used and lesions held frozen for 10-30 seconds depending upon size.

There are health and safety issues to be considered when storing and handling liquid nitrogen.

b) Excision

Removal of warts under local anaesthetic injection is particularly useful for pedunculated warts, and small numbers of keratinized ones at anatomically accessible sites. The use of an anaesthetic cream prior to local anaesthetic injection is recommended.

Haemostasis can be established using electrosurgery, silver nitrate or application of a haemostatic solution.

Treatment can be repeated as required. This is a good method of treatment for small numbers of warts and may be underused.

c) Electrosurgery

Three types are commonly used:

- Electrocautery
- Hyfrecator
- Monopolar surgery

d) Laser treatment

Patients need referral to a surgical unit. The carbon dioxide laser is especially suitable for large volume warts and can be used at difficult anatomical sites, such as the urethral meatus, or anal canal.

Caution:

All electrosurgical and laser techniques result in a plume of smoke which has been shown to contain HPV DNA, which may potentially cause infection of the respiratory tract in operating personnel. Therefore, masks should be worn and adequate air extraction provided during these procedures.

e) Combination Therapy

Limited evidence is available

Should only be attempted with consultant supervision

7.8. Management of sexual partners

Current sexual partner(s) may benefit from assessment as they may have undetected genital warts, undetected other STI, or need an explanation and advice about disease process in partner.

Female sexual partner (s) should be encouraged to undergo cervical cytology screening. Tracing of previous sexual partner(s) is not recommended.

7.9. Follow up

Review is recommended at end of course of treatment (about 6 weeks) to monitor response and assess need for changes in therapy. Patients whose original lesions have responded well to treatment but in whom new lesions are developing, can continue with current regimen.

Change is indicated if patient is not tolerating current treatment, or less than 50% response to current treatment by six weeks (8-12 weeks for imiquimod).

Relapses should be treated as appropriate to the lesion types.

7.10. HPV Vaccines

(Refer chapter 34)

7.11. Special considerations

7.11.1. Anatomical sites

Intravaginal

Cryotherapy, electrosurgery and trichloroacetic acid may be considered as treatment options. As for warts at other sites, particularly where they are asymptomatic, no treatment may also be considered as an option.

Cervix

Cervical intraepithelial neoplasia (CIN) has been documented in patients with cervical warts. Colposcopy is not recommended in women with genital warts, including those with cervical lesions, unless there is diagnostic uncertainty or clinical concern. Discuss treatment of cervical warts with a consultant Venereologist.

The following treatment modalities may be considered for cervical warts:

- cryotherapy
- electrosurgery
- trichloroacetic acid (obtain consultant opinion)
- laser ablation
- excision.

Urethral meatus

If base of lesions seen, treatment with cryotherapy, electrosurgery, laser ablation, podophyllotoxin or imiquimod under supervision. Lesions deeper in the urethra should be surgically ablated under direct vision, which require referral to a urologist.

Intra-anal

Treatment options include trichloroacetic acid (with consultant opinion), cryotherapy, electrosurgery, and laser abalation.

7.12. Pregnancy

Discuss management with a consultant Venereologist.

Avoid podophyllin and podophyllotoxin, because of possible teratogenic effects.

Imiquimod is not approved for use in pregnancy.

Treatment aims to minimise the number of lesions present at delivery to reduce the neonatal exposure to virus.

Potential problems for children are the development of laryngeal papillomatosis which occurs in about 4/100,000 births and ano-genital warts.

Very rarely a caesarean section is indicated because of obstruction of the vaginal outlet with warts or the presence of gross cervical warts. Caesarean section is not indicated to prevent laryngeal papillomatosis/anogenital warts in the neonate as both conditions are rare.

7.13. Breastfeeding

Imiquimod: Better avoid in lactating mothers

Podophyllotoxin: A risk to breastfed infants cannot be excluded and use is not recommended

7.14. Cervical cytology

All women with genital warts should undergo cervical cytology screening.

7.15. Immunosuppressed

People with impaired cell mediated immunity, for example organ transplant patients or those with HIV infection, are likely to have poor treatment responses, increased relapse rates, and an increased risk of developing ano-genital intraepithelial neoplasia.

Careful follow up is required in all these patients.

8. Trichomonas Vaginalis infection

8.1. Aetiology

Trichomoniasis is a sexually transmitted infection caused by the protozoa, *Trichomonas vaginalis*. In men, usually the infection is in the urethra though some men who are infected might not have symptoms. Others have NGU. Many infected women have symptoms. However, some women have minimal or no symptoms.

8.2. Clinical Features

Symptoms in women	**Symptoms in men**
Vaginal discharge Vulval itching Dysuria Offensive odour	often asymptomatic usually present as sexual partners of infected women. When symptomatic, the commonest presentation is with urethral discharge and/or dysuria. Other symptoms ; urethral irritation and frequency.
Signs in women	**Signs in men**
Vaginal discharge (thin and scanty to profuse and thick) The classical discharge of frothy yellow occurs in 10-30% of women. Approximately 2% of patients will have strawberry cervix appearance to the naked eye. 5-15% normal examination.	Urethral discharge - usually scanty or moderate amounts only. Rarely balanoposthitis. There may be no signs, even in the presence of symptoms suggesting urethritis.

8.3. Complications

T. vaginalis infection can have a detrimental outcome on pregnancy and is associated with preterm delivery, low birth weight and PID. Some infected men may develop symptoms of epididymitis or prostatitis following the infection.

8.4. Diagnosis

8.4.1. Laboratory investigations

Females

- Detection of Trichomonads in a wet mount of vaginal secretions collected from the posterior fornix.
- *Trichomonas vaginalis* culture from vaginal swab
- Nucleic acid amplification test using vaginal swab and urine

Males

- Detection of Trichomonads in a urethral smear or centrifuged sediment of urine.
- Urethral culture or NAAT of first void urine

8.5. Management

Recommended Treatment

- ☐ Metronidazole 400mg twice daily for 5-7 days
- ☐ Metronidazole 2g single dose

The single dose has the advantage of improved compliance and being cheaper, however there is some evidence to suggest that the failure rate is higher, especially if partners are not treated concurrently.

Alternative regimens:

- ☐ Tinidazole 2g orally in a single dose

Caution

Patients should be advised not to take alcohol for the duration of treatment and for at least 48 hours afterwards because of the possibility of a disulfiram-like reaction.

8.6. Pregnancy and breast feeding

Meta-analyses have concluded that there is no evidence of teratogenicity from the use of metronidazole in women during the first trimester of pregnancy. High doses (2g) should be avoided in pregnancy and lactation. Patients who fail to respond to first course of treatment often respond to a repeat course of standard treatment. If the patient does not respond to repeat course, seek advice from a consultant.

8.7. Management of sexual partners

Current partners should be screened for the full range of STIs and treated for TV irrespective of the results of investigations.

9. Bacterial Vaginosis

9.1. Introduction

Bacterial vaginosis (BV) is the commonest cause of abnormal vaginal discharge in women of childbearing age. Whilst BV is not regarded as a sexually transmitted disease, the prevalence is generally higher amongst sexually active than non-sexually active women.

9.2. Aetiology

BV is characterised by an overgrowth of predominantly anaerobic organisms (*Gardnerella vaginalis*, Prevotella species, *Mycoplasma hominis*, Mobiluncus species) in the vagina, leading to replacement of lactobacilli. Recent studies using molecular techniques have identified many other species including *Atopobium vaginalis*. It has been found to be in association with the use of intrauterine contraceptive devices and the practice of douching.

9.3. Clinical features

Symptoms
Offensive fishy smelling vaginal discharge
Usually not associated with soreness itching or irritation
Many women (approximately 50%) are asymptomatic
Signs
Thin, homogeneous discharge, coating the walls of the vagina and vestibule
Spontaneous onset and remission of BV can occur.

9.4. Complications

In pregnancy BV is associated with late miscarriage, preterm premature rupture of membranes, preterm birth and postpartum endometritis. The prevalence of BV is high in women with pelvic inflammatory disease (PID). BV has been associated with an increased incidence of vaginal cuff cellulitis and abscess formation following trans-vaginal hysterectomy. In some instances, BV may be associated with NGU in male partners.

9.5. Diagnosis

9.5.1. Amsel criteria

At least three of the four criteria should be present for the diagnosis to be confirmed.

(1) Thin, homogeneous and adherent (to vaginal walls) discharge

(2) Clue cells on microscopy of virginal smear

(3) pH of vaginal fluid >4.5

(4) Release of a fishy odour on adding 10% KOH to vaginal discharge.

9.5.2. A Gram stained vaginal smear, evaluated with the Hay/Ison criteria

grade 1 (Normal)	Lactobacillus morphotypes predominate
grade 2 (Intermediate)	Mixed flora with some Lactobacilli present,but Gardnerella or Mobiluncus morphotypes also present
grade 3 (BV)	Predominantly Gardnerella and/or Mobiluncus morphotypes. Few or absent Lactobacilli.

9.6. Management

9.6.1. General advice

Patients should be advised to avoid vaginal douching, use of shower gel, and use of antiseptic agents or shampoo in the bath.

9.6.2. Treatment

Treatment for BV is indicated for symptomatic women.

If a diagnosis of BV is made in asymptomatic women treatment may be offered.

Recommended treatments

- ☐ Metronidazole 400 mg orally twice daily for 5-7 days or
- ☐ Metronidazole 2 g orally single dose

Alternative treatments

- ☐ Intravaginal metronidazole gel (0.75%) once daily for 5 days or
- ☐ Intravaginal clindamycin cream (2%) once daily for 7 days or
- ☐ Clindamycin 300 mg orally twice daily for 7 days or
- ☐ Tinidazole 2 g orally single dose

Caution

With metronidazole treatment, alcohol should be avoided because of the possibility of a disulfiram-like action.

Clindamycin cream can weaken condoms.

9.7. Pregnancy and breast feeding

Meta-analyses have concluded that there is no evidence of teratogenicity from the use of metronidazole in women even during the first trimester of pregnancy. However, it is advisable to avoid oral metranidazole during the first trimester.

Metronidazole enters breast milk and may affect its taste. Small amounts of clindamycin enter breast milk.

It is prudent therefore to use an intravaginal treatment for lactating women.

It is preferable to avoid high (2g single) dose during pregnancy and breast feeding.

9.8. Sexual partners

Routine screening and treatment of male partners are not indicated.

9.9. Follow up

A test of cure is not required.

9.10. Recurrent bacterial vaginosis

- ☐ Metronidazole orally 400 mg bd for 3 days at the start and end of menstruation, combined with
- ☐ Fluconazole150 mg as a single dose if there is a history of candidiasis.

10. Candidiasis

10.1. Aetiology

Candidiasis is a common fungal infection usually caused by Candida albicans (80-92%) but occasionally other candida species may be the cause e.g; C. glabrata ,C.tropicalis, C. krusei and Saccharomyces cerevisiae. It can be sexually transmissible. Both men and women can be affected. Among women, candidiasis is presented as vulvovaginal candidiasis .and 10-20% women during reproductive years may harbor candida species in absence of symptoms. These women do not require treatment, but most women have had at least one symptomatic vaginal infection during their life time. Among men, it causes balanoposthitis

10.2. Clinical features

Female

Symptoms	Signs
Vulval and vaginal itching Vulval and vaginal soreness, redness and vulval swelling Non offensive vaginal discharge Superficial dyspareunia External dysuria	Vulvitis with erythema, fissuring and excoriation Discharge (may be curd-like, non-offensive) can visualize inside vagina with speculum examination Satellite lesions Vulval oedema

These symptoms or signs are not pathognomonic for vulvovaginal Candidiasis; because many women may have other skin conditions e.g. dermatitis, allergic reactions, or lichen sclerosus.

Most of the time vulvo-vaginal candidiasis is an uncomplicated condition.

However, in the presence of following conditions, it is considered as complicated.

- Severe symptoms (most of the time it is a subjective assessment)
- Pregnancy
- Recurrent vulvovaginal candidiasis (more than 4 attacks per year)
- Presence of non-albicans species
- Immunocompromised host (e.g., diabetes mellitus, immunosuppression

Male

Symptoms	Signs
Local rash – may be scaly or crack like ulcerations or fissuring on fore skin/glans penis	Erythema, oedema
Soreness	Scaling, ulceration, fissuring
Itching	Crusting
Odour	Exudate
Inability to retract the foreskin	Odour
Discharge from the glans/beneath the foreskin	Phimosis

10.3. Diagnosis

On many occasions, diagnosis can be made on clinical grounds.

10.4. Investigations

- Gram stain or wet mount with 10% KOH of vaginal discharge collected from lateral vaginal wall or anterior fornix looking for spores/hyphae or pseudo hyphae.
- Culture, in Sabouraud's media (should be considered in all symptomatic cases where microscopy is inconclusive or in patients with recurrent candidiasis)

10.5. Management

10.5.1. General advice

Use of vulval moisturizers as soap substitute

Avoid tight fitting synthetic clothing and local irritants (e.g. perfumed products)

10.5.2. Treatment for uncomplicated vulvovaginal Candidiasis

In uncomplicated vulvo vaginal candidiasis clinical and mycological cure rate of over 80% with all topical and oral Azole therapy and the, choice is a matter of personal preference, availability and affordability.

Topical Therapies (use one of the following)

- ☐ Clotrimazole* Pessary 500mg single dose at night
- ☐ Clotrimazole* Pessary 200mg x 3 nights
- ☐ Clotrimazole* Pessary 100mg x 6 nights
- ☐ Clotrimazole* Vaginal cream (10%) 5g stat
- ☐ Micanazole cream 2% 5g intra vaginally x 7 nights

- ☐ Miconazole** Ovule 1.2g stat
- ☐ Miconazole** Pessary 100mg x 14 nights
- ☐ Nystatin Pessary (100,000 units) 1-2 x 14 nights
- ☐ Nystatin vaginal cream (100,000units) 4g x 14 nights

NB: *Effect on latex condoms and diaphragms not known

** Product damages latex condoms and diaphragm

Oral Therapies (use one of the following)

- ☐ Fluconazole* Capsule 150mg single dose
- ☐ Itraconazole* Capsule 200mg bd x 1day

NB:*Avoid in pregnancy/risk of pregnancy and breast feeding

10.6. Sexual Partner(s)

There is no evidence to support treatment of asymptomatic male sexual partners.

10.7. Follow Up

If symptoms resolve with treatment, follow up is not necessary. No need of test of cure.

10.8. Complicated Vulvovaginal Candidiasis.

10.8.1. Pregnancy

Asymptomatic colonization with Candida species is higher in pregnancy (30-40%) and symptomatic candidiasis is a frequent condition and topical azoles are recommended for the treatment for symptomatic candidiasis. Longer courses may be necessary. Oral therapy is contraindicated.

10.8.2. Recurrent candidiasis

Four or more episodes of symptomatic candidiasis annually.

Exclude diabetes mellitus. Other risk factors include underlying immunodeficiency, corticosteroid use, and frequent antibiotic use. Most women with recurrent candidiasis apparent predisposing or underlying conditions cannot be defined.

Diagnostic Considerations

Vaginal cultures should be obtained from women with complicated vulvovaginal candidiasis to confirm clinical diagnosis and identify unusual colonization, including non albicans species, particularly *Candida glabrata.* (*C. glabrata* does not form pseudohyphae or hyphae and is not easily recognized on microscopy.)

Further Investigations

Random blood glucose

General Advice

As per uncomplicated disease

Treatment for recurrent candidiasis

Principles of therapy include induction using one of the above mentioned regimens or a 100 mg, 150 mg, or 200 mg oral dose of fluconazole every third day for a total of 3 doses [day 1, 4, and 7]) followed by a maintenance regime for 6 months. Cessation of therapy may result in relapse.

For the induction, topical imidazole therapy can be increased to 10-14 days according to symptomatic response.

Regimens for maintenance (one of below regimens)

- ☐ Oral Fluconazole* 100mg weekly x 6 months
- ☐ Clotrimazole pessary 500mg weekly x 6 months
- ☐ Itraconazole 50-100 mg daily x6 months
- ☐ Ketoconazole* 100mg daily x 6 months

*Avoid in pregnancy/ risk of pregnancy and breast feeding

Monitor Liver Function tests monthly if patient is on maintenance therapy

10.8.3. Candidiasis in Diabetes mellitus

symptomatic candidiasis is more prevalent among poorly controlled diabetes. Candida glabrata is the most prevalent non albican species identified in diabetics.

10.8.4. Candidiasis in HIV Infection

Same as HIV negative individuals

10.8.5. Non-Albicans Species

Majority are *Candida glabrata* and are still susceptible to available azoles, although most non-albicans species have higher MICs. *Candida krusei* is intrinsically resistant to fluconazole.

For non-albicans infection longer courses may be needed although there is no data on optimum duration; two weeks is suggested. For non- albicans infection first line of treatment is the

- ☐ Nystatin pessaries 100,000 units daily for 14 nights.

11. Ophthalmia Neonatorum

Conjunctival inflammation that occurs during the first 28 days of life.

11.1. Aetiology

It is a bacterial or viral infection acquired during passage through an infected birth canal. Infective causes can be sexually transmitted agents such as *N. gonorrhoeae* and *Chlamydia trachomatis* or other non-sexually transmitted agents.

11.2. Clinical features

Gonococcal ON	Chlamydial ON
Incubation period – 2-6 days Typically, bilateral Purulent discharge Pseudomembranous and membranous reaction Oedema of eye Lids Conjunctival infection	Incubation period 5-12 days Unilateral Mucopurulent/Sticky/Serous discharge Follicular conjunctival reaction Diffuse infection, milder than GC

Dual infection with *N. gonorrhoeae* and Chlamydia can occur.

11.3. Complications

If not treated promptly GC ON may cause pan ophthalmitis, perforation of cornea, scarring, leading to blindness.

Chlamydia ON can lead to impaired vision.

11.4. Diagnosis

- Specimens should be obtained from the everted eyelid
- Gram stained smear and gonococcal culture from the conjunctival discharge
- Appropriate chlamydial testing should be done simultaneously. Specimens must contain conjunctival cells
- Gonococcal Culture from nasopharynx and rectum
- HSV PCR
- Other causes of neonatal ophthalmia include *Moraxella catarrhalis* and other Neisseria species that are indistinguishable from *N. gonorrhoeae* on Gram-stained smear, but can be

differentiated by culture. Therefore, a positive culture is essential for a definitive diagnosis of gonococcal infection.

11.5. Management

Gonococcal ophthalmia is strongly suspected when intracellular gram-negative diplococci are identified in conjunctival exudate, justifying presumptive treatment for gonorrhoea, after appropriate cultures for *N. gonorrhoeae* are obtained.

Presumptive treatment for *N. gonorrhoeae* might be indicated for new-borns who are at increased risk for gonococcal ophthalmia and who have conjunctivitis but do not have gonococci in a Gram-stained smear of conjunctival exudate.

Infants who have gonococcal ophthalmia should be managed in consultation with the ophthalmologist.

Infants with gonorrhoeal ON should be hospitalized and evaluate for disseminated disease (e.g., arthritis, sepsis, meningitis)

The infant's mother and her sexual partners should be treated for gonorrhoea.

11.5.1. Recommended treatment for gonococcal ophthalmia neonatorum

Single dose of Ceftriaxone is adequate therapy for gonococcal conjunctivitis.

Chlamydia etiology should be considered for all infants aged <30 days who have conjunctivitis.

- ☐ Ceftriaxone 50 mg/kg IM in a single dose, not to exceed 125 mg.

Ceftriaxone should be administered cautiously to hyperbilirubinemic infants, especially those born prematurely. Topical antibiotic therapy is unnecessary.

11.5.2. Alternative regimens

- ☐ Spectinomycin 25 mg/kg IM as a single dose to a maximum of 75 mg.
- ☐ Kanamycin 25 mg/kg IM as a single dose to a maximum of 75 mg.

11.5.3. Recommended treatment for chlamydial ophthalmia neonatorum

- ☐ Erythromycin 50 mg/kg/day orally divided into 4 doses daily for 14 days.

Topical therapy is not indicated.

11.6. Follow-Up

Follow-up of infants is recommended to determine whether initial treatment was effective. TOC is necessary in gonococcal ON.

The efficacy of erythromycin treatment is approximately 80%; a second course of therapy might be required.

If duration of ophthalmia is greater than 3 weeks, the possibility of concomitant chlamydial pneumonia should be considered.

12. Pelvic Inflammatory Disease

12.1. Introduction

PID is usually the result of infection ascending from the endocervix causing endometritis, salphingitis, parametritis, oophoritis, tuboovarian abscess and or pelvic peritonitis. It may present as a single entity or a combination of the above conditions.

12.2. Aetiology

Neisseria gonorrhoeae and *Chlamydia trachomatis* have been identified as common causative agents, whilst *Gardnerella vaginalis*, anaerobes and other organisms associated with bacterial vaginosis may also be implicated. Mycoplasmas including *Mycoplasma genitalium* have also been associated with upper genital tract infection in women. Pathogen negative PID is common.

12.3. Clinical Features

PID may be symptomatic or asymptomatic. Even when present, clinical symptoms and signs lack sensitivity and specificity

Symptoms	Signs
lower abdominal pain abnormal vaginal bleeding abnormal vaginal/cervical mucopurulent discharge deep dyspareunia Asymptomatic	lower abdominal tenderness which is usually bilateral adnexal tenderness on bimanual examination cervical motion tenderness on bimanual vaginal examination fever, oral temperature (>38°C) >101 ^{0}F Mucopurulent cervical discharge

12.4. Diagnosis

- Endo-cervical swab for Gram staining, gonococcal culture and chlamydia testing
- Other general investigations [high WBC/DC counts, elevated ESR, or elevated CRP]
- Cervical swabs for NAAT for gonorrhoea and Chlamydia
- UFR, urine for culture and ABST- if indicated
- Endometrial biopsy and ultrasound scanning may also be helpful when there is diagnostic difficulty. It has limited value in uncomplicated PID but may be helpful if there is an abscess or hydrosalpinx.
- Pregnancy test (if indicated)
- Screen for other STIs

12.5. Specific Diagnosis of PID

- Endometrial biopsy with histopathological evidence of endometritis
- Transvaginal sonography or magnetic resonances imaging techniques showing thickened, fluid -filled tubes with or without free fluid or tubo-ovarian complex or Doppler ultra sound scan suggestive pelvic infection (tubal hyperemia)
- Laparoscopy (strongly support a diagnosis of PID but is not justified routinely) diagnose salphingitis but not endometritis
- The diagnosis of PID is unlikely in the absence of endocervical pus cells. However, their presence may not always be indicative of PID.

It is important to exclude the following conditions, before arriving at a diagnosis of PID.

- Ectopic pregnancy – pregnancy should be excluded in all women suspected of having PID.
- Acute appendicitis
- Endometriosis
- Complications of an ovarian cyst e.g. Torsion or rupture – often of sudden onset
- Urinary tract infection -often associated with dysuria and urinary frequency
- Irritable bowel syndrome -alteration of bowel habits for a long period
- Functional pain – may be associated with longstanding symptoms

12.6. Management

It is likely that delaying treatment increases the risk of long term sequelae such as ectopic pregnancy, infertility and pelvic pain. Because of this, and the lack of definitive diagnostic criteria, a low threshold for empiric treatment of PID is recommended.

A detailed explanation of their condition with particular emphasis on the long-term implications for the health of themselves and their partner(s) should be provided.

12.6.1. General Advice

- Rest is advised for those with severe disease.
- Patients should be advised to avoid unprotected oral or genital intercourse until they, and their partner(s), have completed treatment and follow-up.
- Outpatient therapy is as effective as inpatient treatment for patients with mild to moderate PID as assessed clinically.
- Intravenous therapy is recommended for patients with more severe disease

12.6.2. Indications for hospitalization

- If a surgical emergency cannot be excluded
- Lack of response and intolerance to oral therapy
- Clinically severe disease
- Presence of a tubo-ovarian abscess
- Pregnancy
- When diagnosis is uncertain.

12.6.3. Treatment

All the recommended regimens are of similar efficacy.

Recommended outpatient regimens

- ☐ Ceftriaxone 1g IM single dose followed by
- ☐ Oral doxycycline 100mg twice daily plus metronidazole 400mg twice daily for 14 days

  or
- ☐ Oral ofloxacin 400mg twice daily plus oral metronidazole 400mg twice daily for 14 days

  or
- ☐ Oral moxifloxacin 400mg once daily for 14 days

Inpatient Regimens

- ☐ IV ceftriaxone 2g daily and IV doxycycline 100mg twice daily (oral if tolerated)

  followed by
- ☐ oral doxycycline 100mg twice daily plus oral metronidazole 400mg twice daily for a total of 14 days.

Parenteral therapy may be discontinued 24hours after the patient improves clinically and oral doxycycline/metronidazole therapy should be continued for a total of 14 days.

Oral doxycycline is as effective as intravenous preparation

- ☐ IV Clindamycin 900mg three times daily and IV Gentamycin 2mg/kg loading dose followed by 1.5mg/kg three times daily

Followed by

- ☐ oral Clindamycin 450mg Qid or oral Doxycyclin 100 mg twice daily 14 days
- ☐ and oral Metronidazole 400mg twice daily to complete 14 days

Alternative Regimens

e.g., in allergy or intolerance

- ☐ IV ofloxacin 400mg bd plus IV metronidazole 500mg TID for 14 days

  OR
- ☐ oral doxycycline 100mg BD plus IV metronidazole 500mg TID for 14 days

12.7. Pregnancy and Breastfeeding

In pregnancy PID is associated with an increase risk in both maternal morbidity and preterm delivery. Therefore, inward and intravenous therapy is advised

- ☐ IM ceftriaxone plus oral/IV erythromycin, with the possible addition of oral/IV metronidazole 500mg 3 times daily in clinically severe disease.

12.8. HIV Infection

Women with HIV infection may have more severe symptoms associated with PID but respond well to standard antibiotic therapy. Treatment is as HIV negative patient. (TB and other opportunistic infections should be considered)

12.9. Intrauterine contraceptive Devices

The risk for PID associated with IUD use is confined to the first 3 weeks after insertion.

If an IUD user is diagnosed of PID, the IUD does not need to be removed.

However, women should be started on treatment according to the guideline.

If no clinical improvement occurs within 48-72 hours of initiating treatment removing of IUD can be considered.

12.10. Sexual Partners

Empirical treatment for gonorrhoea and chlamydia is recommended for all current male sexual contacts.

Other recent sexual partners may also be offered screening

Tracing of contacts within a 6-month period of onset of symptoms is recommended but this time period may be influenced by the sexual history

Partners should be advised to avoid intercourse until they and the index patient have completed the treatment course.

12.11. Follow Up

Review at 72 hours is recommended, if no substantial improvement in clinical symptoms and signs, refer for inward gynaecological management.

Further review to ensure:

- adequate clinical response to treatment
- compliance with oral antibiotics
- appropriate investigations including TOC
- screening and treatment of sexual contacts
- awareness of the significance of PID and its sequelae

12.12. Complications

- Ectopic pregnancy
- Subfertility
- Septicaemia
- Fitz-Hugh-Curtis syndrome

The Fitz-Hugh-Curtis syndrome comprises right upper quadrant pain associated with perihepatitis which occurs in up to 10-20% of women with PID.

13. Epididymo-orchitis

13.1. Aetiology

Epididymo-orchitis is an inflammatory process of the epididymis with or without testicular involvement. It is usually caused by either sexually transmitted pathogens ascending from urethra or non-sexually transmitted uropathogens spreading from the urinary tract.

- In men younger than 35 years of age epididymo-orchitis is most often caused by sexually transmitted pathogens such as *Chlamydia trachomatis* and *Neisseria gonorrhoeae*.
- In men older than 35 years of age epididymo-orchitis is most often caused by non-sexually transmitted Gram negative enteric organisms causing urinary tract infections. There is crossover between these groups and complete sexual history taking is imperative.

Epididymo- orchitis caused by sexually transmitted enteric organisms also occurs in homosexual men who engage in insertive anal intercourse. Gram-negative enteric organisms are more commonly the cause of Epididymo-orchitis if recent instrumentation or catheterization has occurred. Anatomical abnormalities of the urinary tract are common in the group infected with Gram negative enteric organisms and further investigation of the urinary tract should be considered in all such patients but especially in those older than 50 years.

13.2. Clinical Features

Symptoms
Acute onset usually presents with unilateral testicular pain with or without swelling Symptoms of urethritis – Urethral discharge, dysuria, irritation inside the urethra; However, the urethritis is often asymptomatic. Symptoms of UTI – Dysuria, frequency and urgency
Signs
Unilateral swelling and tenderness of epididymis with or without testicular involvement. Urethral discharge Hydrocoele Erythema and/or oedema of the scrotum on the affected side Pyrexia

13.3. Differential diagnosis

- Testicular tortion/ischaemia/infarction
- Abscess formation and/or scrotal fixation
- Testicular or epididymal tumour
- Mumps epididymo-orchitis
- Tuberculous epididymitis
- Fungal epididymitis

Torsion of the spermatic cord (testicular torsion) is the main differential diagnosis. It is a surgical emergency. It should be considered in all patients and should be excluded first as testicular salvage is required with in six hours and it becomes decreasingly likely with time. Torsion is more likely if the onset of the pain is sudden and severe. Tests performed during the initial visit show neither the presence of urethritis nor probable urinary tract infection. Torsion is more common in men who are younger than 20 years of age (the peak incidence is in adolescents), but can occur at any age.

13.4. Diagnosis

The following should be performed

- Urethral swab stained by Gram's method and examined microscopically for the diagnosis of urethritis, **(≥ 5 polymorphonuclear leucocytes per high power field x1000)**
- Urethral culture for N gonorrhoeae
- If available a nucleic acid test amplification test is preferable as it is much more sensitive.
- Microscopy and culture of mid-stream urine for bacteria.

If there is suspicion of testicular torsion, immediate ultra sound scan should be arranged as need urgent surgical intervention

All patients with sexually transmitted epididymo-orchitis should be screened for other sexually transmitted infections.

13.5. Management:

13.5.1. General advice

- Bed rest, scrotal elevation and support, and analgesics are recommended.
- Non-steroidal anti-inflammatory drugs may be helpful.
- Patients should be advised to avoid unprotected sexual intercourse until they and their partner(s) have completed treatment and follow-up.
- Patients should be given a detailed explanation of their condition with particular emphasis on the long- term implications for the health of themselves and their partner(s). This should be reinforced by giving them clear and accurate written information if available.

13.5.2. Treatment

Empirical therapy should be given to all patients with epididymo-orchitis before culture results are available.

The antibiotic regimen chosen should be determined in light of the immediate tests as well as age, sexual history, any recent instrumentation or catheterization and any known urinary tract abnormalities in the patient.

Antibiotics used for sexually transmitted pathogens may need to be varied according to local knowledge of antibiotic sensitivities.

Recommended Regimens for epididymo-orchitis most probably due to gonococcal infection:

First line

- ☐ Ceftriaxone 1g IM single dose

  plus

- ☐ Doxycycline 100mg orally twice daily for 14 day

Second line

- ☐ Ofloxacin 200mg orally twice daily for 14 days
- ☐ Levofloxacin 500mg once daily for 10 days

For epididymo-orchitis most probably due to Chlamydia infection or other non-gonococcal, non-enteric organisms:

- ☐ Doxycycline 100mg orally twice daily for 10-14 days

For epididymo-orchitis most probably due to enteric organisms:

- ☐ Ofloxacin 200mg orally twice daily for 14 days

  or

- ☐ Levofloxacin 500mg once daily for 10 days

If Mycoplasma genitalium testing has been performed and confirmed,

- ☐ Moxifloxacin 400mg once daily for 14 days

Where gonorrhoea is unlikely, using Ofloxacin could be considered. Ofloxacin treats N. *gonorrhoea, C. trachomatis* and most uropathogens with good penetration in to prostate; however, it is not the first line treatment for *N. gonorrhoea* due to increasing bacterial resistance to quinolones.

13.6. Follow-up

If there is no improvement in the patient's condition after 3 days then the diagnosis should be reassessed and therapy re-evaluated. Reassessment is required if signs of swelling and tenderness persist after antimicrobial therapy is completed although in some cases symptoms take longer than this to settle. Surgical assessment may be appropriate in these cases.

13.7. Sexual partners

If the epididymo-orchitis is caused by, or likely to be caused by, a sexually transmitted pathogen such as *N. gonorrhoeae* or *C. trachomatis* then sexual contacts must be evaluated. All partners should be treated epidemiologically.

14. Sexually Acquired Reactive Arthritis

14.1. Introduction

Sexually acquired reactive arthritis (SARA) is a reactive arthritis (ReA) triggered by a sexually transmitted pathogen in the genital tract. It may also include inflammation of the tendons and fascia and have other systemic manifestations. Reiter's syndrome described the classic triad of urethritis, arthritis and conjunctivitis, with or without other cutaneous or systemic involvement, but is no longer used in current practice.

SARA should be considered with any acute arthritis, especially in a young adult. In such cases it is important to screen for sexually transmitted infections (STIs) and treat appropriately. Management may require input from several specialities depending on the symptoms and severity. Establishment of SARA appears to involve an immune response to an infective pathogen and alteration of its usual state to allow it to persist in the synovium in an aberrant form while generating an inflammatory response.

It is unclear why some individuals develop STI complications, including SARA, and why not all STIs are associated with the condition. Lower genital tract infections, either urethritis or cervicitis, are most commonly associated with the condition, with objective features of SARA in 0.8–4% of cases; although this now appears to be much lower in clinical practice.

14.2. Aetiology

- The most frequently reported infection is *Chlamydia trachomatis* in up to two-thirds of cases
- *Neisseria gonorrhoeae* has been reported in up to 16%, independent of its potential to cause septic arthritis
- *Mycoplasma genitalium*, which can cause urethritis
- *Ureaplasma urealyticum* have been reported in a few cases of SARA but a causal role in the development of SARA has not been established.

It has been suggested that ocular strains of *C. trachomatis* (trachoma), rather than genital strains, are preferentially associated with SARA 5 but more work is needed to substantiate this and to determine whether ocular serovars are associated with genital tract infection.

14.2.1. Risk factors for SARA

- Gender: SARA appears to occur over ten times more frequently in men compared to women but under-recognition or milder disease in women may be a factor.
- HLA-B27: The gene is 10 times more common in those with SARA and is associated with more severe disease.
- HIV infection: A rising incidence of spondyloarthritis, including ReA, has been seen in sub-Saharan Africa in association with HIV.

14.2.2. Associations with SARA

- There is a recognized association with other spondyloarthritides, most commonly with ankylosing spondylitis but also with psoriatic arthritis, inflammatory bowel disease.

- Hence, there may be a personal or family history of spondyloarthritis, iritis, psoriasis, inflammatory bowel disease
- It may be associated with syndrome of Synovitis, acne, pustulosis, hyperostosis, osteitis (SAPHO).

14.3. Clinical presentation

- There is a history of sexual intercourse, usually with a new partner, within three months of arthritis symptoms.
- Most men give a recent history of genital symptoms of urethral discharge, dysuria and/or testicular pain or swelling. The genital symptoms occur on average 14 days before the arthritis develops.
- Women are more likely to be asymptomatic but may describe altered vaginal discharge, inter-menstrual or post-coital bleeding, pelvic pain or deep dyspareunia.
- Rectal STIs, including gonorrhoea and chlamydia, may be asymptomatic but can present with rectal discharge, bleeding, discomfort and tenesmus.
- Joint pain, with/without swelling and stiffness, especially at the knees, ankles and feet (It is typically inflammatory in nature with morning stiffness and nocturnal pain).
- The distribution is usually asymmetrical and affects less than six joints.

Other musculoskeletal symptoms include:

- Enthesitis and fasciitis (20–40%), which may cause difficulty in walking
- Tenosynovitis (30%) and dactylitis (16%)
- Low back pain and stiffness is common and sacro-iliitis occurs in approximately 10% of patients.

Extra-articular symptoms include:

- Irritable eyes, conjunctivitis (30%)
- Less commonly uveitis, which is more likely if pain is present (2–11%)

Skin manifestations include

- psoriasiform rash (12%) with genital lesions
- circinate balanitis/vulvitis (14–40%)
- pustular psoriasis on the soles of the feet (keratoderma blennorrhagica)
- Geographical tongue (16%),
- Oral ulceration (10%)
- Nail dystrophy

Systemic symptoms

- Malaise, fatigue, weight loss and fever are seen in some (10%)

Renal manifestations such as

- Proteinuria
- microscopic haematuria
- aseptic pyuria, which may be due to concurrent urethritis, is common (50%)
- but is usually asymptomatic.

Rare manifestations

- Cardiac: left ventricular dilatation, pericarditis, aortic valve disease
- Renal: glomerulonephritis, IgA nephropathy.
- Neurological: meningoencephalitis, nerve palsies.
- Other: thrombophlebitis, subcutaneous nodules

14.4. Complications

In the majority of individuals with SARA the disease is self-limiting with a mean first episode duration of 4-6 months followed by full recovery.

Approximately 50% have recurrent episode at variable intervals.

The complications of SARA are principally due to aggressive arthritis and are more likely if the individual possesses the HLA-B27 gene.

Chronicity with symptoms persisting for more than one year in approximately 17% of patient

Erosive joint damage especially affects the small joints of the feet with 12% exhibiting foot deformities, although severe deformity is rare.

Persistent locomotor disability occurs in approximately 15%,

Inadequately treated, or recurrent, acute anterior uveitis may lead rapidly to cataract formation and blindness in a minority.

14.5. Investigations

- NAAT for *Chlamydia trachomatis* and NAAT with culture and sensitivity test for *Neisseria gonorrhoeae* (vulvo-vaginal sample in women, urine in men, throat and rectal samples depending on sexual history and symptoms) if available
- NAAT for *Mycoplasma genitalium* if available, particularly important for men with urethritis (endocervical sample in women, urine in men).
- Urethral (men) or endocervical (women) samples for Gram staining and culture if genital symptoms are present. Microscopic confirmation is by a Gram stained urethral smear demonstrating ≥ 5 polymorphonuclear leucocytes (PMNLs) per high power (x1000) microscopic field, or ≥ 10 PMNLs per high power (x1000) microscopic field on a first void urine sample.
- HIV antibody test (fourth generation – antigen/antibody)
- Screening for other STIs (VDRL/TPPA, Hep B S Ag, Hep C Ab)
- Synovial fluid analysis (Cell count, Gram stain, crystals) and culture (where septic arthritis is suspected).
- To measure acute phase response - Erythrocyte sedimentation rate or C-reactive protein.
- Other - Full blood count, Urinalysis.

14.5.1. Other tests that may be required

- Liver and renal function tests
- Blood cultures, Stool culture (if enteric Re A suspected)
- X Rays of affected joints, MRI of sacro-iliac joints
- Synovial biopsy
- Echocardiogram

- Rheumatoid factor and anti-cyclic citrullinated peptide antibodies to exclude rheumatoid arthritis, autoantibodies (systemic lupus erythematosus)
- Plasma urate (gout)
- Chest X-ray
- HLA-B27
- Ultrasound of affected joints or entheses
- ECG (Electrocardiographic abnormalities may occur 5–14%).
- Ophthalmic examination with slit lamp

14.6. Management in the acute medical setting

The diagnosis of SARA depends on recognizing the typical features of spondyloarthritis and genital infection with a sexually transmitted pathogen.

Close liaison between STI physicians, rheumatologists and the microbiology department are advised to ensure appropriate specimens are obtained to achieve optimum management.

Those with ocular or visual symptoms should be referred to an ophthalmologist for ocular assessment, including slit-lamp assessment.

The condition and prognosis should be fully discussed with the patient.

14.7. Treatment

Antimicrobial therapy for genital tract infections should be as in uncomplicated infection

(Rapid treatment may reduce the risk of arthritis developing)

It is controversial whether treatment alters the developing extra genital lesions like arthritis once it is established.

The treatment should be according to the treatment guidelines.

Referral to other relevant specialties is important.

First-line treatment of arthritis and other musculoskeletal manifestations.

- ☐ Rest
- ☐ Regular non-steroidal anti-inflammatory drugs (NSAIDs).

There is no definitive NSAID of choice and the individual response to medication varies.

NSAIDs have significant gastrointestinal (GI), renal and cardiovascular (CV) side effects and appropriate assessment should be made before prescribing these drugs.

NSAIDs should always be used at the lowest effective dose for the shortest time period possible.

- ☐ Corticosteroid injections may be useful for single troublesome joints, including the sacro-iliac joint, and enthesitis.

Second-line therapies

Reserved for those who have moderate/severe arthritis, or where there is erosive joint damage, or who have failed first-line therapy.

The most common second line therapies are disease modifying antirheumatic drugs are

- ☐ Sulphasalazine, Methotrexate and Azathioprine.
- ☐ Less common therapies are, systemic corticosteroids, tumour necrosis factor (TNF), α blockers (but experience in SARA is limited).

Surgical interventions can include

- ☐ synovectomy and arthroplasty.

skin and mucous membrane lesions

- ☐ Mild lesions do not require any specific treatment.
- ☐ Topical keratinolytic agents, corticosteroids, and vitamin D3 analogues are options for mild/moderate cases, while more severe situations may require methotrexate,

Eye lesions

- ☐ should be managed with ophthalmological advice
- ☐ uveitis should be treated promptly with topical or oral corticosteroids.

14.8. Partner notification and management

This is required for all diagnosed with STIs, to avoid reinfection, and the patient should be advised to avoid all sexual contact until they and their sexual partner(s) have completed treatment.

14.9. Prognosis

SARA is a self-limiting condition in the majority of cases with full resolution within 4–6 months on average, although 50% of patients may experience recurrent episodes and up to 17% have chronic symptoms persisting for more than one year. Joint-related complications of SARA relate to aggressive arthritis, and are more common in individuals who are positive for the HLA-B27 gene. Persistent locomotor disability occurs in approximately 15% of cases. Ankylosing spondylitis has been described in up to 23% of patients, although it is unclear if this is a complication of SARA or a coexisting disease in a genetically predisposed population. Uveitis that is inadequately treated, or recurrent, may result in cataract formation and irreversible visual loss in some cases.

14.10. Follow-up

Follow-up should be under the guidance of the relevant specialist and depends on the severity of the symptoms and on the genital infection identified. It is important that patients are actively involved in their care, including self-management, and they should be advised to avoid potentially 'triggering infections' in the future. These may be genital or enteric. Therefore, safer sexual practice and good food hygiene should be discussed.

15. Prostatitis

Prostatitis is inflammation of the prostate glands. It can be acute or chronic.

15.1. Acute Prostatitis

15.1.1. Aetiology

Acute prostatitis is usually caused by urinary tract pathogens.

- Gram negative organisms; *Escherichia coli*, *Proteus* spp, *Klebsiella* spp and Pseudomonas spp
- Enterococci
- Staphylococcus aureus
- Rarely anaerobes such as Bacteroides spp, Gonorrhoea, and Chlamydia

It can occur spontaneously or after medical procedure as prostate biopsy and can last several weeks.

15.1.2. Clinical features

Symptoms
Dysuria, frequency and urgency
Low back pain, perineal, penile and sometimes rectal pain
Fever and rigors, arthralgia and myalgia
Signs
An extremely tender, swollen and tense, smooth textured prostate gland which is warm to touch
Pyrexia and tachycardia

15.1.3. Complications

Patients with acute prostatitis may present with acute retention of urine secondary to prostatic oedema.

Chronic prostatitis, prostatic abscess, epididymitis and sepsis

15.1.4. Diagnosis

- Mid-stream urine sample for full report, culture and antibiotic sensitivity.
- Blood cultures for bacteria and antibiotic sensitivity.
- Prostatic massage should not be performed on patients with acute bacterial prostatitis. This would be extremely painful, could precipitate bacteraemia, and is likely to be of little benefit as pathogens are almost always isolated from urine.

15.1.5. Further investigations

- Screen for sexually transmitted infections. (If suspect STI origin)
- Urethral smear, GC culture, GC/CT PCR

15.1.6. Management

Patients suspected of having acute prostatitis should be managed in a surgical unit.

General Advice

Adequate hydration should be maintained, rest encouraged and analgesics such as non-steroidal anti-inflammatory drugs could be used

Treatment

As acute prostatitis is a serious and severe illness empirical therapy should be start immediately.

Parenteral or oral treatment should be selected according to the clinical condition of the patient. If there is deterioration or failure to respond to oral therapy urgent admission and parenteral therapy should be arranged.

If acute retention of urine occurs suprapubic catheterization should be performed to avoid damage to the prostate.

Management of acute prostatitis will vary depend on whether the patient is having sepsis or not.

If signs of sepsis is there need to consider of IV antibiotics

- ☐ A high dose broad spectrum cephalosporin – for example, cefuroxime, cefotaxime or ceftriaxone plus gentamycin

When clinically improved the therapy can be switched to oral treatment according to sensitivities.

For patients suitable for oral therapy

quinolones can be used.

- ☐ Ciprofloxacin 500mg twice daily for 28 days or
- ☐ Ofloxacin 200mg twice daily for 28 days

15.1.7. Allergy

For patients intolerant of, or allergic to, quinolones an alternative is

- ☐ Cotrimoxazole (TMP-SMX) 960mg twice daily for 28 days

15.1.8. Sexual partners

Treatment of sexual partners is not required as caused by uropathogens

15.1.9. Follow-up

Follow up in STD clinic is necessary if an associated STI is diagnosed.

15.2. Chronic Prostatitis

15.2.1. Introduction

Chronic prostatitis has no standardized clinical definition despite being well recognised in clinical practice.

Chronic prostatitis can be differentiated into;

I. Chronic bacterial prostatitis (CBP)

II. Chronic prostatitis (CP) / Chronic pelvic pain syndrome (CPPS)

   a. Inflammatory CPPS

   b. Non inflammatory CPPS

III. Asymptomatic inflammatory prostatitis

15.2.2. Aetiology

CBP is characterized by the recovery of pathogenic bacteria, in significant numbers, from prostatic fluid in the absence of concomitant urinary infection.

Aetiologically recognized pathogens

E coli, Gram positive organisms (Staphylococcus aureus, Streptococcus faecalis), enterococci, Klebsiella spp, Proteus mirabilis, Eschericia faecalis, Pseudomonas aeruginosa

Organisms of debatable significance

Staphylococci, Streptococci, Corynebacterium spp, Chlamydia trachomatis, Ureaplasma urealyticum, Mycoplasma hominis

May cause CBP in those with immune deficiency

Mycobacterium tuberculosis

Candida spp

Rare pathogens - Coccidioides immitis, Blastomyces dermatitidis, Histoplasma capsulatum

15.2.3. Clinical features

Symptoms

CBP and CP/CPPS presents with a wide range of clinical manifestations, most of which involve genital pain.

The four main symptom domains are

1. Urogenital pain syndrome
2. Lower urinary tract symptoms(LUTS)
3. Sexual dysfunction
4. Psychological issues

Urogenital Pain symptoms	Lower urinary tract symptoms(LUTS)
Pain or discomfort in one or more urogenital regions including the perineum and supra pubic region testicles, penis (especially penile tip pain) lower back, abdomen pain inguinal region/groin pain pain on urination or that increases with urination pain during or after ejaculation rectal pain neuropathic pain	Voiding LUTS (weak stream, straining and hesitancy) Storage LUTS (urgency, urge incontinence, increased urinary frequency, nocturea and dysuria) Urethral burning during and independent of micturition Heamatospermia Recurrent UTI
Sexual dysfunction	**Psychological symptoms**
Erectile dysfunction Ejaculatory dysfunction Decreased libido	Anxiety or stress Depression Cognitive behavioural consequences Decreased quality of life

Symptoms should have been present for at least 6 months to diagnose chronic prostatitis although in practice the diagnosis is made after a shorter duration of symptoms.

Signs

There are few objective clinical signs and the prostate gland may, or may not, be locally or diffusely tender to palpation.

15.2.4. Diagnosis

A definitive diagnosis of CBP requires the presence of (typically recurrent) UTI and isolation of an aetiologically recognized organism from prostatic fluid or urine.

The investigation of chronic prostatitis which has been considered the gold standard is the lower urinary tract localization procedure (Stamey test).

There is no gold standard for a definitive diagnosis of CP/CPPS, which is based on patient history, symptoms and exclusion of other causes

When the patient attends for prostatic massage;

- Avoided antibiotics for one month.
- Avoided ejaculation for two days.
- A full but not distended bladder

Prostatic massage should not be performed if there is evidence of urethritis or urinary tract infection.

Prostatic massage (Stamey test)

- The foreskin should be fully retracted and the penis well cleaned to prevent contamination.
- A 5-10 ml sample of first-void urine (VB1; voided bladder 1 -Represents the urethra); should be collected.
- The patient should urinate a further 100-200 ml urine and then a further 5-10 ml sample of mid-stream bladder urine (VB2 voided bladder 2-Represents the bladder); should be collected.
- By digital rectal examination a firm massage of the prostate gland should be performed for 1 minute, from periphery towards the midline with a sterile container held over the glans to collect any expressed prostatic secretions (EPS -Represents the Prostrate).
- A wet preparation microscopic examination of a sample of expressed prostatic secretions should be made to determine the number of polymorphonuclear leucocytes (PMNL) per high power field (x 400).
- Immediately after the massage another 5-10 ml post-massage urine (VB3; voided bladder 3 -Represents the Prostate) should be collected.
- All three urine samples (VB1– 3) should have microscopy and quantitative culture. A dry prostatic massage is reasonably common

Interpretation of results

- To assign an organism to the prostate the colony counts in the EPS and VB3 is required to be at least 10 times greater than in VB1-2.
- For prostatic inflammation 10 PMNL/high power field (x 400) is considered diagnostic.
- In cases of a dry expressate a PMNL count of 10/hpf (x 400) greater in VB3 than VB1 and VB2 is diagnostic of prostatitis.
- If there is significant bacteriuria in both VB2 and VB3, three days of nitrofurantoin 50mg four times daily, which is not prostate penetrating, should be given and the procedure then repeated.
- An EPS pH 8 suggests prostatitis, although it is not diagnostic.
- Clumping of PMNL and presence of lipid laden macrophages suggests prostatitis, although not diagnostic.

Other supportive tests

- Urine dipstick and /or Mid Stream Urine for culture /microscopy
- Seminal Fluid Culture could be considered if not responding to treatment or suspecting a resistance

Tests to exclude differential diagnosis

- PSA (to exclude prostate cancer)
- Prostate biopsy (Only if prostate cancer is suspected base done PSA and/or DRE results
- STI screening
- Uroflowmetry, retrograde urethrography or cystoscopy (to exclude BOO, urethral stricture or bladder neck stenosis
- Diagnostic cystoscopy (if bladder cancer suspected)
- Urethral swab and culture (if urethritis is suspected)
- TRUS (only in refractory patients in whom prostate abscess/other pathology suspected)
- MRI (if prostatic abscess is suspected)

15.2.5. Management

General advice

Patients should be given a detailed explanation of their condition with particular emphasis on the long-term implications for their health.

Treatment of Chronic Bacterial Prostatitis

Treatment should be chosen according to antimicrobial sensitivities. For patients with CBP first-line treatment is with a quinolone such as

- ☐ Ciprofloxacin 500mg orally twice daily for 28 days or
- ☐ Ofloxacin 200mg orally twice daily for 28 days or
- ☐ Norfloxacin 400mg orally twice daily for 28 days

Allergy

For those allergic to quinolones:

- ☐ Doxycycline 100mg orally twice daily for 28 days or
- ☐ Co-trimoxazole (TMP-SMX) 960mg orally twice daily for 28 days

Treatment of chronic prostatitis/chronic pelvic pain syndrome

There are no universally effective treatments for CP/CPPS. Treat as for CBP with a quinolone or tetracycline.

- ☐ Non-steroidal anti-inflammatory drugs (CP/CPPS-inflammatory)
- ☐ Diazepam 5mg twice daily for 90 days has produced symptomatic benefit although benzodiazepines are not recommended in clinical practice because of dependency.

If pain is of neuropathic origin treatment with,

- ☐ gabapentin(pregabalin/gabapentin)
- ☐ tricyclic antidepressant(amytryptalin/nortryptalin) is warranted

Stress management

Sexual partner management

Partner notification and empirical treatment is not required unless a specific sexually transmitted pathogen is found at initial screening.

15.2.6. Follow-up

Chronic prostatitis is a difficult to manage, relapsing condition and patients are typically followed up for long periods of time. No specific follow-up recommendations can be made. Multidisciplinary team approach is beneficial.

16. Chanchroid

16.1. Aetiology

Haemophilus ducreyi is the microbial agent of chancroid. The incubation period ranges between 4 to7 days.

16.2. Clinical features

Chancroid is characterized by ano-genital ulceration and lymphadenitis with progression to bubo formation.

Lesions start as a tender papule that develops into a pustule and then an ulcer or soft sore. Classically, ulcers have a ragged undermined edge with a grey or yellow base that bleeds when touched. Lesions are painful and may be single or multiple.

Painful inguinal adenitis is a characteristic feature of chancroid and may be present in 50% of cases. The adenitis is unilateral in most patients. Buboes form and can become fluctuant and rupture, releasing thick pus, resulting sometimes in extensive ulceration.

16.3. Complications

Mostly seen in men and these may include phimosis and partial loss of tissue, particularly on the glans penis (so called “phagedenic” ulcers).

16.4. Diagnosis

- Culture of material obtained from the ulcer base or from pus aspirated from the bubo. Supplemented GC agar or enriched Mueller-Hinton agar can be used as culture media.
- Both clinical and surveillance purposes, a probable diagnosis of chancroid can be made if the following criteria are met:
    1. The clinical presentation of genital ulcers and regional lymphadenopathy are suggestive of chancroid
    2. Syphilis and HSV are excluded by suitable investigations.

16.5. Management

16.5.1. General advice

Patients should be advised to avoid unprotected sexual intercourse until they and their partner(s) have completed.

16.5.2. Treatment

Recommended Regimens:

- ☐ Erythromycin base 500 mg orally four times a day for 7 days

  or

- ☐ Azithromycin 1 g orally in a single dose

  or

- ☐ Ceftriaxone 250 mg intramuscularly (IM) in a single dose

  or

- ☐ Ciprofloxacin 500 mg orally two times a day for 3 days

16.5.3. Special considerations

Treatment for pregnant or lactating mothers and children

The erythromycin, azithromycin or ceftriaxone regimens should be used. No adverse effects of chancroid on pregnancy outcome or on the fetus have been reported.

HIV infection

Patients co-infected with HIV should be closely monitored. Treatment of choice is Erythromycin

16.5.4. Management of buboes

The classic strategy has been to needle-aspirate fluctuant buboes from adjacent healthy skin. The procedure is simpler and safer than incision, which is prone to complications (sinus formations). This procedure should always be performed under effective antibiotic cover.

16.5.5. Follow-up

The time required for complete healing is related to the size of the ulcer (and perhaps HIV-related immunosuppression); large ulcers may require more than 2 weeks.

Clinical resolution of fluctuant lymphadenopathy is slower than that of ulcers and may require frequent needle aspiration (or drainage).

16.5.6. Sexual partner(s) management

Persons who have had sexual contact with a patient who has chancroid within the 10 days before the onset of the patient's symptoms should be examined, and treated even in the absence of symptoms, as asymptomatic carriage of *H. ducreyi* has been proven to occur [epidemiological treatment].

17. Lymphogranuloma Venereum (LGV)

17.1. Introduction

Lymphogranuloma venereum (LGV) is a systemic disease caused by *Chlamydia trachomatis*. Since 2003 there have been a series of LGV outbreaks reported in several European cities, mostly among men who have sex with men.

17.2. Aetiology:

Lymphogranuloma venereum (LGV) is a systemic disease caused by one of three invasive serovars L1, L2, or L3 of *Chlamydia trachomatis. Chlamydia trachomatis* serovars L1-L3 are lymphotropic.

17.3. Clinical features

The incubation period is extremely variable (range 3-30 days) from time of sexual contact with an infected individual. The clinical course of LGV is classically divided into three stages.

17.3.1. Primary lesion

The primary lesion may be transient and often imperceptible, in the form of a painless papule or pustule or shallow erosion; it is found on the coronal sulcus of males and on the posterior vaginal wall, fourchette or on the vulva, and occasionally on the cervix of females.

Haemorrhagic proctitis is the primary manifestation of infection seen in MSM following direct transmission to the rectal mucosa; a similar picture might present in the case of rectal exposure in women. Symptoms include rectal pain, anorectal bleeding, mucoid and/or haemopurulent rectal discharge, tenesmus, and constipation. Asymptomatic rectal infection is also possible.

Cases of pharyngitis too, have been reported in MSM.

17.3.2. Secondary lesions, Lymphadenitis, or Lymphadenopathy or bubo

The most common clinical manifestation of LGV is tender inguinal and/or femoral lymphadenopathy that is typically unilateral (two thirds of cases). It may involve one lymph node or the entire chain, which can become matted with considerable periadenitis and bubo formation. Buboes may ulcerate and discharge pus from multiple points, creating chronic fistulae.

When both inguinal and femoral lymph nodes are involved, they may be separated by the inguinal ligament leading to the so-called “groove sign”. Though considered pathognomonic of LGV, the “groove sign” only occurs in 15-20% of cases.

Lymphadenopathy commonly follows the primary lesion by a period of a few days to weeks (10-30 days, rarely months).

The systemic spread of *Chlamydia trachomatis* may be associated with fever, arthritis, pneumonitis, and rarely perihepatitis.

17.3.3. Tertiary stage or the genito-ano-rectal syndrome

The vast majority of patients recover after the secondary stage without sequelae, but in a few patients the persistence or progressive spread of *Chlamydia trachomatis* in anogenital tissues will incite a chronic inflammatory response, and destruction of tissue in the involved areas, including: proctitis, acute proctocolitis mimicking Crohn's disease, fistulae, strictures and chronic granulomatous disfiguring condition of the vulva ("esthiomene", Greek word meaning "eating away"). These conditions occur most frequently among women reflecting the involvement of retroperitoneal lymphatics (rather than inguinal). Interestingly, within the current MSM outbreak, tertiary complications of anorectal LGV such as stricture and fistulae have been observed rarely.

17.4. Long term complications

The destruction of lymph nodes may result in lymphoedema of genitals (elephantiasis) with persistent suppuration and pyoderma.

17.5. Diagnosis

The diagnosis of LGV is often done after other causes of genital ulcerations or inguinal lymphadenopathy have been ruled out. Even when LGV is suspected, investigations for other potentially co-existing sexually transmitted infections must be undertaken, in particular for gonorrhoea, herpes and syphilis.

Positive diagnosis of LGV is difficult, requiring a combination of good clinical acumen and supportive investigations. LGV can be suspected on positive chlamydial serology, isolation of *Chlamydia trachomatis* either from the infected site or histological identification of chlamydia in infected tissue.

17.5.1. Collection of genital specimens

Chlamydia are intracellular organisms therefore samples must contain cellular material which can be obtained:

- from ulcer base exudate or from rectal tissue.
- by aspiration from fluctuant lymph nodes or buboes.

17.5.2. Main diagnostic techniques

- Detection of nucleic acid *(DNA)* by amplification techniques (NAATs) such as polymerase chain reaction (PCR)
- Culture on cycloheximide-treated McCoy cells of material from suspected LGV lesions

17.6. Management

17.6.1. General Advice

Patients should be advised to avoid unprotected sexual intercourse until they and their partners(s) have completed treatment and follow-up.

Patients should be given a detailed explanation of their condition with particular emphasis on the long-term implications for the health of themselves and their partners(s).

17.6.2. Treatment

Recommended Regimens

- ☐ Doxycycline 100mg twice daily orally for 21 days

  or

- ☐ Erythromycin 500mg four times daily orally for 21 days.

Alternative Regimens

- ☐ Azithromycin 1g weekly for 3 weeks.

17.6.3. Treatment for pregnant or lactating mothers

Pregnant and lactating women should be treated with the erythromycin regimen.

17.6.4. Management of complications

Fluctuant buboes should be aspirated through healthy adjacent skin. Patients with fibrotic lesions or fistulae which are not responsive to chemotherapy can be managed by surgical repair, including reconstructive genital surgery.

17.6.5. Sexual partner/s management

Persons who have had sexual contact with a patient who has LGV within the 30 days before onset of the patient's symptoms should be examined, tested and treated, or receive presumptive treatment doxycycline 100mg twice daily for 21 days.

17.7. LGV and HIV

HIV infected patients should be treated with the same regimens previously cited.

18. Donovanosis (granuloma inguinale)

18.1. Introduction

Donovanosis is a rare infection that usually manifests itself as genital ulceration. There have been no recent reports of donovanosis in Sri-Lanka. However, it is seen in India, PNG, Caribbean, Brazil, Guana, South Africa, and Zambia.

18.2. Aetiology

The causative organism is *Klebsiella granulomatis*. However, there is a debate about the correct nomenclature of the causative organism.

18.3. Clinical features

The first sign of infection is usually a firm papule or subcutaneous nodule that later ulcerates. Four types of donovanosis are described classically:

- Ulcerogranulomatous is the most common variant; non tender, fleshy, exuberant, single or multiple, beefy red ulcers that bleed readily when touched.
- Hypertrophic or verrucous type, an ulcer or growth with a raised irregular edge, sometimes with a walnut appearance.
- Necrotic, usually a deep foul smelling ulcer causing tissue destruction.
- Sclerotic with extensive fibrous and scar tissue.

Lymphadenitis is uncommon.

Squamous cell carcinoma of the penis may both mimic and complicate donovanosis and a biopsy should be done if antibiotics fail to effect resolution of ulcers.

18.4. Diagnosis

The main method of diagnosis is the demonstration of Donovan bodies in either:

- cellular material taken from lesions by scraping

  or
- tissue sample collected by biopsy.
- Smears can be stained with Giemsa, Wright's stain, or Leishman stain. Biopsies are best stained with silver stains(for example, Warthin-Stary) or Giemsa. Donovan bodies appear as cocobacilli within large vacuoles in the cytoplasm of histiocytes and occasionally in other cells. The organisms are blue-purple in colour and surrounded by a prominent capsule. Typical bacteria resemble “closed safety pins”.
- PCR test (commercially not available)

18.5. Management

18.5.1. Treatment

Recommended Regimens

- ☐ Azithromycin 1 g weekly or 500 mg daily orally or
- ☐ Doxycycline 100 mg twice daily or
- ☐ Erythromycin 500 mg four times daily or
- ☐ Co-trimoxazole 960 mg twice daily or

Duration of treatment is for 3 weeks or until lesions have completely healed

18.5.2. Treatment for pregnant or lactating mothers

Erythromycin has been used successfully in pregnant women with donovanosis. Children born to mothers with untreated genital lesions of donovanosis are at risk of infection and a course of prophylactic antibiotics should be considered.

The recommended regimen

- ☐ azithromycin 20mg/kg once daily for 3 days.

18.5.3. Partner management

In the absence of any reliable screening test and the long incubation period, all sexual contacts of cases in the last 6 months should be checked for possible lesions by clinical examination.

19. Vulval conditions

Introduction

The main categories of non-infective vulval conditions are dermatoses, pain syndromes and pre-malignant conditions.

1. Vulval dermatitis (eczema)
2. Vulval psoriasis
3. Lichen simplex chronicus
4. Lichen sclerosus
5. Lichen planus
6. Vulvodynia
7. Vulval intraepithelial neoplasia (VIN)

General advice for all vulval conditions

- Avoid contact with soap, shampoo and bubble bath. Simple emollients can be used as a soap substitute and general moisturizer
- Avoid tight fitting garments which may irritate the area
- Avoid use of spermicidally lubricated condoms

19.1. Vulval dermatitis (eczema)

19.1.1. Aetiology

Atopic: the 'allergic' type often seen in people who also have hay fever or asthma.

Allergic contact: due to skin contact to a substance to which the individual is sensitive.

Irritant contact: due to skin contact with irritating chemicals, powders, cleaning agents, etc

19.1.2. Clinical features

Symptoms : Vulval itch, Soreness, Pain

Signs : Erythema, Excoriations, Erosions (if acute), Fissuring, Serous discharge with oozing and crusting, especially if secondary infection is present, Lichenification (if chronic)

19.1.3. Complication

Secondary infection, development of lichen simplex chronicus

19.1.4. Management

- Avoidance of precipitating factors e.g. cleansers, fragrances and wet wipes. If urinary incontinence is present, referral to uro-gynaecology is helpful.
- Use of emollient soap substitute
- Topical corticosteroid – the choice of preparation will depend on severity, 1% Hydrocortisone ointment in milder cases, or betamethasone valerate 0.25% or clobetasol propionate 0.05% for limited periods if severe or lichenified. A combined preparation containing antifungal and/or antibiotic may be required if secondary infection suspected.

19.1.5. Follow-up

As clinically required

Long-term follow up and psychological support may be needed

19.2. Vulval psoriasis

19.2.1. Aetiology

Psoriasis is a chronic inflammatory epidermal skin disease. Genital psoriasis may present as part of plaque or flexural psoriasis or, rarely, as the only area affected.

19.2.2. Clinical features

Symptoms:

Vulval itch, Soreness, Burning sensation

Signs :

Monomorphic, symmetrical eruption/ erythematous plaques on vulva. The lesions are well defined, with round margins.

Fine silvery scales can be present, but are less common at the genitals than at other locations.

Lesions can extend to adjacent regions (inguinal, perineal, pubic).

Sometimes painful fissures can be present.

In rare cases, pustular lesions can occur on erythematous macules that spread from the vulva and other flexural folds to the rest of the body.

19.2.3. Complications

May be worsened due to Koebner effect by irritation from urine, tight-fitting clothes or sexual intercourse.

19.2.4. Diagnosis

- Clinical presentation.
- General examination of the skin and nails to look for other signs of psoriasis.
- Skin punch biopsy if diagnosis is uncertain

19.2.5. Management

- Avoidance of all known trigger factors including scented detergents, synthetic underwear and tight garments.
- Use of emollient soap substitute.
- Topical corticosteroid - weak to moderate steroids (short term potent steroid such as clobetasol propionate 0.05% may be used in resistant cases). A combined preparation containing antifungal and/or antibiotic may be required if secondary infection suspected.
- Coal-tar preparations – may be used alone or combined or alternated with topical steroids. However, these preparations can cause irritation and folliculitis
- Referral to the dermatology units.
- Systemic treatments: if required for severe and extensive psoriasis.
- Psoriatic arthritis and other associated conditions need to be referred to relevant specialty.

19.2.6. Follow-up

Mild disease – as clinically required.

Severe disease – (i.e. when using potent topical steroids) 1 month, then as required.

19.3. Lichen Simplex Chronicus

19.3.1. Aetiology

Categorised into 4 main groups

- Underlying dermatoses, i.e. atopic dermatitis, allergic contact dermatitis, superficial fungal (tinea and candidiasis) infections
- Systemic conditions causing pruritus, i.e. renal failure, obstructive biliary disease (primary biliary cirrhosis and primary sclerosing cholangitis), Hodgkin's lymphoma, hyper- or hypothyroidism, and polycythaemia rubra vera
- Environmental factors: heat, sweat, rubbing of clothing, and other irritants such as harsh skincare products.
- Psychiatric disorders: anxiety, depression, obsessive-compulsive disorder, and dissociative experiences are often associated with the condition. Emotional tensions in predisposed people (i.e., those with an underlying predisposition for atopic dermatitis, asthma, and allergic rhinitis) can induce itch and thus begin the chronic itch-scratch cycle

19.3.2. Clinical features

Symptoms

- Chronic, or intermittent severe pruritus, usually occurring in the evening or during sleep
- Burning and soreness, in case of vulval erosions or ulcers
- Dyspareunia, in case of vulval erosions or ulcers.

Signs

- Lichenification i.e. thickened, slightly scaly, pale or earthy-coloured skin plaques with accentuated markings, maybe more marked on the side opposite the dominant hand.
- Hyper-, hypo- or depigmented skin areas.
- Erosions and fissuring.
- Excoriations as a result of scratching.
- The pubic hair is often lost in the area of scratching and broken hair in areas of scratching and rubbing.

19.3.3. Complications

- Secondary infection
- Chronic, deep scratching and gouging may lead to severe and irreversible architectural damage.

19.3.4. Investigation

- Biopsy - Seldom necessary. case of uncertainty about the diagnosis.
- Screening for infection if indicated (e.g. Staphylococcus aureus, Candida albicans)
- Dermatological referral for patch testing if contact allergy is suspected.
- FBC and Serum ferritin in case of suspicion of low iron store.

19.3.5. Management

- Identifying underlying disease, if any.
- Use of emollient soap.
- Avoidance of precipitating factor.
- Topical corticosteroid – potent topical steroids are required when treating lichenified areas e.g. betamethasone or clobetasol for limited periods. A combined preparation containing antifungal and/or antibiotic may be required if secondary infection suspected. Apply once or twice daily.
- In severe disease, super potent topical corticosteroid, e.g. clobetasol propionate 0.05% ointment, once or twice daily
- In case of night-time scratching: mildly sedative antihistamine or tricyclic (e.g. amitriptyline).
- The symptoms of pruritus often respond fairly quickly to a topical steroid but, unless the lichenification resolves, the itch–scratch cycle will remain and the symptoms will recur. A graduated reduction in the frequency of application of the topical steroid is helpful, over about 3-4 months.
- Cognitive behavioral therapy may be helpful if there are co-existing mental health issues.

19.3.6. Follow-up

Mild disease – as clinically required.

Severe disease (i.e. when using potent topical steroids) – in 1 month then as required.

19.4. Lichen sclerosus

19.4.1. Aetiology

Lichen sclerosus (LS) is an inflammatory dermatosis of probable autoimmune aetiology. There is an increased frequency of other autoimmune disorders in females with lichen sclerosis.

19.4.2. Clinical features

Symptom

Itchiness, Soreness of vulva, Dyspareunia or apareunia Urinary symptoms (pain, poor urinary stream) Other symptoms, e.g. constipation, can occur if there is perianal involvement, in particular in children. Rarely it can be asymptomatic.

Signs

Pale, white hypertrophic or atrophic areas (vulva, perianal, extragenital), hyperkeratosis, sclerosis, Slight erythema/redness, Purpura (ecchymosis) is common, fissuring, erosion, but blistering is very rare.

Changes may be localized or in a 'figure of eight' distribution, including the perianal area. Scarring may lead to loss of architecture (resorption of the labia minora, fusing in the midline with burying, but not loss of the clitoris), follicular plugging (extragenital)

19.4.3. Complications

- Loss of self-esteem (concern about the clitoral appearance)
- Development of squamous cell carcinoma (actual risk <5%)
- Development of clitoral pseudo-cyst

- Sexual dysfunction
- Urinary dysfunction
- Dysaesthesia

19.4.4. Diagnosis

- Characteristic clinical appearance in typical cases.
- A biopsy may not be needed, but many clinicians prefer to take a biopsy at presentation. A biopsy should be performed if the clinical diagnosis is uncertain, dysplasia/carcinoma is suspected or there is failure of first-line treatment. In early disease, histology can be non-specific.

Further investigations

- Investigation for associated autoimmune disease if clinically indicated, because some diseases (e.g. thyroid disease, pernicious anaemia, vitiligo, diabetes mellitus) are associated with LS in females.
- Skin swabs for bacterial, fungal or viral infection-useful to exclude co-existing infection

19.4.5. Management

- Ultra-potent topical steroids e.g. Clobetasol proprionate preferably ointment - daily for one month, alternate days for one month, twice weekly for one month with review at 3 months.
- An ultra-potent topical steroid with antibacterial and antifungal (Clobetasol with neomycin and nystatin)

19.4.6. Pregnancy and breast feeding

Topical steroids are safe to use while pregnant or breast-feeding

19.4.7. Follow-up

After 3 months to assess response to treatment. Stable disease should be reviewed annually. Patients should be informed that if they notice the development of a lump, sore area, change in symptoms or change in appearance they should prompt medical review

19.5. Vulval Lichen Planus

19.5.1. Aetiology

Lichen planus is an inflammatory disorder with manifestations on the skin, genital and oral mucous membranes. More rarely it affects the lacrimal duct, oesophagus and external auditory meatus

19.5.2. Clinical features

Symptoms

Itch/irritation, Soreness in genital area, Dyspareunia, Urinary symptoms, Vaginal discharge.

Sometimes patients can be asymptomatic.

Signs

The anogenital lesions of lichen planus may be divided into three main groups according to their clinical presentation:

Classical- Typical papules occur on the keratinized anogenital skin, with or without Wickham's striae, on the inner aspect of the vulva. Hyperpigmentation frequently follows their resolution, particularly in those with dark skin. This type of lichen planus may be asymptomatic.

Hypertrophic- These lesions are relatively rare and can be difficult to diagnose. They particularly affect the perineum and perianal area, presenting as thickened warty plaques which may become ulcerated, infected and painful. The clinical appearance may mimic malignancy. They are not usually accompanied by vaginal lesions.

Erosive- This is the most common subtype to cause vulval symptoms. At the edges of the erosions, the epithelium is red-to-purple coloured and a pale network of Wickham's striae is sometimes seen. It is important to recognize vaginal involvement in erosive lichen planus (which can occur in isolation) and start treatment early, as it can lead to scarring and complete stenosis. The lesions consist of friable telangiectasia with patchy erythema which are responsible for the common symptoms of dyspareunia, postcoital bleeding and a variable discharge, which is often serosanguinous. The term 'vulvo-vaginal-gingival syndrome' is used when erosive disease occurs in these three sites.The presenting symptoms are usually pain and soreness.

19.5.3. Complications

- Scarring, including vaginal synechiae.
- Development of squamous cell carcinoma.

19.5.4. Diagnosis

- Characteristic clinical appearance.
- Vulval biopsy.

Further investigations

- Investigation for autoimmune diseases if relevant
- Screen for hepatitis B and C

19.5.5. Management

General advice

Patients should be made aware of the small risk of neoplastic change.

Recommended regimen

- Ultrapotent topical steroids e.g. Clobetasol propionate.
- Maintenance treatment may be required and can either be with weaker steroid preparations or less frequent use of potent steroids.

Alternative regimen

- An ultra-potent topical steroid with antibacterial and antifungal (Clobetasol with neomycin and nystatin) or an alternative preparation that combats secondary infection may be appropriate if secondary infection is a concern. These should only be used for a short period of time to clear infection

- Referral to a dermatologist is recommended for erosive disease and any recalcitrant cases, or those in whom systemic therapy is considered.

19.5.6. Pregnancy and breastfeeding

Topical steroids are safe to use whilst pregnant or breastfeeding.

19.5.7. Follow-up

- At 2-3 months to assess response to treatment
- Active disease should be assessed as clinically required. Erosive lichen planus needs long term specialised follow-up

19.6. Vulvodynia

19.6.1. Aetiology

Vulvodynia is currently considered as a dysfunctional sensory processing in the central nervous system, involving both central and peripheral pain generators similar to other pain Triggering or maintaining factors have been identified: candidiasis, psychological disturbances either resulting from the chronic pain or pre-existing to it,pelvic floor muscle dysfunction.

19.6.2. Clinical features

Symptoms

Onset

Candidiasis is frequently an initiating event of vulvodynia but any acute painful vulval, urinary or anal condition (e.g. infection, surgical procedure) may precede the occurrence of vulvodynia, especially if these physical events occur in a context of emotional stress

Provocation

The discomfort may be either provoked or unprovoked or mixed.

1. Provoked a By sexual contact: penetration (introital dyspareunia) or touch. Introital dyspareunia may be either primary (since the first intercourse) or secondary (occurring after a period of painless intercourse). By non-sexual contact: tampon insertion, tight clothing, sitting position, gynaecological examination
2. Unprovoked: the discomfort occurs spontaneously, it is not related to touch.
3. Mixed: the discomfort is both spontaneous and aggravated by local contacts (either sexual or non-sexual).

Quality

Burning is the main symptom, but many other sensations are reported (e.g. tingling, stinging, rawness, irritation). When present, itch is not the predominant symptom. Region The discomfort may be either localized or generalized.

1. Generalized: the whole vulva is involved (clitoris, labia minora and majora, vestibule). The patient may also describe the symptoms spreading to the thighs and perianal area

2. Localized: one or several sites are involved. The most frequently involved site is the vestibule (i.e. the introitus), particularly its posterior aspect. This is termed vestibulodynia. Provoked vestibulodynia is the most reproducible subset of vulvodynia. More rarely, the discomfort is localized to other parts of the vulva: labia minora or majora, clitoris (clitorodynia).

Severity

The severity of the discomfort is highly variable, impacting both daily life (impossible to concentrate on normal activities) and sexual activity (painful sex leading to fear and avoidance, with consequences on the partner and relationship).

Time

Vulvodynia is a chronic pain condition having usually lasted months or years before the diagnosis is made. The intensity of the discomfort is often variable over time. Significant improvement or complete remission may occur, following treatment, or spontaneously

No sphincter disturbance occurs in vulvodynia.

Signs

Inspection of the vulva reveal no relevant physical findings. This means that the vulva has a normal appearance or that, if a lesion is found, this lesion cannot explain the discomfort (e.g. a wart cannot explain diffuse burning). In provoked vestibulodynia, tenderness is elicited by gentle application of a cotton wool tip on the vestibule. Neurological examination is normal (in particular, there is no perineal anaesthesia).

19.6.3. Complications

Impact on general well-being, particularly on psychosexual function and relationships.

19.6.4. Diagnosis

Clinical diagnosis made on history and examination

19.6.5. Management

Information

Patients should be given a full explanation of their condition verbally, and then reinforced with written information. Do not cast doubt about the reality of the pain (not 'in the head') and acknowledge its significant impact on all aspects of the quality of life. Explain simply the current knowledge about mechanisms, contributing factors, treatment and prognosis.

Treatment

A multidisciplinary approach to patients with vulvodynia is widely recommended. Delays in diagnosis and inappropriate treatments may have a negative prognostic impact.

1.Vulval care measures

- Avoidance of irritating factors
- Use of emollient soap substitute

2. Analgesic treatments.

Local pain modifiers Local anesthetics, e.g. 5% lidocaine ointment or 2% lidocaine gel, are mainly prescribed in patients with introital dyspareunia resulting from provoked vestibulodynia.

Lidocaine should be applied 15–20 min prior to penetrative sex and washed off just before penetration or the use of condom by the partner can reduce the risk of transfer resulting in penile numbness. Oral contact should be avoided Physical therapies

- Pelvic floor muscle bio feed back
- Vaginal transcutaneous electrical nerve stimulation [TENS]
- Vaginal trainers

3. Cognitive behaviour therapy

4. Alternative Regimens

- Pain modifiers – the benefit of drugs such as tricyclic antidepressants, gabapentin and pregabalin is not clear. Amitriptyline gradually titrated from 10mg up to 100 mg according to response and side effects may be beneficial in some women.
- Surgery – Modified vestibulectomy may be considered in cases where other measures have been unsuccessful. Patients who have responded to topical lidocaine prior to sex have a better outcome.

19.6.6. Follow-up

As clinically required

Long-term follow-up and psychological support may be needed

19.7. Vulval Intraepithelial Neoplasia (VIN)

19.7.1. Introduction

VIN is a chronic vulval skin disorder characterized by dysplastic changes of the squamous epithelium. VIN is a premalignant lesion, although spontaneous regression has been reported.

19.7.2. Classification of VIN (ISSVD in 2015)

- Low-grade Squamous Intraepithelial Lesion (SIL) of the vulva or vulval LSIL.
- High-grade SIL of the vulva or vulval HSIL
- Vulval intraepithelial neoplasia, differentiated type (DVIN)1

HSIL and DVIN are premalignant vulval lesions which can lead to squamous cell carcinoma of the vulva if untreated.

19.7.3. Aetiology

HSIL is caused by a persistent infection with high-risk human papilloma virus (HPV). Risk factors are smoking and an immuno-compromised state.

DVIN is associated with lichen sclerosus and lichen planus and has no relation with HPV. DVIN occurs mainly in elderly women and comprises less than 5% of VIN lesions. The malignant potential of DVIN is higher than that of HSIL.

19.7.4. Clinical Features

Symptoms: Presence of a lump, Burning and itch / irritation in vulva and vulval pain. However some patients may be completely asymptomatic.

Signs: Clinical appearance is very variable. Raised white, erythematous or pigmented lesions occur and these may be warty, moist or eroded (pigmented lesions were previously known as Bowenoid papulosis) Multifocal lesions are common.

19.7.5. Complications

- Development of vulval squamous cell carcinoma
- High rate of recurrence after treatment
- Psychosexual complaints

19.7.6. Investigation

Biopsy is always indicated if VIN is suspected

19.7.7. Management

HSIL

- Surgical cold knife excision
- Laser CO2 therapy
- Loop electrosurgical procedure (LEEP)
- Imiquimod cream – new treatment modality with indirect antiviral and antitumor properties
- Follow-up without treatment (spontaneous regression)

DVIN

- Surgical cold knife excision

19.7.8. Follow-up

Lifelong Close follow-up is mandatory.

- **HSIL** :every 6–12 months, with annual cervical smear
- **DVIN :**depends on underlying disease, but at least every 6 months

19.7.9. Vaccination for HPV

Please refer Vaccine preventable STI section(Refer chapter 34)

20. Balanitis

Aetiology

Balanitis describes the inflammation of the glans penis; posthitis is the inflammation of the prepuce. In practice both areas are often affected and the term balanoposthitis is then used. It is a collection of disparate conditions with similar clinical presentation and varying aetiologies affecting a particular anatomical site.

Table 1. Conditions affecting the glans and prepuce

Infectious conditions
Candida albicans
Herpes simplex virus
Streptococci
Anaerobes
Staphylococci
Gonococcal infection
Trichomonas vaginalis
Human Papilloma Virus
Mycoplasma genitalium
Inflammatory conditions
Lichen planus
Psoriasis and circinate balanitis
Zoon's balanitis
Eczema (including irritant, allergic and seborrheic)
Allergic reactions(including fixed drug eruptions and Steven Johnson Syndrome)
Premalignant conditions (Penile carcinoma in situ)
Bowens disease
Bowenoid papulosis
Erythroplasia of Querat

Clinical features

Symptoms

Local rash-may be scaly or ulcerated

Soreness, itch, odour

Cracks on the prepuce, inability to retract the foreskin

Discharge from the glans or underneath the foreskin

Signs

Genital - Erythema, reddish papules, scaling, ulceration, fissuring, crusting, exudates, oedema, leukoplakia, sclerosis, purpurae, odour, phimosis

General -Lymphadenopathy(local or general), non-genital rash, oral ulceration, arthritis

Complications

Phimosis, Meatal stenosis, Malignant transformation

Diagnosis

Appearance may be pathognomonic in some situations and a clinical diagnosis can be made

- Sub-prepusal swab for Candida
- HSV DNA PCR / HSV culture
- Sub prepusal swab for bacterial culture if facilities available
- Urinalysis/ blood analysis for glucose – appropriate in some cases but especially if candidal infection is suspected.
- Dark ground examination for spirochaetes – if an ulcer is present and alternatively syphilis serology with follow-up at 3 months.
- Wet smear for *Trichomonas vaginalis* – particularly if a female partner has an undiagnosed vaginal discharge.
- Full routine screening for other sexually transmitted infections (STIs) – particularly screening for *Chlamydia trachomatis* infection/non-specific urethritis if a circinate-type balanitis is present.
- Biopsy – if the diagnosis is uncertain and the condition persists

Management

General advice

- Patients should be given a detailed explanation of their condition with particular emphasis on any implications for their health (and that of their partner where a sexually transmissible agent is found).
- Avoid soaps or other irritants while inflammation is present
- Advice the partner to maintain good prepuetal hygiene
- Avoid synthetic or tight fitting clothing
- Advice about the effects on condoms if cream being applied

20.1. Infective balanitis

20.1.1. Candida balanitis

Clinical features

Symptoms: erythematous rash with soreness and/or itch

Signs: blotchy erythema with small papules which may be eroded, or dry dull red areas with a glazed appearance.

Diagnosis

Sub-preputial smear- dry smear or KOH wet smear or culture for candida.

Treatment

- ☐ Clotrimazole cream 1% or Miconazole cream 2% apply twice daily until symptoms resolve.

Alternative regimens

- ☐ Fluconazole 150 mg stat orally– if symptoms severe.
- ☐ Topical imidazole with 1% hydrocortisone – if marked inflammation is present
- ☐ Nystatin cream 100,000 units/g – if resistance suspected, or allergy to azoles

Although there has been an increase in reports of drug resistance in serious candidal infection, there is no new evidence pertaining to treatment of candidal balanitis.

Sexual partners

As there is a high rate of candidal infection in sexual partners, they should be offered testing for candida or empiric anti-candidal treatment to reduce the reservoir of infection in the couple.

Follow-up

Not required unless symptoms and signs are particularly severe or an underlying problem is suspected.

20.1.2. Anaerobic balanitis

Clinical features

Symptoms: foul smelling sub preputial inflammation and discharge, in severe cases associated with swelling and inflamed inguinal lymph nodes.

Signs: preputial oedema, superficial erosions, sub preputial discharge, milder form also occur

Diagnosis

- Gram stain may show Fusiform/mixed bacterial picture. Sub-preputial culture (to exclude other causes e.g. *Trichomonas vaginalis*)
- Swab for HSV infection if ulcerated.

Management

Advice about genital hygiene.

Recommended regimen

- ☐ Metronidazole 400mg twice daily 1 week, Milder cases may respond to topical metronidazole.

Alternative regimen

- ☐ Co -amoxiclave 375 mg three times daily 1 week.

20.1.3. Aerobic balanitis

Clinical features

Variable inflammatory changes including uniform erythema oedema.

Diagnosis

Sub-preputial culture.

Streptococci spp and Staphylococcus aureus have both been reported as causing balanitis. Other organisms may also be involved.

Management

Treatment is usually topical. Severe cases may require systemic antibiotics.

Recommended regimens

- ☐ Co-amoxiclav 375 mg three times daily 1 week
- ☐ Erythromycin 500 mg qds 1 week.

20.2. Inflammatory balanitis

20.2.1. Lichen sclerosus

Aetiology

An inflammatory scarring skin condition, possibly of autoimmune pathogenesis, but may be due to chronic occluded contact with urine in the uncircumcised. The condition occurs in all ages.

Clinical features

Symptoms:

Itching, soreness, splitting, haemorrhagic blisters, dyspareunia, problems with urination. May be asymptomatic.

Signs:

Typical appearance: white atrophic skin patches on the glans, often with involvement of the prepuce. There may be haemorrhagic vesicles, purpura and rarely blisters and ulceration. Architectural changes include blunting of the coronal sulcus, phimosis or wasting of the prepuce, and meatal thickening and narrowing.There may be a perimeatal erythematous area becoming white in few weeks.

Complications

- Phimosis
- Urethral stenosis

- Malignant transformation to squamous cell carcinoma -10% risk.
- Extra-genital disease can occur. In contrast with females perianal disease is uncommon

Diagnosis

Typical clinical features
Biopsy

Management

Recommended regimens

- ☐ Potent topical steroids(e.g. clobetasol proprionate) applied once daily until remission, then gradually reduced. Intermittent use (e.g. once weekly) may be required to maintain remission.

Alternatively

- ☐ betamethasone can be used in less severe cases

In view of the immunosuppressive effects of potent steroids, patients with a history of genital warts should be warned about the risk of a relapse; consider prophylactic acyclovir in patients with a history of genital HSV infection.

Other treatment modes

Secondary infection should be treated.
Surgery may be indicated to address symptoms due to persistent phimosis or meatal stenosis This may include circumcision, meatotomy or urethroplasty. Circumcision is indicated for failed topical medical treatment.

Follow-up

Patients with a persistent requirement for topical treatment should be circumcised. Patients with atypical or persistent lesions should receive more specialist input. Patients should be advised to contact the clinic if the appearances change.

20.2.2. Lichen planus

Aetiology

An inflammatory disorder with manifestations on the skin, genital and oral mucous membranes, rarely conjunctiva and esophagus.

Clinical features

Purplish well-demarcated plaques on glans, prepuce and shaft of the penis, erosive lesions on the mucosal surfaces.

Natural history

Mucosal lichen planus is a chronic condition with remissions and exacerbations, in contrast to cutaneous lichen planus which tends to resolve spontaneously after 12–18 months

Diagnosis

Clinical features of purplish lesions or supporting evidence of lichen planus lesions elsewhere on the body. This particularly includes the mouth in cases of erosive (penogingival) disease.
Biopsy may be indicated if diagnosis is uncertain

Management

Moderate to ultrapotent topical steroids depending on severity (for both mucosal and cutaneous disease) Alternative regimens.
Circumcision: May be the treatment of choice for some cases of erosive lichen planus

Follow-up

Patients with a persistent requirement for topical treatment should be circumcised.

20.2.3. Zoon's (plasma cell) balanitis

Aetiology

Zoon's balanitis is a disease of older men who are uncircumcised. It is thought to be due to irritation, partially caused by urine, in the context of a 'dysfunctional prepuce.' It is generally regarded as a benign condition.
Zoonoid inflammation clinically and histologically frequently complicates other dermatoses, including pre-cancer and cancer.

Clinical features

well-circumscribed orange-red glazed areas on the glans and, inside of the foreskin, with multiple pinpoint redder spots – 'cayenne pepper spots' in a symmetrical distribution.

Diagnosis

Classical clinical features described above is diagnostic, however, clinical distinction from other inflammatory and pre-malignant conditions is difficult and a high index of suspicion is recommended.

Biopsy: is indicated if diagnosis is uncertain

Management

- Circumcision – this has been reported to lead to the resolution of lesions.
- Topical steroid preparations – with or without added antibacterial agents, applied once or twice daily
- Hygiene measures

Follow-up.

Depends on clinical course and treatment used.

20.2.4. Psoriasis

Clinical features.

In the circumcised male psoriasis on the glans is similar to the appearance of the condition elsewhere, with red scaly plaques. In the uncircumcised scaling is lost and the patches appear red and glazed.

Diagnosis

Supported by the evidence of psoriasis elsewhere.
Biopsy may be necessary, particularly in the glazed pattern of psoriasis which can look similar to premalignant conditions and other inflammatory conditions.

Management

- ☐ Moderate potency topical steroids (+/- antibiotic and antifungal), Emollients.

If evidence of psoriasis elsewhere dermatology referral is indicated
Avoid strong coal tar as it increases the risk of genital cancers.

20.2.5. Circinate balanitis

Aetiology

This characteristic presentation may occur in isolation or be seen in Reiter's disease – a post-infective syndrome, triggered by urethritis or enteritis in genetically predisposed individuals. It consists of skin joint and ocular manifestations, with other systems affected more rarely.

Clinical features

Typical appearance: greyish white areas on the glans which coalesce to form 'geographical' areas with a white margin. It may be associated with other features of Reiter's syndrome but can occur without.

Diagnosis

On clinical appearance in association with other features of Reiter's syndrome

Further investigations

Screening for STIs. Syphilis can also give rise to similar features. Consider testing for HLAB27. A positive test can confirm a diagnosis and provide important information about the risk of associated disease, such as urethritis, gastrointestinal disease and arthritis.

Recommended regimen

- ☐ 1% Hydrocortisone cream applied twice a daily for symptoms relief

Treatment of any underlying infection

Sexual partners

If an STI is diagnosed, the partner(s) should be treated as per the appropriate protocol.

Follow-up:

May be needed for persistent symptomatic lesions. Associated STIs should be followed up as per appropriate guideline

20.2.6. Eczema

Irritant/allergic balanitis

Clinical features

Appearance ranges from mild non-specific erythema to widespread oedema of the penis.

Diagnosis

Based on history and examination

Management

General advice

Avoidance of precipitants – especially soaps.
Emollients – applied as required and used as a soap substitute.

Recommended regimen

- ☐ Hydrocortisone 1% applied once or twice daily until resolution of symptoms.

Alternative regimen

In more florid cases more potent topical steroids may be required and may need to be combined with antifungals and/or antibiotics.

Follow-up

Not required, although recurrent problems are common.
Patient should be advised to avoid the precipitants

20.2.7. Seborrhoeic dermatitis

Aetiology

Hypersensitivity to Pityrosporum ovale.

Clinical features

Mild itch or redness (less likely to have scaling at this site).

Diagnosis

Supported by classical findings at other sites (nasolabial folds, scalp, ears, brows).

Management

- ☐ Antifungal cream with a mild to moderate steroid.

Alternative regimens

- ☐ Oral azole e.g. itraconazole, Oral terbinafine

20.2.8. Fixed drug eruption

Aetiology

Penis is one of the more commonly affected area of the body. Precipitants include tetracyclines, sulphanomide, salicylates, paracetamol, phenolphthalein, barbiturates and some hypnotics. Rarely a fixed drug eruption can occur when the sexual partner has taken the drug and it is assumed the toxic component of the drug is passed on through vaginal fluid.

Clinical features

Symptoms: Burning pain, ulcers and /or bullous lesions that tend to recur in the same site.

Signs: lesions are usually well demarcated and erythematous, but can be bullous with subsequent ulceration. As the inflammation settles the skin becomes brown.

Diagnosis

History: a drug history is essential.

Rechallenge: This can confirm the diagnosis but can precipitate more severe reactions and should only be done with fully informed consent of the patient.

Management

Condition will settle without treatment .
Topical steroids – e.g. mild to moderate strength twice daily until resolution.
Rarely systemic steroids may be required if the lesions are severe.

Follow up

Not required after resolution. Patients should be advised to avoid the precipitant.

20.3. Pre-malignant conditions

There are three clinical presentations of penile carcinoma in situ (PCIS).They are all strongly related to human papillomavirus infection or lichen sclerosus. Erythroplasia of Queyrat and Bowen's disease are considered together as they are similar but affect the non-keratinised and keratinised skin, respectively. All may progress to frank squamous cell carcinoma (SCC), but the risk is much less in Bowenoid papulosis, unless there is immunosuppression such as in HIV. SCC presents as an asymmetrical, irregular ulcer or nodule and may coexist with PCIS and lichen sclerosus.

20.3.1. Erythroplasia of Queyrat (PCIS of the glans)

Aetiology

This is a premalignant condition affecting the penis, usually the glans, prepuce or meatus. It is estimated that up to 30% of cases progress to invasive cancer. It is triggered by coinfection with multiple types of papilloma virus.

Clinical Features

Typical appearance: red, velvety, well-circumscribed area on the glans. May have raised white areas, but if indurated suggests frank squamous cell carcinoma.

Management

Surgical excision

Alternative Regimens:

Cryotherapy, Imiquimod 5% cream

Follow up

Obligatory because of the possibility of recurrence. Minimum of annual appointments.

20.3.2. Bowen's disease (PCIS of keratinised skin or shaft)

Aetiology

This is also cutaneous carcinoma in situ

Clinical Features

Scaly, discrete, erythematous plaque.

Complications

Up to 20 % will develop into frank squamous carcinoma.

Diagnosis

Biopsy is essential

Management

Local excision

Alternative regimens:

Imiquimod cream, Laser resection.

Follow-up

Obligatory because of the possibility of recurrence. Minimum of annual appointments.

20.3.3. Bowenoid papulosis

Aetiology

Another form of carcinoma in situ, this is linked to HPV infection particularly with type 18.

Typical appearance

Clinically very similar to genital warts. Lesions range from discrete papules to plaques that are often grouped and pigmented.

Diagnosis

Biopsy: the diagnosis should be confirmed by biopsy.

Management

- ☐ Imiquimod 5% cream.
- ☐ Laser resection

Alternative regimens:

Cryotherapy.

Curettage and cautery.

Surgical excision.

Follow-up

Obligatory because of the likelihood of recurrence (5–10%), although optimum length of follow-up is uncertain.

20.4. Other skin conditions

A range of other skin conditions may affect the glans penis. These include erythema multiforme and immuno-bullous disorders, including pemphigus and dermatitis artefacta. A dermatologist's opinion should be sought for diagnosis and management of these.

21. Scabies infestation

21.1. Aetiology

The infestation is caused by the human itch mite *Sarcoptes scabiei* var hominis.

21.2. Transmission

Transmission occurs through skin to skin contact. Mite can live off a host for 24-36 hours. Fomite transmission is uncommon but can occur in crusted scabies

21.3. Clinical Manifestations

21.3.1. Classical Scabies

Symptoms

- Intense generalized pruritus which worsens at night.
- Symptoms can appear 3-6 weeks after exposure but can occur earlier at 1-3 days in a re-infested person. Scabies can be infectious before the rash develops.

Signs

- The pathognomonic lesion is the burrow-linear intra-epidermal tunnel caused by the moving mite
- Common sites include interdigital web spaces, flexor aspect of wrist, extensor aspect of the elbows, anterior and posterior axillary folds, penis and scrotum of men, around the nipples.
- Nodular lesions over genital area.

21.3.2. Crusted Scabies

- Crusted Scabies (Scabies crustosa/Norwegian Scabies) can occur in HIV/immuno compromised individuals, Elderly and physically handicapped persons.
- Lesions are characterized by- erythematous scaly crusted lesions also can be malodorous and associated with fissuring. This can affect any part of the body involving face and scalp.
- In HIV/immunocompromised patient lesions can be atypical papular lesions on the face and scalp. Pruritus can be mild due to impaired immune response.

21.3.3. Scabies Incognito

This condition is followed by using topical steroids. Lesions present as widespread atypical papular lesions which can be confused with other forms of generalized eczema.

21.4. Diagnosis

- Clinical history of itching which worsens in the night and affecting the close contacts and family members should be suspected for scabies.
- Clinical appearance and distribution of the lesions are usually typical but may be confused with other conditions like eczema.

- Scraping from the lesions can be examined under the microscope for mites, eggs and faecal pellets by placing them on a glass slide with 10% potassium hydroxide.
- Burrow ink test (BIT)- ink is applied to the suspected papule and surface ink is removed with alcohol
- Dermoscopy

Differential diagnosis

Impetigo, papular urticaria, folliculitis, contact dermatitis, atopic dermatitis, dermatitis herpetiformis, seborrhoeic dermatitis, psoriasis, pytiriasis rosea, secondary syphilis, lymphoma and pseudolymphoma (nodular lesion

21.5. Complication

Secondary bacterial infection leading to impetigo, folliculitis, furunculosis, ecthyma, and abscess.
Secondary eczematisation
Glomerulonephritis and leucocytoclastic vasculitis

21.6. Management

General advice

- Avoid close body contact with their partners until they complete their treatment
- Clothing, bed linen and towels used by the patient, household and close contacts (sexual/other) during a period of four days prior to treatment need to be washed in a high temperature >50 ^{0}C. Clothes which cannot be washed can undergo dry cleaning or to be sealed in a plastic bag for 72 hours since mite does not survive more than 72 hours away from the human host.

Recommended regimens

☐ Permethrin 5% cream

- Apply the cream to cool and dry skin (esp. not after a hot bath). It should be applied over the whole body below chin and ears with special attention to the finger web spaces, toes and under the nails.
- In the immunocompromised, young and elderly may need application including face and scalp which is usually spared in the others.
- Allow the lotion to dry prior to dressing and this should be left for 8 to 12 hours. If the hands are washed before 8 hours, reapplication should be considered
- Reapply the cream after one week

☐ Malathion 0.5% aqueous lotion

- Application is same as for permethrin and used when permethrin is inappropriate (allergy to chrysanthemums)
- Wash the treatment after 24 hours and reapplication is needed after one week

☐ Benzyl benzoate 25% cream-

- applied to the whole body from neck downwards and washed after 12 hours for 3 consecutive days

21.6.1. Crusted scabies management

- Topical permethrin cream should be applied daily for seven days followed by twice weekly until cure.
- Oral Ivermectin is added at dose of 200mcg/kg on day 1,2,8,9, and 15. In severe infection additional doses are given on day 22 and 29. (Adverse effects; rashes vomiting and abdominal pain)
- Patients should be isolated

21.6.2. Post scabetic itch management

- Itching can persist up to 2 weeks. Failure of the treatment need to consider if the itching persist for 2-4 weeks and appearance of new burrows
- Crotamiton 10% lotion applied 2-3 times a day
- Topical hydrocortisone 1% - if mites are eradicated.
- Sedative antihistamine (Chlorpheniramine or hydroxyzine) may be helpful in the night
- Dry skin and eczema can be treated with emollients

21.7. Allergy

Treatment to which known hypersensitivity should be avoided

21.8. Pregnancy and breast feeding

- Permethrin safe in pregnancy
- Malathion can be used in case of allergy
- Possibly oral antihistamines should be avoided in pregnancy especially in the first trimester. If it is needed Chlorpheniramine is the drug of choice.

21.9. Sexual partners

- Current sexual partners and members of the household need to be treated.
- Contact tracing of partners from one month back is needed

21.10. Follow up

- The appearance of new burrows at any stage post treatment is indicative of a need for further treatment. Symptoms of pruritus may develop prior to appearance of the burrows.
- Pruritus persisting for more than 2-4 weeks may reflect treatment failure, reinfection, drug allergy or hypersensitivity to the dead mite.

21.11. HIV infection

Uncomplicated scabies should receive the same treatment as HIV negatives. Immunocompromised are at risk of Crusted scabies.

22. Phthirus pubis infestation

22.1. Aetiology

- The crab louse, Phthirus pubis is transmitted from person to person most-commonly via sexual contact, although fomites (bedding, clothing) may play a minor role in their transmission.
- The incubation period usually ranges from 5 days to several weeks, although occasional individuals have more prolonged, asymptomatic infestation
- Adults are found only on the human host and require human blood to survive. If adults are forced off the host, they will die within 24–48 hours without a blood feeding

22.2. Clinical features

Symptoms and signs

- Adult lice infest coarse hairs of the pubic area, body hair and rarely eyebrows and eyelashes.
- Pubic lice on the head (eyelashes or eyebrows) of a child may be an indication of sexual exposure or abuse.
- Eggs (nits) are laid which adhere to the hairs.
- The patient may be asymptomatic or may present with itching due to hypersensitivity to feeding lice.
- Blue macules (maculae caeruleae) may be visible at feeding sites.
- As with other lice infestations, intense itching leads to scratching which can cause sores and secondary bacterial infection of the skin.

22.3. Diagnosis

- This is based on finding adult lice and/or eggs on the hair of the pubic area.
- Magnifying lens may be helpful in visualizing.
- Examination under light microscopy can confirm the morphology if necessary.

22.4. Management

General advice

- Patients should be advised to avoid close body contact until they and their partner(s) have completed treatment and follow-up.
- Clothing, towels, or bedding used by the infected person during the 2–3 days before treatment should be wash in boiling water to kill any lice or nits remaining. Items which cannot be washed can be dry cleaned or sealed in a plastic bag for two weeks

Treatment

- Lotions are likely to be more effective than shampoos and should be applied to all body hair including the beard and moustache if necessary.
- A second application after 3-7 days is advised.
- Shaving of pubic hair.

- Screening for other STIs should be undertaken.

Recommended treatments

- ☐ Malathion 0.5%. Apply to dry hair and wash out after at least 2 hours and preferably 12 hours ie: Overnight
- ☐ Permethrin 5% cream. Leave for 8-12 hours.
- ☐ Phenothrin 0.2%. Apply to dry hair and wash out after 2 hours
- ☐ Cabaryl 0.5 and 1%- apply to dry hair and washed after 12hours
- ☐ Infestation of the eye lashes-mites can be removed manually with forceps or a nit comb. 1% permethrin lotion can used on closed eyes for 10 minutes.
- ☐ Alternatively, an inert ophthalmic ointment with a white or yellow paraffin base such as simple eye ointment BP may be applied to the eyelashes twice daily for 8-10 days. This works by suffocating lice and avoid any risk of eye irritation by topical insecticide.

22.5. Allergy

Treatments to which there is known hypersensitivity should be avoided.

22.6. Pregnancy and breastfeeding

Permethrin is safe during pregnancy and breastfeeding.

22.7. Sexual partners

Current sexual partners should be examined and treated.

Contact tracing of partners up to last three months should be considered

22.8. Follow-up

Patients should be re-examined for absence of lice after 1 week.

Dead nits may remain adherent to the hairs and does not indicate treatment failure

Treatment failures should be given an alternative from the above list.

23. Molluscum Contagiosum

Molluscum infection is a benign epidermal eruption of the skin most commonly seen in children

23.1. Aetiology

- Molluscum infection is caused by *Molluscum contagiosum*, a large DNA virus which belongs to the family of *Poxviridae* and genus *Mulluscipox*.
- Infection can be acquired through routine physical contact or occasionally by fomites.
- This is common in children and lesions usually occurs on the face, neck, trunk or limbs.
- Sexually acquired molluscum affects the pubic region, genitals, lower abdomen, upper thighs and buttocks.
- Severe molluscum infection can be present in the immunocompromised and late stage HIV infection.

23.2. Clinical Features

- Incubation period varies from two weeks to six months. Lesions characteristically present as smooth-surfaced, firm, dome shaped papules with central umbilication whose core may be expressed.
- The color varies from, pearly white or pink to yellow. The lesions average 2-5mm in size and usually painless. Occasionally giant lesion (>15mm) can occur in immunocompromise individuals. Uncommon manifestations include cystic lesions, cellulitis, abscess-like lesions, cutaneous pseudo lymphomas, folliculitis and warty appearance.
- Number of lesions vary from 1-30 individual lesions in clusters and these can be koebnerised.

23.3. Molluscum in the immunocompromised

Lesions can be more aggressive and widespread.
Molluscum can be present as immune reconstitution inflammatory syndrome (IRIS) with the commencement of ART.

23.4. Diagnosis

- Usually based on the characteristic clinical appearance of the lesions.
- Dermatoscopy and biopsy may be helpful in atypical infection.

Further investigations

Screening for STIs including HIV should be undertaken

23.5. Management

General advice

- Immunocompetent patients need to be reassured since the lesion can undergo spontaneous regression and adopt a policy of watchful waiting. Treatment is offered for cosmetic reasons
- Advice against shaving and waxing to avoid further spread of lesions. At the same time to avoid squeezing to prevent super-infection and the central plug is highly infectious with virus and easily spread to the uninfected skin.
- Avoid sharing bed linen, towels and clothes.

Treatment

- Expectant management (no treatment) is recommended for immunocompetent individuals.
- Liquid nitrogen (Cryotherapy) weekly applications.
- Chemical cauterization with TCA- Under Vaseline cover.
- Podophyllotoxin (0.5%) Cream twice daily for three consecutive days with a pause for four days. This can be repeated weekly for four weeks.
- Imiquimod 5% cream applied three times weekly and washed after 6-10 hours, for 16 weeks.
- Curettage (unsuitable for genital lesions) and diathermy may be carried out under local anaesthesia.
- Light emitting pulse dye laser.

23.6. Pregnancy and breastfeeding

Cryotherapy and destructive methods are safe.
Podophyllotoxin and Imiquimod are contraindicated.

23.7. Treatment in HIV positive

In patients with HIV infection, introducing HAART may lead to resolution.
Topical Cidofovir has some efficacy in the treatment of non-genital recalcitrant molluscum in HIV infected people

23.8. Allergy

Treatment to which there is known hypersensitivity should be avoided.

23.9. Sexual partners

Contact tracing of partners – not necessary.

23.10. Follow up

Routine follow up is not require.

24. Viral Hepatitis infections

24.1. Hepatitis A virus infection

24.1.1. Aetiology

Caused by a picorna (RNA) virus.

24.1.2. Transmission

- Faeco-oral (via food, water, close personal contact).
- Sexual contact (mainly anal sex) with an infectious partner.
- Patients are infectious for approximately two weeks before and one week after the jaundice.

24.1.3. Clinical Features

Incubation Period: 15-45 days

Symptoms

Most children and up to half of adults are asymptomatic or have mild non-specific symptoms with little or no jaundice. In the more 'typical' case there are two phases of symptoms

1. **The prodromal illness**

Flu-like symptoms (malaise, myalgia, fatigue), often with right upper abdominal pain. This phase lasts for 3-10 days. This is followed by

2. **The icteric illness**

Jaundice (mixed hepatic and cholestatic) associated with anorexia, nausea and fatigue which usually lasts for 1-3 weeks. It can persist for 12 or more weeks in a minority of patients who have cholestatic symptoms (itching and deep jaundice). Fever is not found in this phase.

Signs

None specific in the prodromal phase.

Icteric phase - jaundice with pale stools and dark urine.

Liver enlargement/tenderness and signs of dehydration are also common.

24.1.4. Complications

Hepatitis A viral infection is usually a self-limiting and complications are rare (Fulminant hepatitis complicates approximately 0.4% of cases).

24.1.5. Diagnosis

Serology

Confirmed by a positive serum Hepatitis A virus – specific IgM. (HAV-IgM)

HAV-IgG does not distinguish between current or past infection

Other tests

Liver function tests

24.1.6. Management

Patients should be advised to avoid food handling and unprotected sexual intercourse until they become non-infectious

Mild to moderate cases - managed as out-patients with bed rest, proper hydration and supportive care
Severe cases – admit to hospital and manage accordingly.

24.1.7. Prevention

Hepatitis A vaccine (Refer Vaccine chapter)

24.2. Hepatitis B virus infection

24.2.1. Aetiology

Caused by Hepatitis B virus (HBV) which is a DNA virus in the Hepadnaviridae family of viruses.

24.2.2. Transmission

- parenteral (blood, blood products, drug-users sharing needles and syringes, needle-stick, acupuncture) and
- vertical (infected mother to infant)
- Sexual transmission
- Horizontal transmission
- Incubation period 40-160 days.

24.2.3. Clinical Features

Symptoms

Virtually all infants and children have asymptomatic acute infection. Asymptomatic infection is also found in 10-50% of adults in the acute phase and is especially likely in those with HIV co-infection.

The prodromal and icteric phases are very similar to hepatitis A, but may be more severe and prolonged.

Signs

As for hepatitis A in the acute phase.

If chronic infection occurs there are often no physical signs. After many years of infection, depending on the severity and duration, there may be signs of chronic liver disease.

24.2.4. Complications

Acute infection

Fulminant hepatitis occurs in less than 1% of symptomatic cases but carries a worse prognosis than that caused by hepatitis A.

Chronic infection

Chronic infection (>6 months) occurs in 5-10% of symptomatic cases. Almost all (>90%) of infants born to infectious (HBeAg +ve) mothers will become chronic carriers unless immunized.

There are five phases of chronic infection or carriage

1. **HBe Ag positive chronic HBV infection**

Previously known as Immune Tolerant hepatitis (hepatitis B e antigen positive, high levels of HBV DNA, normal aminotransferase levels, little or no necro-inflammation on liver biopsy)

2. **HBe Ag positive chronic active hepatitis**

Previously known as Immune Active, HBeAg-positive phase (hepatitis B e antigen positive, high but falling levels of HBV DNA can be there, raised aminotransferases, significant necro-inflammation and progressive fibrosis)

3. **HBe Ag negative chronic HBV infection**

Previously known as Inactive hepatitis B carrier (typically HBeAg-negative, low levels of HBV DNA and normal aminotransferases)

4. **HBe Ag negative chronic active hepatitis**

HBeAg – ve, HBV DNA levels are detectable but can fluctuate, liver inflammation and progressive fibrosis can be present, genetic sequencing might detect mutations in the precore or core promotor mutations regions of the viral genome.

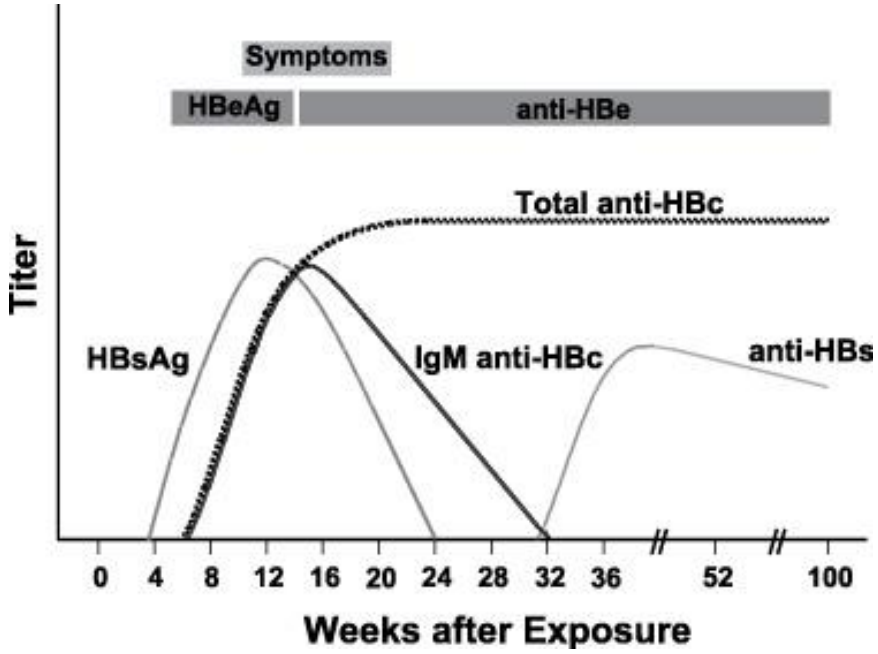
5. **HBs Ag negative phase also known as occult HBV infection**

Negative Hep BsAg and positive anti-HBc, +/- anti-HBs, normal ALT levels, undetectable serum HBV DNA but HBV DNA (cccDNA) can be detected in the liver. Immunosuppression can lead to reactivation in these patients

Progression to cirrhosis may occur during phases 2 and 4.

Primary liver cancer may complicate chronic HBV infection at any stage, but most commonly after development of cirrhosis

Concurrent hepatitis C infection can lead to fulminant hepatitis, more aggressive chronic hepatitis and increased risk of liver cancer. Concurrent HIV infection increases the risk of progression to cirrhosis and death.



24.2.5. Diagnosis

Stage of infection	Surface antigen (HBsAg)	'e' antigen (HBeAg)	IgM Anti-core ab	IgG Anti-core ab	Hepatitis B virus DNA	Anti-HBe	Anti-HBs Ab	ALT
Acute (early)	+	+	+*	+	+	-	-	⬆⬆⬆
Acute (resolving)	+	-	+	+	-	+/-	-	⬆⬆
HBe Ag positive chronic HBV infection	+	+	-	+	++	-	-	N
HBe Ag positive chronic active hepatitis	+	+	-	+	+	-	-	⬆
HBe Ag negative chronic active hepatitis	+	-	-	+	+	+/-	-	⬆
HBe Ag negative chronic HBV infection	+	-	-	+	-	+	-	N
Resolved (immune)	-	-	-	+	-	+/-	+/-	N
Successful vaccination	-	-	-	-	-	-	+	N

*In very early infections the IgM and IgG anti-core can be negative

** N= Normal

24.2.6. Other tests

- HBV-DNAlevels
- Liver function tests
- Screening for other sexually transmitted diseases where relevant
- Ultrasound scan
- Fibroscan
- Liver biopsy (for assessment of chronic disease)

24.2.7. Management

General advice

- Patients should be advised to avoid unprotected sexual intercourse, including oro-anal and oro-genital contact until they have become non-infectious or their partners have been successfully vaccinated.
- Patients should be advised not to donate blood, semen or organs.
- Patients should be given a detailed explanation of their condition with particular emphasis on the long-term implications for the health of themselves and their partner(s), routes of transmission of infection (see below) and advised not to donate blood.
- Avoid alcohol and hepatotoxic drugs.

Hepatitis B is a notifiable disease

24.2.8. Treatment

Treatment is best to be provided by a physician experienced in the management of liver disease. Therefore, it is recommended to refer all HBs Ag positive patients to a specialist experienced in the management of viral hepatitis.

Treatment of Acute icteric hepatitis.

As for hepatitis A.
There is evidence that anti-viral agents can prevent acute liver failure, improve morbidity and mortality in patients with severe acute infection

Treatment of Chronic Infection

- The decision to treat depends on pattern of disease, HBVDNA level, and presence or absence of significant necro-inflammation and hepatic fibrosis.
- Treatment is usually given to adults with an HBV DNA >2000 IU/ml with evidence of necro-inflammation and/or fibrosis.

☐ Tenofovir disoproxil fumarate (TDF) or

☐ Tenofovir alafenamide (TAF) or

☐ Entecavir

- Treatment responders have long-term benefits in terms of reduced liver damage and decreased risk of liver cancer.
- All patients should have an HIV test prior to starting HBV therapy because of the similar risks of acquisition, the different treatment strategies required in HIV co-infection and the significant risk of anti-retroviral resistant HIV developing if lamivudine, TDF, TAF or entecavir are used as monotherapy.

- Lamivudine, emtricitabine, TDF and TAF will suppress hepatitis B viral replication during therapy of HIV and will prevent HBV-associated liver damage if given as part of triple antiretroviral therapy.
- Lamivudine and emtricitabine should only be given to HIV+ patients in combination with TDF or TAF as part of HAART because of the rapid high rate of resistance that occurs to these drugs if given as the only HBV-active agent.
- Entecavir should not be used in HIV+ patients without adequately suppressed HIV as it causes the M184V (lamivudine/emtricitabine) resistant mutation.
- Active surveillance by a hepatologist of patients with significant fibrosis/cirrhosis for hepatocellular carcinoma (HCC) with ultrasound and alpha-feto protein is recommended 6-12 monthly
- In the context of HBV, there is a high risk of HCC development in some groups of non-cirrhotic patients. This includes African patients over the age of 20, Asian males over 40, Asian females over 50, and patients with a family history of HCC. HBV-infected patients meeting these criteria should be offered HCC screening in the hepatology clinic.
- Arrange screening for hepatitis C, hepatitis D and hepatitis A immunity if available.
- Vaccination against hepatitis A if non-immune.

24.2.9. Pregnancy and Breastfeeding

- Vertical transmission (mother to infant) of infection occurs in ninety percent of pregnancies where the mother is hepatitis B e antigen positive and in about ten percent of surface antigen positive, e antigen negative mothers. Most (>90%) of infected infants become chronic carriers.
- Infants born to infectious mothers should be vaccinated at birth. In addition, Hepatitis B specific Immunoglobulin 200 i.u. IM is also given in certain situations where the mother is highly infectious. This reduces vertical transmission by 90%.
- Consider Tenofovir monotherapy for pregnant women with HBV DNA >107 IU/ml in the third trimester to reduce the risk of transmission of HBV to the baby
- Infected mothers should continue to breast feed as there is no additional risk of transmission through breast feeding.

24.2.10. Sexual and other contacts

Partner notification should be performed to include any sexual contact (penetrative vaginal or anal sex or oro/anal sex) or needle sharing partners.

All negative, non immune partners should be offered hepatitis B vaccination.

24.2.11. Follow-up

Acute infection

As for hepatitis A. In view of the possibility of chronic infection, serology should be repeated after six months even if the LFT is normal.

Chronic infection

(HBeAg+ve or HBV DNA >105 iu/ml): If untreated, patients should be regularly reviewed at intervals of one year or less, ideally by a physician with expertise in this disease .

Immunity after recovery from infection (surface antigen negative) is lifelong in over 90%.

24.2.12. Prevention

Hepatitis B testing in asymptomatic patients should be considered in men who have sex with men, sex workers (of either sex), intravenous drug users, HIV-positive patients, sexual assault victims, needle-stick victims and sexual partners of positive or high-risk patients. If non-immune, recommend vaccination (see below). If found to be chronic carriers refer for therapy.

Vaccination should be offered to non-immune patients in most of the above groups.

HIV positive patients show a reduced response rate to the vaccine (approximately 40%) and become anti- HBs negative more quickly.

24.2.13. Vaccination

(Refer chapter 34)

24.3. Hepatitis C virus (HCV) infection

24.3.1. Aetiology

Hepatitis C virus (HCV) an RNAvirus in the flaviviridae family.

24.3.2. Transmission

Parenteral spread accounts for the majority of cases through shared needles/syringes in IVDUs, transfusion of blood or blood products (pre-1990s), renal dialysis, needle-stick injury or sharing a razor withan infected individual

Sexual transmission occurs at a low rate (approximately 0.2-2% per year of relationship, or 1-11% of spouses in long-term relationships)

Vertical (mother to infant) spread also occurs at a low rate (5% or less)

24.3.3. Clinical Features

Incubation period 4 to 20 weeks for the uncommon cases of acute hepatitis.

Symptoms

The majority of patients (>80%) undergo asymptomatic acute infection.

The uncommon cases of acute icteric hepatitis are similar to hepatitis A.

Signs

Acute icteric hepatitis similar to hepatitis A.

Chronic hepatitis similar to hepatitis B

24.3.4. Complications

Acute fulminant hepatitis is rare (<1% of all hepatitis C infections)

Approximately 50-85% of infected patients become chronic carriers - a state which is normally asymptomatic but may cause non-specific ill health. Once established, the chronic carrier state rarely resolves spontaneously (0.02%/year). Symptoms/signs are worse if there is a high alcohol intake or other liver disease.

Mortality in acute hepatitis is very low (<1%) but 1-30% of chronic carriers will progress to severe liver disease after 14-20 years infection, with an increased risk of liver cancer (approximately 1-4% of all patients and up to 33% of those with cirrhosis). HIV co-infection worsens the prognosis.

Complications of acute icteric hepatitis: as for hepatitis A.

24.3.5. Diagnosis

- Screening - HCV antibody test (ELISA)
- Confirmatory test - HCV-RNA

Other tests

- HCV Genotypic Assay
- Liver function tests (LFT)
- Screening for other sexually transmitted diseases where relevant
- Ultrasound scan
- Fibro scan
- Liver biopsy (for assessment of chronic disease)

24.4. Management

24.4.1. General advice

Patients should be advised not to donate blood, semen or organs

Advice on other routes of transmission such as sexual transmission and mother to child transmission.

Patients should be given a detailed explanation of their condition with particular emphasis on the long-term implications for the health of themselves and their partner(s).

24.4.2. Treatment

Treatment should be given by a physician experienced in the management of liver disease.

Effective direct active antiviral drugs available depending on the genotype.

Pregnancy and Breast feeding.

At present there is no known way of reducing the risk of vertical transmission.

Breast feeding: there is no firm evidence of additional risk of transmission except, perhaps in women who are symptomatic with a high viral load.

25. Management of adults and adolescents following sexual assault

This chapter focus on management of adults and adolescents who could directly present to the sexual health services following a sexual assault or get referred for STI screening through the judicial medical officer or through direct court order.

25.1. The current legal frame work for rape and sexual assault in Sri Lanka:

The constitution of Sri Lanka – the article 11 of the constitution of Sri Lanka provides a general protection against violence that no person shall be subjected to harassment or inhuman or cruel treatment or punishment.

The penal code of Sri Lanka contains the country's most significant legal statute:

Article 363 of the penal code defines rape as sexual intercourse with a woman in five scenarios (Penetration constitutes sexual intercourse)

1. Sexual intercourse without the woman's consent
2. Sexual intercourse even with consent when the woman is in lawful or unlawful detention when the consent is obtained through intimidation, threat or force
3. When consent has been obtained for sexual intercourse when the woman was of unsound mind or state of intoxication
4. When the woman has consented believing that she was married to the man
5. If the woman was under 16 years of age and not married to the man or legally separated from the man

Article 365 of the penal code defines unnatural offences and grave sexual abuse

1. Unnatural offences – when an individual voluntarily have carnal intercourse against the order of nature with any man, woman or animal
2. Grave sexual abuse – for sexual gratification doing any act by the use of genitals or any other part of the human body or any instrument on any orifice or part of the body on any other person

Age of consent

The age of consent for sex in Sri Lanka is 16 years. Anyone below the age of 16 having consensual sexual activity may result in statuary rape.

In Sri Lanka the state provides free medico legal services to its citizens through a network of health institutions. During all steps in providing medico legal services the human rights of all survivors of sexual assault should be protected and respected including those of children.

These are:

Right to health care

Right to human dignity

Right to non discrimination

Right to information

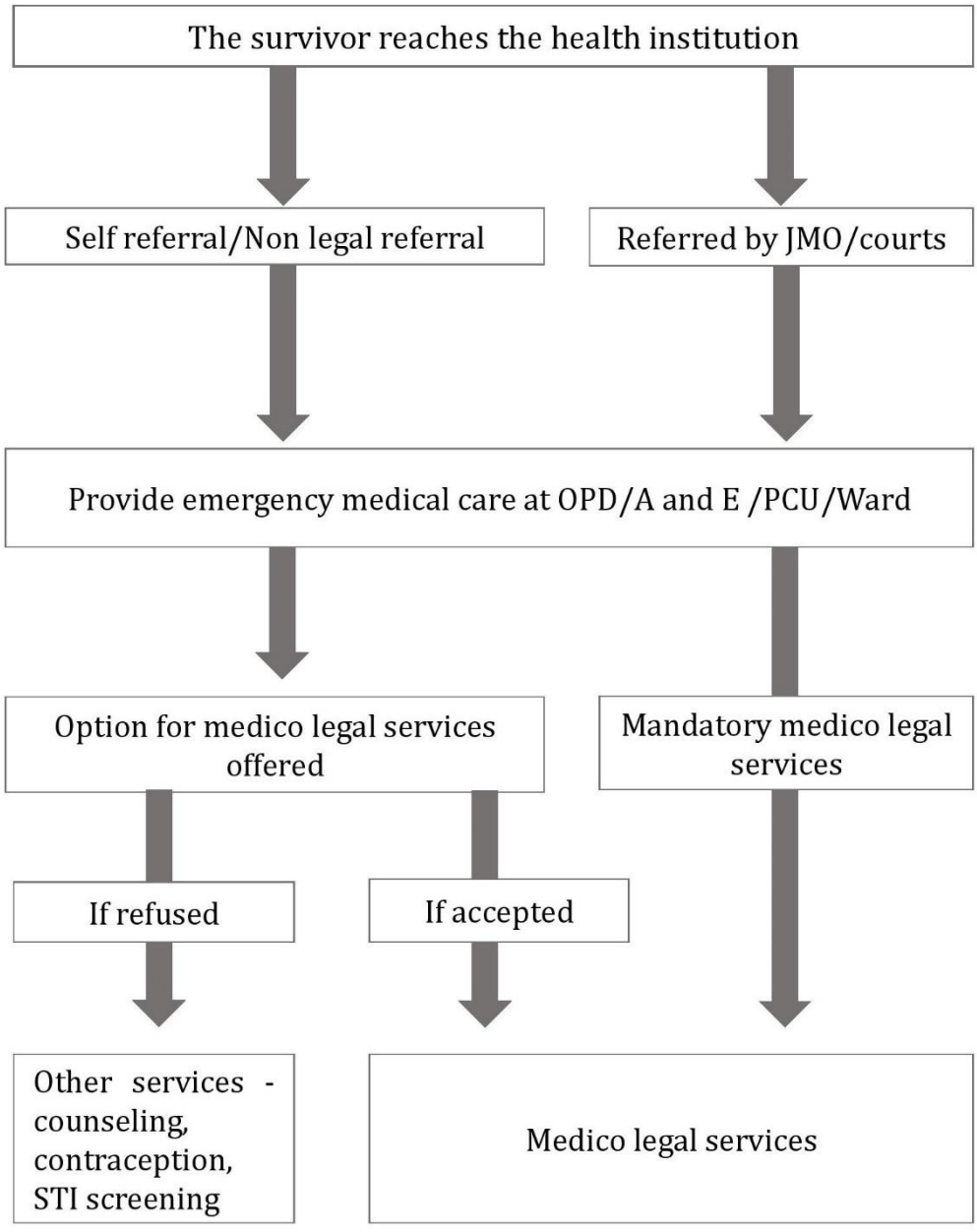
Right to self determination

Right to privacy

Right to confidentiality

(Source; National Guidelines on examination, reporting and management of sexually abused survivors for medico legal purposes. 2014. p. 4-5)

The Flow chart for provision of medico-legal services: (Adopted from National guidelines on examination, reporting and management of sexually abused survivors for medico – legal purposes)



Ideally, victims of sexual assault should be examined by specialists in forensic medicine or grade medical officers with special training in forensic medicine.

Medico legal examination should only be performed on individuals who have been issued a medico legal examination form (MLEF) by the police or on an order by the court of law.

25.2. Screening for sexually transmitted infections in sexual assault victims

25.2.1. Documentation

Proper and careful documentation of history, examination findings and consents obtained is important. These may form a part of the clinical justice process where the clinician may later be requested to provide a statement or disclose notes.

25.2.2. History

- If detailed history is already available/taken extract the data from BHT or other documents rather than re taking the history from the victim
- A brief history of the assault should be taken which should include – date, time, location, number of perpetrators, perpetrator characteristics, physical violence, presence of injuries, sexual acts (oral, anal, vaginal), if ejaculation occurred and use of condoms.
- Pre and post assault sexual history is important in considering incubation periods and further transmission.
- Any presenting symptoms
- Risk of viral infections in the perpetrator (e.g.; HIV, Hep B and C)
- Past medical, surgical, gynaecological and mental health history
- Menstrual and contraceptive history
- Prescribed and non-prescribed medication use and history of allergy

25.2.3. Examination

- Examination should be carried out maintaining privacy and respecting patient's wishes.
- In females, carry out an internal vaginal examination to inspect for injuries and evidence of infection.
- In adolescent girls and unmarried females with no prior penetrative sex internal vaginal examination with speculum should only be done if absolutely necessary and with proper informed consent.
- In males examine the genitalia and peri anal region to look for injuries and evidence of infection.
- If oral penetration has occurred examine the oral cavity for injuries and evidence of infection.
- If anal penetration had occurred proctoscopy can be considered.

25.2.4. Investigations

- In those who do not wish to have speculum examinations proceed with non invasive tests like self-taken or physician taken vulvo vaginal swabs and urine samples.
- NAATs are superior for diagnosis of *Chlamydia trachomatis* from urethral, vaginal and cervical swabs and first catch urine of men.
- Cultures for gonorrhoea from any site or attempted site of penetration. In women endocervical specimen are more sensitive than urine NAAT for gonorrhoea.
- Vaginal wet slides for candida, bacterial vaginosis and *Trichomonas vaginalis*.
- Gram stained slides from vagina and endocervix – for gram stained diplococci
- Serology
- VDRL/TPPA/HIV/Hepatitis B and C screening (if perpetrator characteristics suggest possible infection with hepatitis)

All serology should be repeated 3 months after the assault.

25.3. Forensic significance of positive STI results

Identifying a STI may not always give evidential information as they could be previously infected. Presenting evidence of STI in court could hurt the victim rather than help the victim indicating possible promiscuity.

The presence of an STI may assume evidential importance when diagnosed in a child, the elderly and a sexually inexperienced orifice in an adult (for e.g. Anorectal gonorrhoea in a heterosexual male who has been sexually assaulted).

25.4. Management

25.4.1. Prophylaxis

Prophylaxis against chlamydia, gonorrhoea and trichomoniasis can be offered if acquisition of bacterial STIs are high, following the sexual assault. The treatment regime should be in accordance with the national guidelines for managing persons exposed to the above bacterial STIs mentioned in the respective chapters of this guidelines.

25.4.2. Post exposure prophylaxis for HIV (HIV PEPSE)

HIV PEPSE should be discussed and documented in high risk sexual assaults within 72 hours of the incident.

HIV Risk factors

- Assailant from high risk group
- Local prevalence of HIV
- HIV status of the assailant
- Type of assault (Vaginal, oral, anal)
- Stranger versus known assailant
- Presence of other STIs in the assailant
- Genital injuries
- Multiple assailants
- Multiple risk factors

Risk of HIV transmission from a known HIV positive (for reference of risk assessment)

- Receptive anal sex – 0.1%-3%
- Insertive anal sex – 0.6%
- Receptive vaginal intercourse – 0.1%-0.2%
- Insertive vaginal intercourse – 0.03% - 0.09%
- Receptive oral sex (fellatio) – 0.00 -0.04%
- If the risk of HIV acquisition is high and the victim present within 72 hours, PEPSE can be offered keeping with the national guideline regimen for PEP for occupational exposures.

25.4.3. Prophylaxis for hepatitis B

Acquisition of hepatitis B infection through sexual assault is not documented in Sri Lanka. However, if there is high risk of acquisition of hepatitis B or the victim wishes, vaccination can be offered up to 6 weeks, as an accelerated course 0,1,2 and booster at 12 months. HBIG can be considered if the victim presents within 7 days of a high risk exposure.

25.4.4. Treatment of identified STIs

The treatment of identified STIs in the victim should be treated in accordance with the National guidelines as mentioned in the respective chapters.

Treatment in Pregnancy and Breast feeding – should adhere to the National guidelines' treatment options in pregnancy and breast feeding.

25.4.5. Pregnancy prevention

If already not attended to, pregnancy prevention should be discussed and offered up to 5 days from the assault.

25.4.6. Counseling

Post traumatic stress disorder can be common in sexual assault victims. If not already referred, psychiatric referral should be considered.

25.5. Sexual Partners

If a victim is diagnosed of an STI at the time of presentation their regular sexual partners need to be screened and offered epidemiological treatment.

Abstinence or protected intercourse should be advised for victims with regular sexual partners until screening is completed.

25.6. Follow up

STI screening should be offered at the day of presentation, in 2 weeks and 3 -6 months.

26. Sexually transmitted infections in children

STIs in children less than 3 years, vertical transmission is a possibility, but sexual abuse has to be considered. In children above 3years sexual abuse is the most likely mode of transmission but perinatal transmission should be excluded as far as possible. In older children the possibility of sexual abuse or consensual sexual activity has to be considered.

26.1. History taking

Care should be taken not to cause any undue psychological disturbance to the child. History should be taken either from child alone or child and parent/guardian; whichever is appropriate according to the situation. Child and the parent/guardian should be assured of confidentiality, but child protection issues must be considered. (Refer National Child Protection Policy)

Clearly identify and record the reason/s for attendance:

- Symptomatic - attended voluntary, brought by parents or guardian
- Asymptomatic - attended voluntary, brought by parents or guardian for a check-up,
- Referral - OPD, hospital ward, general practitioner, court, prison, medico-legal purpose Contact of a STD clinic attendee

26.1.1. Presenting complaint

Symptoms
Vulval - pain, swelling, soreness, ulcers, itching, irritation
Vaginal - discharge, bleeding, soreness, ulcers, itching, irritation, Bad odor
Anal - pain, swelling, soreness, ulcers, itching, irritation, discharge, bleeding pain on defecation
dysuria, frequency
Penile – ulcers, urethral discharge, soreness, rash, itching
Oral cavity – ulcers, sore throat, warts
Ano-genital warts

Nature, duration, severity of symptom/s, involvement of other relevant sites, similar episodes earlier, details of any treatment taken, partner/s been symptomatic at present or past has to be recorded.

Presence of psychosomatic symptoms, emotional and behavioural disturbance indicates the possibility of child abuse.

26.1.2. Social history

Family background (including details about mother, father and other siblings), substance abuse, possibility of sex work, neglect, physical and emotional abuse.

26.1.3. Sexual history

The details of sexual history that could be obtained depend on the age and mental state of the child. Attempts should be made to assess the risk of ongoing sexual abuse and physical abuse. Need to explain the older children, parents and guardians the reasons for asking sensitive questions.

In all children details of sexual exposure /s should be recorded e.g. date/s and time, place/s, age and gender of the partner/s, type of sexual activity-penetrative or non-penetrative, site of exposure, frequency of exposure. In symptomatic patients, attempts should be made to get accurate details of all sexual partners during the incubation period of STIs that may be the cause of the presenting symptom/s. This facilitates effective partner notification and management

26.2. Examination

- Assure and respect privacy
- Explain the examination procedure to the child and the parent or guardian and get the consent
- Carry out a thorough general physical examination
- Do a complete genital examination including the perineal and peri-anal area
- Take the appropriate specimens during examination

26.2.1. Genital examination of pre-pubertal and pubertal girls

Genital examination is done in the supine position.

Vulva and anus - swelling, abrasions, vesicles, warts, discharge, bleeding, ulcers, other injuries,

Labia majora should be gently separated to view the hymenal orifice. Gentle traction at the posterior edge of the labia majora between the thumb and index finger, allows clearer visualization of the hymen.

26.2.2. Genital examination of boys

- Shaft of the penis – any structural abnormality, swelling, rash, ulcers, warts
- Prepuce – fissuring, ulcers, warts, phimosis, paraphimosis
- Glans penis – oedema, ulcers, warts
- Urethral meatus – warts, ulcers, discharge. If no discharge, milk the urethra and look for discharge at the meatus
- Scrotum – tenderness, palpate both testes
- Anal area – patulous anus, fissures, discharge, bleeding, ulcers, warty lesions
- Rectum if indicated – proctoscopic examination to look for oedema, erythema of the rectal mucosa, presence of ulcers, warty lesions, pus, blood

26.2.3. Investigations of prepubertal and pubertal girls

- Site/s to be sampled depend on the type of sexual exposure
- Vaginal samples are taken without speculum examination
- Swabs from vaginal wall or discharge for gram stained smear (for Gram negative intra-cellular diplococci, clue cells, candida spores and hyphae) GC culture and wet smear for TV
- Vaginal Swabs for chlamydia and gonorrhoea NAAT if available
- Urethral, oropharyngeal and rectal swabs for GC culture and GC and chlamydia NAAT should be taken separately depending on the site of exposure
- serological tests for syphilis , HIV, hepatitis

26.2.4. Investigations of boys

- Site/s to be sampled depend on the type of sexual exposure
- Gram stained smear from urethral and rectal swabs are done if the child is symptomatic related to the site.
- Urethral, oropharyngeal and rectal swabs for GC culture and GC and Chlamydia NAAT should be taken separately depending on the site of exposure.
- Serological tests for syphilis, HIV, hepatitis

In all children if genital ulcers present

- dark ground examination, giant cells, HSV PCR
- HSV culture

26.3. Management

- Parents should be offered full STI screening to exclude vertical transmission in children below 3 years.
- Siblings should be offered screening for STIs depending on the situation
- Where sexual abuse is suspected or disclosed in addition to STIs; pregnancy, psychological and psychosexual issues should be considered. Options for protection in the future should be explored. A comprehensive medical management could be considered involving a paediatrician, obstetrician and psychiatrist.
- Referral to JMO and child protection authority (contact number 1929) where sexual/physical abuse is suspected

26.4. Follow up

In cases of sexual abuse if last exposure is recent, a follow up visit approximately 2 weeks after the last sexual exposure will be needed to repeat the physical examination and to collect additional specimens in order to allow sufficient time for infections to incubate.

26.4.1. Treatment of STI in children

Infection	1-12 years		>12 years	
Gonorrhoea	Ceftriaxone 125mg intramuscularly in a single dose		Ceftriaxone 125mg intramuscularly in a single dose. If weight is > 45Kg – treat with one of the regimens recommended for adults	
Chlamydia	Erythromycin 50mg/kg/day in 4 divided doses orally x 14 days (maximum dose 500mg 6 hourly)		Doxycycline 100mg orally twice daily x7 days or Erythromycine 500mg twice daily x 14days or Erythromycine 500mg 6 hourly x 7 days or Azithromycin 1 g orally in a single dose	
Trichomoniasis	**1-3 years**	**3-7 years**	**7-10 years**	**>10 years**
	Metranidazole 50mg orally tds x 7days	Metranidazole 100mg orally bd x 7days	Metranidazole 100mg orally tds x 7days	Metranidazole 400mg orally bd x 7days
Genital herpes	Aciclovir 40 - 80 mg/kg/day orally in divided doses 3 to 4 times a day for 5-10 days Maximum dose: 1000 mg/day		Aciclovir 400mg 3 times a day or 200mg orally 5 times a day x5-7days	
Anogenital warts	Observation period for minimum of 3 months unless symptoms of pain, bleeding or irritation. If so consider – TCA, cryotherapy, electrosurgery or surgical excision under general anaesthesia. If the child is > 2yrs podophyllotoxin ,or imiquimod can be used			

.

27. Contraception

27.1. Introduction

Contraceptive recommendations should be personalized, focusing on the patient's safety and reproductive life plan. The interview should elicit, at minimum, menstrual, gynaecological and obstetric history, medication allergies, infectious or chronic health conditions and tobacco use. In selecting a contraceptive method, individuals weigh factors such as efficacy, access, prevention of sexually transmitted infections, side effects, convenience, and non contraceptive benefits.If contraception is started at the beginning of a normal natural menstrual period, there is no risk that the woman is already pregnant and potential exposure of a very early pregnancy to contraceptive hormones is avoided. The contraceptive method is immediately effective if started at this time.

27.2. Quick Starting Contraception

Commencement of a contraceptive method at a time other than the start of the menstrual cycle is termed ‘quick starting’. If a hormonal method of contraception is quick started, it may not be immediately effective and additional contraceptive precautions (barrier or abstinence) are often required until the new method becomes effective.

Women who have a negative high-sensitivity urine pregnancy test (HSUP) which is able to detect hCG levels around 20 mIU/ml but are at risk of pregnancy from recent unprotected sexual intercourse (UPSI) should be advised that:

1.Pregnancy cannot be excluded by an HSUP until ≥21 days after the last UPSI.

2.EC may be indicated.

CHC, POP and IMP can be quick started if they prefer not to delay starting contraception. DMPA may be considered if other methods are not suitable or acceptable.

27.3. Choice of Modern Contraceptive methods

Temporary Methods

1. Hormonal – CHCs, POP, IMP

2. Intra Uterine Devices

3. Barrier methods

Permanent Methods

1. Male sterilization

2. Female sterilization

27.4. Temporary Methods

27.4.1. Combined hormonal contraceptives (CHCs)

Combined hormonal contraceptives (CHCs) contain estrogen and progestogen and they are :

1. Combined oral contraceptive pill (COC)
2. Combined transdermal patch (CTP)
3. Combined vaginal ring (CVR)

The combined pill

There are monophasic 21 day pills, phasic 21 day pills and everyday pills. The common OCP available in Sri Lanka is low dose monophasic pills.

Mode of action

- Suppressing endometrial growth - prevents implantation
- Preventing ovulation by inhibiting FSH and LH
- Thickening of cervical mucus -making it difficult for sperms to enter the uterine cavity

Efficacy

If pill is taken according to the instructions, it is over 99% effective.

When to start

- Having menstrual cycles- within 1st five days or any time if pregnancy can be ruled out, and use condoms for 7 days or abstain
- Post partum - If breast feeding, after 6 months
- If not BF, the pill may be initiated at 4 weeks
- Post abortion- Pills should be initiated within the first five days

Contraindications

- Current pregnancy
- Current or past ischaemic heart disease / Angina
- < 21 days post partum
- Peripheral vascular disease - claudication
- Breastfeeding < 6 weeks post partum
- Complicated valvular heart disease
- VTE – Current or past history
- Atrial fibrillation
- BP - ≥160 mmHg systolic, ≥ 100 mmHg diastolic
- Cardiomyopathy with impaired function
- Smoking ≥35 years ≥15 cigarettes
- Known thrombogenic mutations
- Liver tumours (adenoma, hepatoma)
- Positive Anti-phospholipid antibodies
- Cirrhosis – severe (decompensated)
- SLE - positive Anti-phospholipid antibodies
- Current breast cancer
- Stroke / TIA / hypertensive retinopathy
- Migraine with aura
- Major surgery with prolonged immobilization
- Use of interacting drugs

How to use

- Start with the first of the 21 hormonal pills, within the first 5 days from the onset of menstruation. { If the cycles are too short (every 23 days or less), start the pills day 1 or sooner}
- Continue taking one pill around the same time each day.
- During the week when the woman is taking the placebo pills, she will experience withdrawal bleeding resembling menstruation.
- There should be no break in pill-taking between packets.
- If she does not experience withdrawal bleeding at the end of the second packet of pills, she should consult a medical officer.
- Before one pack of pills is over be sure to have another pack ready for use.

Missed pills

- Missed one or two hormonal pills on consecutive days
    - Take a hormonal pill as soon as possible
    - The pill scheduled for that day should be taken at the same time on the same day
    - Continue taking the other pills in the packet as usual-1 daily
- Missed 3 or more hormonal pills on consecutive days
    - Take a hormonal pill as soon as possible
    - The pill scheduled for that day should be taken at the same time on the same day
    - Continue taking the other pills in the packet as usual-1 daily
- Missed one or two hormonal pills.
    - Take one extra (hormonal) pill- the day she remembers
    - Continue taking the other pills in the packet as usual-1 daily
- Missed 3 or more hormonal pills.
    - Take one extra (hormonal) pill - the day she remembers
    - Take a hormonal pill for 7 consecutive days
    - Continue taking the pills in the packet as usual daily

N.B. She should also use condoms or abstain from sex until she has taken the hormonal pills for 7 consecutive days

- If she misses the pill in the third week, start a new pack
- If she misses the pills in the first week and had unprotected sex, consider the use of EC
- Missed any inactive (iron) pills - She should discard the missed inactive pills and then continue taking pills daily, one each day.

Side effects

Changes in bleeding pattern: Lighter bleeding, Irregular bleeding, Infrequent bleeding, No bleeding

Headache, dizziness, nausea, breast tenderness, weight gain, may increase blood pressure, mood changes, acne.

Injectables (DMPA)

DMPA is formulated for deep intramuscular (IM) injection as Depo-Provera® (150 mg medroxyprogesterone acetate in 1 ml). It is a long-acting reversible method of contraception (LARC).

Mode of action

primarily by inhibiting ovulation. Further prevent sperm penetration by altering the cervical mucus

Efficacy

When administered at the recommended dosing interval the failure rate of progestogen-only injectable contraception is approximately 0.2% in the first year of use. With typical use the failure rate is approximately 6%.

When to start

- With menses- within first seven days
- Or any time if pregnancy can be ruled out+ use condoms for 7 days or abstain
- Post partum - after 6 weeks
- Post abortion - during first seven days

Continuation

- The next DMPA injectable should be given in 90 days. However, the injectable could be given 14 days before or 28 days after the 90th day. An additional family planning method is not required.
- > 28 days - Use condoms for 7 days or abstain

Procedure for administration

Inquire on H/O allergy and hypersensitivity before administering and be prepared with emergency management.

The injection is administered to the deltoid muscle of the upper arm since it is a depot preparation. The injection site should *not* be massaged

Return of fertility ;On average it takes 4 months after the injection

Contraindication

Absolute contraindications	Relative contraindications
Pregnancy	History of breast cancer
Current Breast cancer	Undiagnosed vaginal bleeding
	Multiple risk factors for cardiovascular disease Current or h/o ischaemic heart disease/Angina
	Liver tumours (adenoma, hepatoma Severe decompensated cirrhosis
	Vascular disease – claudication, Stroke/TIA
	Hypertensive Retinopathy

Side effects

- Disturbances of menstruation:
    - Amenorrhea is to be expected and increases with the duration of use
    - Spotting on and off or irregular bleeding
    - Excessive bleeding occurs rarely
    - Irregular and prolong bleeding are common during first 3-6 months and gradually decreases with prolonged use
- Weight gain due to increased appetite

Follow-up plan (including next injection and dealing with possible side effects)

27.4.2. Subdermal Implants

The implant is a long-acting reversible method of contraception (LARC).

- Etonogestral implant (Implanon)- Effective for up to 3 yrs
- Levonogestral implant (Jadelle) - Effective for up to 5 yrs

Mode of action

- The primary mode of action is to prevent ovulation.
- Prevent sperm penetration by altering the cervical mucus
- prevent implantation by thinning the endometrium.

Efficacy

The implant is a highly effective contraceptive. The overall pregnancy <1 in 1000 over 3 years.

When to start

- Ideally the implant should be inserted within the first five days of the onset of menstruation.
- Post partum breastfeeding women –The implant should ideally be inserted at 6 weeks postpartum.
- non-breastfeeding women- The implant should ideally be inserted within 4 weeks postpartum.
- Post abortion-Should be inserted within first 5 days post abortion.
- Women who are amenorrhoeic (any time if it is reasonably certain she is not pregnant with 7day additional precautions

If there is uncertainty about a woman's menstrual history a pregnancy test should be performed before implant insertion and again no sooner than 3 weeks after the last episode of unprotected sexual intercourse (UPSI). Women having an implant inserted at the beginning of a period should be advised to have a pregnancy test if the period is subsequently found to be lighter or shorter than usual.

Timing of Repeat Insertions

If an implant is replaced immediately, and after no longer than 3 years since insertion, there is no need for additional contraceptive precautions after replacement.

Follow up

No routine follow-up is required

Advised to return if, they cannot feel their implant or if it appears to have changed shape, notice any skin changes or pain around the site of the implant, become pregnant; or develop any condition that may contraindicate continuation of the method.

Concomitant use of enzyme-inducing drugs may reduce the efficacy of the progestogen-only implant. Women should be advised to switch to a method unaffected by enzyme-inducing drugs or to use additional contraception until 28 days after stopping the treatment

Contraindications

Absolute	Relative
Breast cancer	Liver tumours (adenoma, hepatoma)
Current pregnancy	History of breast cancer
	Severe decompensated cirrhosis
	Unexplained vaginal bleeding
	Use of interacting drugs
	Current and h/o ischaemic heart disease/ Stroke (continuation)

Side effects

Similar to that of DMPA

27.4.3. IUD (Cu T 380A)

A small, flexible device usually made of plastic, which is introduced into the uterine cavity using a simple procedure. The effectiveness of Copper T 380A is 10 years.

Mode of action

The copper alters the cervical mucus, which makes it more difficult for sperm to reach an egg and survive. It can also stop a fertilized egg from being able to implant itself.

Efficacy

Less than 1 pregnancy per 100 women using an IUD over the first year (6 to 8 per 1,000 women). This means that 992 to 994 of every 1,000 women using IUDs will not become pregnant.

When to insert

- IUD inserted within the first 12 days of onset of menstruation
- Post-partum - The best time is at the 6th week after partus.
- The IUD may also be inserted 6 weeks after Caesarean section (But should be inserted by a trained medical officer)
- Post abortion - within 12 days, if there is no infection

Follow up

- **Clinic visit**: The first routine follow-up check should be made 4-6 weeks after insertion and once a year if possible
- **Home visit**: The client should also be followed up by the PHM at the following time periods:
    - During the first 3 months-once a month
    - Thereafter once in 6 months if the client has no problems

Side effects and complications

- Menorrhagia
- Spotting may occur during the first 3-4 weeks.
- Cramping abdominal pain may occur in the first 24 to 48 hours or during menstruation.
- Pelvic Inflammatory Disease (PID)
- Perforation at the time of insertion
- Expulsion of the IUD –may occur during the first 6 weeks or during a menstrual period

Absolute Contraindications

- Pregnancy or strongly suspected to be pregnant
- Existing PID
- STD such as chlamydia or gonorrhoea
- Puerperal or post-abortion sepsis.
- Unexplained vaginal bleeding
- Sever anatomical abnormality that prevents proper IUD insertion(fibroid).
- Cervical cancer.

27.4.4. Barrier Methods

Condoms, Caps etc.

Suitable for the following

- When other reversible methods are contraindicated.
- Couples practicing infrequent intercourse.
- As an interim method of contraception.
- Following vasectomy for a period of 3 months.
- When protection is needed against STD/HIV.

27.5. Permanent methods

27.5.1. Female sterilization

Ligation and Resection of Tubes

- Occlusion of Fallopian tubes.
- This operative procedure usually takes about 10 minutes.
- Usually performed under local anaesthesia using mild sedation.

Suitable for the following

- Those who have completed their families.
- Certain high risk grups such as;

Women with a history of serious obstetric complications.

Those who have undergone repeated Caesarean section.

In those with health problems where pregnancy is contraindicated.

For women who are at risk of producing children with congenital abnormalities.

Since voluntarism is an important factor in providing contraceptive services, proper counselling of both partners needs to be emphasised.

Follow-up

The client should be followed up by the Public Health Midwife, once a month, for a period of 3 months.

27.5.2. Vasectomy

Blocks the two small ducts (vasa differentia) which carry the sperms produced in the testes and prevents the sperms from mixing with the seminal fluid. It is carried out under local anaesthesia and takes about 5 minutes to perform.

Effectiveness

- Very effective method.
- Not effective immediately after the operation and takes about 3 months for effectiveness to be established.
- The seminal fluid should ideally be examined after about 15-20 ejaculations or after 3 months, until 2 consecutive specimens are sperm free.

28. Emergency Contraception

Emergency contraception (EC) or emergency postcoital contraception or morning after pill refers to contraceptive measures taken after sex to prevent pregnancy. They act both in preventing ovulation or fertilization and possibly post- fertilization implantation of the blastocyst. The evidence suggests that oral EC is not effective after ovulation has taken place. EC is intended for occasional emergency use and should not be considered a substitute for effective regular contraception.

Methods

- oral levonorgestrel (LNG) 1.5 mg (single dose)
- Intrauterine devices (IUDs) - acts by preventing implantation of the zygote.

28.1. Emergency contraceptive pills (ECPs)

Emergency contraceptive pills are taken after unprotected sexual intercourse to prevent pregnancy.

It is effective if taken within 72 hours of unprotected sexual intercourse and taking ECP as soon as possible increases the efficacy. The evidence suggests that LNG-EC is ineffective if taken more than 96 hours after UPSI.

Types of ECPs

28.1.1. The progestin-only method

uses the progestin, levonorgestrel in a dose of 1.5 mg, preferably as a single dose or two 750 μg doses, 12 hours apart. If a woman vomits within 2 hours of taking a ECP, she should take a further dose as soon as possible.

28.1.2. The combined or Yuzpe regimen

uses large doses of both oestrogen and progestin, taken as two doses at a 12-hour interval. It is possible to obtain the same dosage of hormones, and therefore the same effect, by taking 4 regular combined oral contraceptive pills as a single dose within 72 hours of unprotected sexual intercourse followed by another 4 OCP twelve hours later.

Side effects

The most common side effects reported were nausea and vomiting. But anti-emetics are not routinely recommended with levonorgestrel-only ECPs.

Other common side effects - fatigue, headache, dizziness, and breast tenderness. Side effects usually do not occur for more than a few days after treatment, and they generally resolve within 24 hours.

When prescribing ECPs, the Medical Officer should explain that:

- The next menstruation may be early or late
- A barrier method of contraception needs to be used until the next menstruation
- The need to seek medical support promptly, if any lower abdominal pain occurs because this could signify an ectopic pregnancy.

- The need to return promptly if she does not get her next menstrual period or if menstruation is abnormally light, heavy or short.
- The importance of the routine STI screening
- The importance of practising a regular contraceptive method if applicable

28.2. The copper (Cu) - IUD

This is the only method of EC that is effective after ovulation has taken place (but is inserted well before the earliest likely date of implantation so that it does not disrupt a pregnancy that has already implanted).

It can be inserted for EC within 5 days after the first UPSI in a cycle, or within 5 days of the earliest estimated date of ovulation, whichever is later. It has the advantage of providing immediately effective ongoing contraception. It is not known to be affected by body mass index (BMI)/weight or by other drugs.

29. Counselling for STI and HIV

Counselling is an important component in comprehensive management of patients with STIs and its main aim is further prevention of STIs and HIV. Counselling is defined as an interactive confidential dialogue where a counsellor assists a patient in reflecting on issues and in exploring possible lines of action. For this, health provider needs skills of understanding of social, economical and psychological situation of the patient. Counsellor should maintain privacy, assure confidentiality, have non-judgmental attitude towards the client's conditions.

29.1. Counselling related to STIs

Issues to be addressed in counselling a patient with STIs

- Nature of the STI, importance of complying with treatment and follow up.
- Learning about and coming up to terms with worrisome complications of STIs such as infertility and congenital syphilis.
- Dealing with an incurable, recurring STIs such as Genital Herpes, Genital warts which can be transmitted to partner even in asymptomatic stages.
- Confidentiality, disclosure and the risk of violence or stigmatizing reactions from spouse, partner, family or friends and ways to overcome.
- Importance of partner notification and disclosure related issues. (Client may need help from health care provider when disclosing to partner/spouse).
- Assessing the patient's risk for HIV and STI and assisting patient to reduce risk.
- Helping the patient to practice responsible behaviour in order to prevent acquisition of STIs in the future and Promote condom use

29.2. Counselling related to HIV/AIDS

29.2.1. Pre -test Counselling for HIV testing

Pre- test counselling is the counselling before HIV antibody testing and important responsibility of all care providers. The primary purpose of pre-test counselling is to provide the person with information about HIV transmission, and prevention of transmission by facilitating safer behaviours. During the process, the personal and medical benefits of knowing the sero status also is conveyed.

It is essential for establishing and maintaining client's trust and confidentiality should be assured. Personal and medical information may be disclosed to another health care provider only when it is necessary for further management of the client. Even in such situations only those who are directly involved in client's care will be informed.

Steps in carrying out Pre - test Counselling

- Check client's knowledge on HIV/AIDS and the HIV test
- Depending on client's knowledge, explain the client what HIV infection is, the difference between HIV/AIDS
- Explain the ways which HIV can be transmitted and how STIs can facilitate HIV transmission.
- Explain how HIV is not transmitted.

- Discuss the details of client's sexual exposure/s, other risky behaviours and when did it happen.
- Work with the client to get a self-assessment of risk of acquiring HIV.
- Discuss safe sex and risk reduction in future and promote condom use.
- Check whether the client is in the window period and explain what is meant by window period and implication of the window period on HIV test results.
- Explain the importance and benefits of HIV testing.
- Availability of successful treatment
- Address barriers for testing.
- Assess the ability to cope up with a positive result and available support.
- Explain procedure of HIV testing and possible results - positive, negative, indeterminate.
- Explain available services, support and referral system.
- Obtain informed consent for HIV testing.

Informed Consent

Once accurate and adequate information on HIV/AIDS and testing procedure is provided client will make an informed decision about accepting or declining the test. If the client decline the test the decision should be respected and leave the option open for testing in future.

29.2.2. Post- test counseling following HIV screening test

Post- test counselling is the counselling after obtaining test results. This could be counselling after negative test results, after positive test results and after an indeterminate test results.

Steps carrying out post-test counselling.

- Cross-check test results against client's number to ensure that the correct result is provided.
- Check whether client is in a suitable state to get the result, particularly the positive result.
- The laboratory report with recorded results may be shown to the person.
- Give the test results in a neutral tone of voice and wait for the client to respond before proceeding.

Counselling in the situation where the HIV screening test becomes negative

- Explain that a negative result means there is no evidence of HIV infection
- However check for possible exposure in the window period, which was undisclosed in pre-test counselling or that may have occurred since then. If so provide with a date for retesting.
- Some clients who have engaged in high-risk behaviour without becoming infected may think they are immune. Explain that this negativity is not lifelong and they could become positive if they continue to practice risk behaviours.
- Reinforce information on HIV transmission, prevention strategies and personal risk reduction measures.
- Review and explore any constraints on practicing safe sex and support them.

Counselling in the situation where the HIV screening test becomes reactive

- Explain that positive screening test means, there may be a possibility of HIV infection in that person.
- However, a follow up test will be conducted to confirm the diagnosis or exclude the false positive reaction which may be due to the cross reacting antibodies in various other conditions.
- This second test is known as HIV confirmatory test (western Blot). Explain the patient that, until the confirmatory results are available, patient 's HIV status cannot be confirmed or excluded .
- Therefore he should be counselled on following points.
- Relieve anxiety of this uncertain serostatus.
- Educate the patient about the availability of successful treatment (Anti-Retroviral Therapy -ART) even if it is confirmed positive.
- Safe sex/ condom to prevent transmission to sexual partners.
- avoid breast feeding if patient is lactating.
- Avoid becoming pregnant
- Avoid blood donation/ organ donation

29.2.3. Post test counselling following HIV confirmatory test

Counselling in the situation where the confirmatory test becomes negative

- Explain that a negative confirmatory test means that there is no serological evidence of HIV infection. However, that this negativity is not lifelong and they could become positive if they continue to practice risk behaviours.
- Reinforce information on HIV transmission, prevention strategies and personal risk reduction measures.

Counselling in the situation where the HIV confirmatory test becomes positive

- Explain that a positive result means the client is infected with HIV.
- Reinforce confidentiality
- Give the client time to absorb the information before proceeding. Make sure that the client understood the test results and absorbed the information.
- Assess the client's ability to cope with the diagnosis and check the support available to the client immediately.
- If possible, discuss the value of disclosing to the partner or family.
- Provide brief information on available HIV treatment and care services.
- Advice on healthy living and responsible sexual behaviour to prevent further transmission. Most clients will be too distressed for a detailed discussion and will not be able to absorb information at this point. Thus, may need repeat counselling sessions
- Provide information on support services available and link the client with other HIV-positive individuals for support if they wish.
- Check whether the client has any questions
- Ensure client's safety in travelling home.
- Make arrangements for follow-up counselling sessions to assist the client in adapting to the diagnosis as soon as possible.
- Provide information on how to contact you if the client need.

Follow up counselling

During follow up counselling sessions following important aspects have to be discussed as early as possible.

- Details of HIV care and treatment
- Diet, health, rest, exercise
- Disclosure to partner, family
- Partner testing
- Responsible sexual behaviour, safe sex and condom use
- Family planning and contraception in women
- Testing children when indicated
- Infection control at home and in other social gatherings

Counselling in the situation where the HIV antibody test becomes Indeterminate

An indeterminate test result means where the results are inconclusive (neither clearly positive nor clearly negative). Explain that, this result may or may not be associated with HIV infection. Therefore, all such inconclusive test should be repeated in consultation with relevant expert.

.

.

30. Laboratory diagnosis of STIs

30.1. Laboratory Diagnosis of Syphilis

- Direct microscopic examination to demonstrate *Treponema pallidum*
- Non-treponemal serological tests, used for screening
- Treponemal serological tests used for confirmation

No culture methods are available. *T. pallidum* subsp. pallidum cannot be grown in artificial media, and cannot be easily stained.

30.1.1. Demonstration of TP - Darkfield microscopy

This method is used for demonstration of the organism.

Dark field microscopy can demonstrate *Treponema pallidum* in material from lesions or lymph nodes. The demonstration of *T. pallidum* indicates a definitive diagnosis of syphilis

Characteristic morphology and motility of *Treponema pallidum*:

- spiral organism , length 6-15µ, breadth 0.15µ
- characteristic movement- cork -screw motility - rotatory, angular flexion, back-and-forth

Since *T. pallidum* is identified by characteristic morphology and motility, the smears should be freshly prepared

False negative results in dark field microscopy are seen when lesions are old, when anti treponemal treatment has been given or when the sample has not been collected properly. Sensitivity of darkfield microscopy reaches 80% when performed correctly.

Dark-field microscopy should NOT be used for examination of samples from oral lesions as it is difficult to differentiate *T. pallidum* from saprophytic spirochetes in the mouth.

Collection of specimen for DG microscopy:

- clean the ulcer surface with saline and remove any crusts, if present
- Squeeze the base of the ulcer between the thumb and index fingers
- Wipe away the first few drops of fluid, especially if blood stained
- Collect the sample of serous exudate by pressing a clean cover slip on to the lesion
- Place the cover slip on a clean slide
- Examine immediately under the dark-field microscope
- (if the lesion is not accessible, serous exudate may be aspirated from the lesion using a sterile syringe/pipette)

In the case of secondary syphilis or early congenital syphilis, specimens may be collected from condylomata lata or mucous patches.

30.1.2. Serological Tests

non-treponemal antibody tests:

These tests are not specific for syphilis but highly sensitive. False-positives should carefully be excluded.

The two commonly used tests are:

- VDRL- Venereal Disease Research Laboratory
- RPR – Rapid Plasma Reagin (modified VDRL test)

The VDRL test is performed either as a qualitative test used for screening or, as a quantitative test used to detect disease activity and response to therapy.

A 4-fold rise in the titre is suggestive of a new infection, re-infection or relapse in sero-fast persons.

Specific treponemal antibody tests:

These treponemal tests measure antibodies specific for *T. pallidum*. They are highly specific and highly sensitive.

These tests are used to

confirm the disease with a positive VDRL/ RPR test (while identifying false-positives)

diagnose late syphilis when reagin tests may be nonreactive.

Commonly used tests are:

- TPHA - T.pallidum haem- agglutination test
- TPPA - T.pallidum particle - agglutination test
- ELISA - Enzyme Linked Immuno-sorbent Assay

It has been shown that 1%of general population will have false positive treponemal tests. However, if two treponemal tests are reactive, the sample is most likely (95%) from a person who has or has had syphilis.

An IgG immunoblot is recommended as a supplementary confirmatory test when the standard confirmatory test does not confirm the positive screening test result. The FTA-abs is not recommended as a standard confirmatory test.

Biological False Positive (BFP) reaction

In the absence of any clinical symptoms or a history of treponemal infection, a positive nontreponemal result but a negative specific test result is known as a biological false positive (BFP) reaction. The titre of the nonspecific test is usually low, rarely more than 1:8.

Biologically false positive results may occur due to damage to host tissue by infection, immunization or auto immune disease.

Acute BFP reactions usually occur in:

- Acute infections
- After vaccination
- In pregnancy and
- In frequent blood transfusions

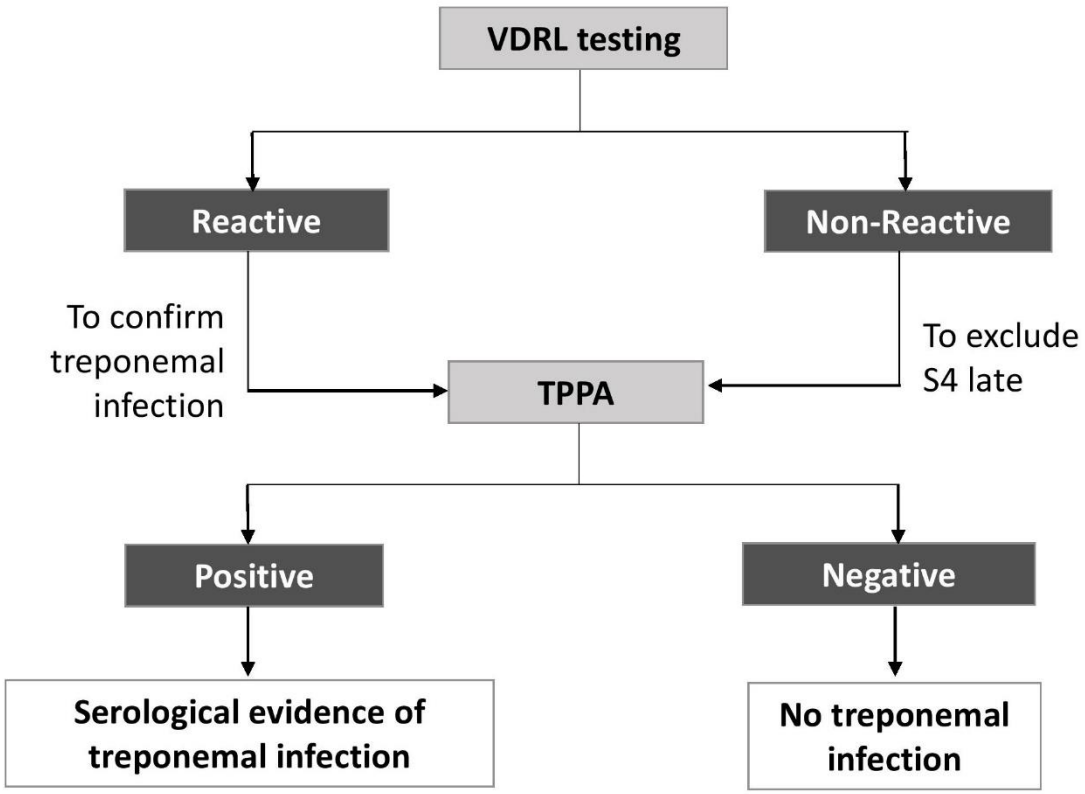
A chronic BFP reaction lasting more than 6 months may occur in many instances including

- Auto immune disease(Lupus erythematosus, Haemolytic anaemia, Rheumatoid arthritis)
- Drug Addicts
- Aging
- Cancer
- Tuberculosis
- Leprosy

Polymerase chain reaction

Can be used on oral or other lesions where commensal treponemes may also be present. May be helpful in diagnosis by demonstrating *T.pallidum* in tissue samples, vitreous fluid and cerebrospinal fluid (CSF)

Protocol for serological tests for syphilis



The final decision should rest with clinical judgement.

30.1.3. Diagnosis of Neurosyphilis

Antibody tests in serum

- VDRL may or may not be positive
- TPHA/TPPA positive

Antibody tests in CSF

- CSF VDRL

Test should be performed only when patient's serum treponemal test is positive

VDRL test is positive in 30-70% and is almost 100% specific.

A positive CSF VDRL test is nearly always proof of neurosyphilis in the **absence of visible contamination of CSF by peripheral blood.**

- CSF TPHA

Sensitive, but not specific.

A positive TPPA alone is not diagnostic of neurosyphilis because transudation of IgG through the blood – brain barrier cannot be excluded. However a negative test can exclude the disease and it has been shown that TPPA titre of >1:640 and TPHA titre of >1:320 could be considered Diagnosis of congenital syphilis.

- Both VDRL and TPPA tests can be positive due to the placental transfer of maternal IgG even in the absence of foetal infection.
- However congenital syphilis is highly probable if a serum quantitative nontreponemal serologic titer that is fourfold higher than the mother's titre is found in the baby.
- Conducting a treponemal test (i.e., TPPA,) on neonatal serum is not recommended because it is difficult to interpret.
- The presence of anti-treponemal IgM in the blood of the new-born, indicates active treponemal infection. (However the commercially available immunoglobulin (IgM) test results should be interpreted with caution and should not be taken alone to determine congenital syphilis)
- A negative IgM test does not exclude congenital syphilis and should be repeated at 4, 8 and 12 weeks after birth since IgM response might be delayed or suppressed.
- Anti-treponemal IgM in serum is thought to disappear from the circulation within 9 months after adequate treatment.

30.1.4. HIV Coinfection in Syphilis

- Generally, tests are performed in the same way as in immunocompetent patients
- Test results can be unpredictable
- False negative tests and delayed appearance of sero-reactivity have been reported
- In secondary syphilis positive test results may be delayed
- Like in many chronic infections biological false positive reactions may be seen in non-specific tests
- Positive reactions may be missed due to prozone phenomenon

30.2. Laboratory Diagnosis of Gonococcal Infection

The definitive diagnosis is established by the identification of *N. gonorrhoeae* at an infected site.

30.2.1. Collection of Specimens

Appropriate sites for specimen collection depend on the sex, age and sexual practices of the individual as well as the clinical manifestations of the infection.

women: The primary collection site in women is the endocervical canal. The secondary sites include the urethra, rectum and oropharynx.

heterosexual men: In heterosexual men, material should be collected from the urethra.

homosexual men: The primary sites in homosexual men are the urethra, rectum and oropharynx. Sterile cotton swabs are used for specimen collection.

Endocervix – The use of antiseptics, analgesics and lubricants should be avoided.

when collecting specimens. Use a vaginal speculum, which may be moistened with water. After inserting the speculum, clean the ecto-ocervix with a large cotton swab. Insert the sterile cotton swab about 2cm into the cervical canal. Rotate and move the swab gently from side to side for 5-10 seconds to allow absorption of the exudate.

Urethra – If discharge is evident collect directly on to a swab. If not, milk the urethra to evacuate exudate. Still if no discharge collect urethral specimens 4 hours after the patient has passed urine, by inserting a thin swab 1-2cm cm in to the urethra and gently rotating the swab for 5-10 seconds to allow absorption of the exudates.

Rectum – In symptomatic patients, rectal specimens should be obtained under direct vision following insertion of a proctoscope. If asymptomatic samples may be obtained by blindly inserting a cotton swab 3cm into the anal canal and rotate it for 10 seconds to collect exudates from the crypts just inside the anal ring. Use lateral pressure to avoid fecal contamination. If faecal contamination occurs, discard the swab and use another to obtain the specimen.

Vagina – Vaginal specimens are recommended for prepubertal girls. Discharge can be collected with a swab without the use of speculum.

For women who have had a hysterectomy - urethral swab for culture offers a better yield than high vaginal culture.

Oropharynx – Swab the region of the tonsillar crypts and the posterior pharynx.

Two swabs should be taken separately for microscopy and culture. One swab should be used to prepare a smear for microscopy. If the same swab happened to be used for culture and smear preparation always inoculating the plates should be done before making the smears.

To obtain a thin homogenous film, roll the swab on to a clean slide, and allow the smear to air dry. Carefully roll the swab on the slide to avoid disrupting cells as rubbing may destroy cellular morphology. Smear should cover only a small area of the slide.

The highest yield of gonococci is obtained when specimens are inoculated directly on to a culture medium in the examination room. Roll the swab containing the specimen over a small area of the surface of the culture plate. When rolling the swab, care should be taken not to dig into the medium. Inoculated plate should be sent to the laboratory immediately for further streaking and incubation.

30.2.2. Transport of Specimens

If culture facilities are not available, the swabs should be inserted into a transport medium (Amies) and transported at room temperature, to reach the laboratory within 24-48 hours.

30.2.3. Diagnosis of GC

Microscopy

Sensitivity and specificity of a gram stained smear of urethral discharge from a symptomatic male are 95% and

97%, respectively. Therefore a Gram stain of a male urethral specimen that shows polymorphonuclear leucocytes with intracellular gram negative diplococci can be considered diagnostic in symptomatic men.

In females, however, Gram stained smears of cervical secretions detect only 40-60% of culture positive specimens.

In asymptomatic patients of both sexes, the sensitivity of Gram stained smear is extremely low and it should therefore not be considered as a diagnostic test.

Direct microscopic examination is not recommended for rectal and pharyngeal smears.

Culture

Culture offers a reliable, sensitive (>95%) and relatively cheap diagnostic test that also allows antimicrobial sensitivity testing. Selective culture media such as Thayer Martin (TM), modified Thayer Martin (MTM) and New York City (NYC) containing antimicrobials are often used for routine isolation of gonococci.

A presumptive identification of colonies can be made by a Gram stain and an oxidase test. It is necessary to confirm the identification with carbohydrate degradation tests. Additionally, further testing with dentification systems can be carried out if necessary.

Nucleic acid amplification tests (NAAT)

Several types of NAAT are available for the detection of *N. gonorrhoeae*. Examples include polymerase chain reaction (PCR), ligase chain reaction (LCR)

Key general points regarding these tests are as follows:

- NAAT exhibit equal or slightly greater sensitivities for detection of *N. gonorrhoeae* than that of culture, particularly for oropharyngeal and rectal sites and have good specificity as well.
- NAAT can be performed from specimens collected from the urethra and cervix and vulvo vagina
- Most importantly, NAAT can be performed on urine. It is important that first catch urine (FCU) be collected. Midstream urine should not be used.
- In females vulvovaginal swabs are preferred as the optimal specimen
- Since there is no culture isolate from NAAT determination of antibiotic susceptibility is not possible in general.
- Tests for Chlamydia infection need to be done if available, as co-infection with Chlamydia is common. NAATs are now available to detect both NG/CT together.

30.2.4. Timing of testing

Infection cannot be ruled out in individuals who test within two weeks of sexual contact with an infected partner.

30.3. Laboratory Diagnosis of Chlamydia trachomatis (CT)

30.3.1. Specimen Collection

Viable chlamydial organisms are found within urethral, cervical, and rectal epithelial cells, but not in exudate or pus. Thus, a specimen containing purulent discharge is not adequate. The type of swab used for specimen collection is critical to the success of chlamydia detection, so use only a swab provided or recommended by the laboratory. Do not use eekel shafted swabs.

The following techniques provide optimum specimen collection.

- A vulvo-vaginal sample is the specimen of choice in women
- Cervical swab:
    - Clean the cervical os to remove debris and secretions.
    - Insert the sterile cotton swab about 2cm into the cervical canal.
    - Rotate and move the swab gently from side to side for 15-30 seconds to obtain an adequate number of cells.
    - Remove swab, taking care not to contaminate it with material from the vaginal walls and place in transport medium
- Urethral swab may be used in women who have undergone hysterectomy.
- Urethral swab in men:

Note: If specimens are obtained for other tests (e.g. gonorrhoea), they should be taken before the swab for chlamydia test.Insert a swab 2 to 3 cm into the urethra and rotate, making sure the swab is in contact with the urethral wall to obtain an adequate number of cells. Remove the swab and place it in transport medium.

30.3.2. Laboratory tests to diagnose Chlamydia:

Antigen detection by ELISA
Culture
Direct Immunofluorescence
NAAT

} presently not available in Sri Lanka

The current standard of care for all cases in many countries, including medico-legal cases and extra-genital infections, is NAAT.

Antigen detection by ELISA

Advantages of this method include ease of transport and rapid results. Endocervical, urethral, or conjunctival specimens are collected on swabs provided by the manufacturer and are held in the refrigerator (4-8°C) until sent to the laboratory. Collection techniques are the same as for culture. These tests have a relatively good sensitivity and specificity in high-risk populations, but less satisfactory results have been found in low-risk populations.

Direct Immunofluorescence

There are commercially available kits for the rapid detection of chlamydial elementary bodies in urethral, cervical,conjunctival and rectal smears directly stained with specific fluorescein-labelled antibody (FA). Specimen

collection techniques are the same as those described for culture, except that the specimen swab is smeared onto the glass slide provided by the test kit manufacturer, allowed to dry, fixed in methanol, and sent to the laboratory.

Low sensitivity of the test has been reported in low risk populations when the number of elementary bodies may be very small, but the test is relatively sensitive and quite specific in high-risk populations.

Nucleic acid amplification tests (NAAT)

- Several types of NAAT are available for the detection of *C. trachomatis*. Examples include polymerase chain reaction (PCR), ligase chain reaction (LCR)etc.
- All exhibit considerably greater sensitivities for detection of *C. trachomatis* than that of EIA, or DFA-based tests, and to a lesser extent, greater sensitivity than that of culture. All have good specificity as well
- All can be performed on swab specimens collected from the urethra and cervix.
- Most importantly, all can be performed on urine. It is important that first catch urine (FCU) be collected.
- Midstream urine should not be used.
- The current trend of testing for Chlamydia lies with NAAT whenever possible based on the cost effectiveness. Although no test is 100% sensitive or specific, NAATs are known to be more sensitive and specific than EIAs.
- NAATs are the assays of choice for both genital and extra-genital samples, though the sensitivities are variable.

30.4. Laboratory diagnosis of Herpes simplex virus

30.4.1. Culture

Specimen collection

The stage of the lesion and the quality of the specimen collected significantly affect culture sensitivity. Sensitivity decreases with increasing lesion age. Thus, herpes simplex virus (HSV) is recovered most frequently from vesicular lesions and infrequently from crusted lesions. Primary lesions are also more likely to yield virus than are recurrent lesions.

Note: When collecting the specimen, emphasis is on collection of cells from the base of the lesion.

Sensitivity of culture according to stage of lesion:

- Vesicle 90% +
- Pustule 80 - 90%
- Ulcer (< 5 days) 60 - 75%
- Ulcer (> 5 days) 50%
- Crust 20 - 30%

Vesicular or pustular lesion

1. Unroof the vesicle with an 18-gauge needle.
2. Using a moistened swab, abrade the base of the lesion in order to obtain a good sample of cells.
3. Immediately place the swab in viral transport media

Crusted lesion

1. Remove the crust
2. Scrape the base of the lesion with a moistened swab. Avoid making the lesions bleed
3. Immediately place the swab in viral transport media

Specimen Transport

The specimen should be refrigerated until transported to the laboratory.

When transporting:

Deliver to the lab on wet ice or a cold pack within 72 hours.

When delivery to the lab is delayed >72 hours, the specimen should preferably be at -70°C. (Normal freezer temperature of -20°C will not preserve the virus.)

30.4.2. Tzanck smear

This method is used to demonstrate cellular changes caused by the herpes group of viruses. Infection by the herpes group of virus can be rapidly and reliably diagnosed by a Tzanck smear. It may, however, be impossible to distinguish between these conditions based on cyto diagnostic features. Ideally, a vesicle less than 3 days old should be selected for the smear since older lesions may get crusted or secondarily infected and the characteristic cytomorphology may no longer be present.

Tzanck smear is a very simple and rapid technique. Samples should be taken from a fresh vesicle, rather than a crusted one, to ensure the yield of a number of virus infected cells. The vesicle should be unroofed, or the crust removed, and the base gently scraped with a swab. The material thus obtained is smeared onto a microscopic slide, allowed to air dry, and stained with Giemsa stain. The slide should be clean, since cells will not adhere to an unclean slide. The stained nuclei may vary in color from reddish blue to purple to pink. The cytoplasm stains bluish.

The typical features include characteristic multinucleated syncytial giant cells. The cells appear as if they have been inflated ("ballooning degeneration"). Syncytial giant cells contain multiple nuclei (many with8 or more) that exhibit nuclear molding, so that the nuclei fit together in a jigsaw puzzle like fashion. The nuclei show great variation in shape and size. Intra nuclear inclusion bodies surrounded by subtle clear halo are characteristic of herpetic infection but are often difficult to find.

30.4.3. Direct Immunofluorescence:

This method is used to demonstrate viral antigen in a direct smear made from an external genital lesion. Collect cells from the base of the lesion as described above, roll the swab on the slide provided by the manufacturer, add fixative, and send to the laboratory.

Sensitivity of the test varies with the age of the lesion and the number of cells collected. This test should not be used for detecting viral shedding from the cervix.

30.4.4. Serological Tests;

Enzyme Immunoassay (EIA)

Accurate type specific HSV serologic assays are based on the HSV specific glycoprotein G2 (for HSV) and glycoprotein G1 (for HSV 1).

- specific HSV serologic assays might be useful in the following scenarios:
- Symptomatic Patients - serologic tests on paired samples alone (acute- and convalescent sera drawn
- 3 to 4 months later) is a reasonable backup test when viral detection is not available.
- Asymptomatic Patients -the most significant potential application of serology is to detect silent carriers of
- HSV-2, especially in high-risk settings such as STD clinics
- Patients at risk of HIV Infection
- Pregnant women
- Discordant couples

30.5. Laboratory diagnosis of Chancroid

30.5.1. Culture

Isolation of Hemophilus ducreyi from a genital lesion or lymph node provides a definite diagnosis of chancroid. However, it is difficult to isolate the organism. culture of H. ducreyi may not be offered by all laboratories.

Request media from the laboratory in advance so the specimen can be plated immediately after collection. Gonococcal agar base supplemented with bovine hemoglobin, fetal calf serum and vanco-mycin is recommended.

Specimen collection

1. Clean the lesion thoroughly with sterile saline.
2. Then moisten a cotton-tipped swab with saline and swab the lesion.
3. Press and roll the swab on the agar plate and immediately deliver to the laboratory.

Direct gram stain

Gram stain of a lymph node aspirate may be helpful in making the diagnosis of chancroid when tiny, chaining Gram-negative rods are seen. Gram stain of a lesion is generally not recommended because of the frequent polymicrobial nature of these lesions.

New trends of diagnosing HSV

HSV DNA detection by polymerase chain reaction (PCR) increases HSV detection rates by 11–71% compared with virus culture. PCR-based methods allow less stringent conditions for sample storage and transport than virus culture and new real-time PCR assays are rapid and highly specific.

Other nucleic acid amplification test (NAAT) methods have also shown similar results. NAATs are recommended as the preferred diagnostic method for genital herpes NAATs methods are now regarded as the test of choice.

30.6. Laboratory diagnosis of Lymphogranuloma Venereum (LGV)

30.6.1. Culture

Lymph node aspirate may be sent for chlamydia culture. Isolation of the LGV immunotypes (Ll, L2, or L3) is diagnostic.

30.6.2. Serological testing

by microimmunofluorescence (MIF) or the more widely available LGV complement fixation test, is used to establish the diagnosis of LGV. A fourfold rise in titer by complement fixation indicates active infection, while a single titer of 1:64 or greater supported by clinical finding suggests infection. Specific antibody to the LGV immunotypes of *Chlamydia trachomatis* can be demonstrated by MIF.

30.7. Diagnosis of Granuloma Inguinale (GI/ Donovanosis)

30.7.1. Smear

A touch prep of a lesion , biopsy or tissue smear stained with Giemsa or Wright's stain is used to demonstrate infection with *Klebsiella granulomatis*. Large mononuclear cells with characteristic intracytoplasmic Donovan bodies are diagnostic.

30.8. Laboratory diagnosis of Trichomonas Vaginalis

30.8.1. Saline Microscopy of vaginal fluid

Trichomoniasis is usually diagnosed by visualization of motile trichomonads on saline microscopy of vaginal Fluid. This method has an estimated sensitivity of 60% relative to culture.

Saline microscopy should be performed immediately on fresh specimens of vaginal fluid from anterior and posterior fornices to enhance the likelihood of detection. Even with appropriate performance, sensitivity of this test generally does not exceed 60% to 65%.

30.8.2. Direct microscopy

performed on wet mount using light microscope, phase contrast or dark field. A dried smear stained with Giemsa or acridine orange or fluorescent staining could also be used to demonstrate the organism.

30.8.3. Culture

Culture for *T. vaginalis* can be performed using various media, the most widely available being the In Pouch system which is inoculated with the swab used to collect the specimen. This system can be used to culture the urethral specimens of men and vaginal fluid of women.

30.8.4. PCR

PCR is available for *T. vaginalis*, and can be applied to vaginal, urethral, or urine specimens

Microscopic examination- General note

Saline prep: read before KOH. Examine under low power (10X) to focus and detect rapidly moving trichomonads or large pseudohyphae. Then examine on high power (40X) to evaluate the presence or absence of PMNs, "clue" cells, trichomonads, yeast buds, or pseudohyphae.

KOH prep: Scan for pseudohyphae on low power. Confirm presence of pseudohyphae and locate yeast buds on high dry.

Preparation of KOH slide

1. Collect the vaginal specimen on a swab, then roll the swab on a small area of the slide.

2. Add a large drop of 10% KOH (potassium hydroxide) and mix with a wooden applicator or swab.

3. Sniff for a "fishy" odor.

4. Cover with a cover-slip; avoid trapping air bubbles.

5. Read the slide as soon as possible.

Preparation of saline wet prep

Use either of the following two methods of preparation:

Method I	Method II
1. Place approximately 0.5 ml of normal saline (i.e.0.85 %) in a small test tube. The saline must be at room temperature or warmer. 2. Collect vaginal material on a swab by rubbing the swab against the vaginal walls, and emulsify in the saline to make a heavy suspension. 3. Leave the swab in the tube and examine under microscope within 15 minutes. 4. Place a drop of specimen on a slide and cover with a cover-slip. Be careful not to trap air bubbles under the cover-slip. 5. Read the slide immediately.	1. Place a large drop of saline on a microscope slide. 2. Collect the vaginal specimen on a swab as described in Method I, and emulsify in the drop of saline on the slide to make it turbid. 3. Carefully add a cover-slip without trapping air bubbles. 4. Read the slide immediately.

31. Common sexual health problems in males.

Sexual health is an important part of a man's life, no matter his age, civil status, or sexual orientation. Sexual problems in men are very common and complex and involves multiple pathways. Penile erections are produced by an integration of physiologic processes involving the central nervous, peripheral nervous, hormonal, and vascular systems. Any abnormality in these systems, whether from medication or disease, has a significant impact on the ability to develop and sustain an erection, ejaculate, and experience orgasm.

The definition of sexual dysfunction is the inability to have a satisfactory sexual relationship. Any sexual complaint should be taken seriously and evaluated.

Types of male sexual disorders

- Hypoactive sexual desire (libido) disorder
- Erectile dysfunction (ED)
- Ejaculatory disorders (Premature ejaculation, Delayed ejaculation, retrograde ejaculation)

31.1. Male Hypoactive Sexual Desire Disorder (HSDD)- Low libido

On average, male sexual desire remains stronger, more frequent, and longer lasting in their life cycle than women's. By the time that individuals reach middle and old age there is a natural decline in sexual desire, sexual capacity, and the frequency of sexual behaviour.

Libido is mainly a hormonal and brain phenomenon. Sexual desire requires normal levels of testosterone in the blood and a certain attraction for the partner in question.

Diagnostic criteria for Male HSDD (DSM 5)

A. Persistently or recurrently deficient (or absent) sexual/erotic thoughts or fantasies and desires for sexual activity. The judgment of deficiency is made by the clinician, taking into account factors that affect sexual functioning, such as age and general and sociocultural contexts of the individual's life.

B. The symptoms in Criterion A have persisted for a minimum duration of approximately 6 months.

C. The symptoms in criterion A cause clinically significant distress in the individual.

D. The sexual dysfunction is not better explained by a non-sexual mental disorder or as a consequence of severe relationship distress or other significant stressor and is not attributable to the effects of substance/medication or another medical condition.

Specify whether:

- **Lifelong**: the disturbance has been present since the individual became sexually active.
- **Acquired**: the disturbance began after a period of relatively normal sexual function.
- **Generalized**: not limited to certain types of stimulation, situations, or partners.
- **Situational**: only occurs with certain types of stimulation, situations, or partners.

Specify current severity:

- **Mild:** evidence of mild distress over the symptoms in Criterion A.
- **Moderate**: evidence of moderate distress over the symptoms in Criterion A.

- **Severe**: evidence of severe distress over the symptoms in Criterion A.

Symptoms of HSDD.

The person does not want to initiate the sexual relation.

Causes for low sex drive in men

- Depression
- Anxiety disorders
- Psychosis
- Hyperprolactinemia
- Hypogonadism
- Hypothyrodism
- Chronic renal failure
- Chronic liver diseases,
- Haematological diseases
- Relationship problems
- Alcohol
- Opioids
- Amphetamine
- Medications (Selective serotonin reuptake inhibitors, Tricycle antidepressants, Monoamine oxidase inhibitors, Antipsychotics, Drugs interfering with androgens action/production.

Risk factors for low libido in men include:

- Age - testosterone concentration will decrease over the years
- Excessive alcohol consumption
- Malnourishment
- Substance abuse
- Conditions requiring medication that lowers testosterone, depression, benign prostatic hyperplasia(BPH), pain, and prostate cancer

31.1.1. Assessment of sexual desire

- Frequency of masturbation
- Attempts to initiate sexual behaviour with a partner or receptivity to partner initiation
- Erotic fantasies - daytime or night time thoughts about the self in sexual interaction
- Sexual attractions and responses to others
- Spontaneous genital sensations of arousal accompanying erotic thoughts, identified as “horniness” or “randiness” by men, as sexual drive by clinicians

31.1.2. Investigations

- S. Testosterone
- Depending on the patient’s condition, additional investigations should be requested. eg ;TSH, Prolactin

31.1.3. Management

Depends on the cause

- Hypogonadism, hypothyroidism, hyperprolactinemia – Hormone therapy
- Relationship factor – Couple therapy

- Substance abuse – psychological and pharmacological interventions
- Psychosexual issues- sex therapy

HSDD is a diagnosis of exclusion. If there are no associated factors, sex therapy is the management of choice.

31.2. Erectile dysfunction (ED/impotence)

ED is defined as the persistent inability to attain and maintain an erection sufficient to permit satisfactory sexual performance. ED may affect physical and psychosocial health and may have a significant impact on the quality of life of sufferers and their partners.There is increasing evidence that ED can be an early manifestation of coronary artery and peripheral vascular disease.

There are three types of erection

1. Those caused by tactile stimulation. (Reflexogenic)
2. Those caused by mental stimulation. (Psychogenic)
3. Those that men experience during REM sleep. (physiological)

Pathophysiology of ED

Vasculogenic
Cardiovascular disease (hypertension, coronary artery disease, peripheral vasculopathy, etc.)
Diabetes mellitus
Hyperlipidaemia
Smoking
Major pelvic surgery (RP) or radiotherapy (pelvis or retroperitoneum)
Neurogenic
Central causes
Degenerative disorders (multiple sclerosis, Parkinson's disease, multiple atrophy, etc.)
Spinal cord trauma or diseases
Stroke
Central nervous system tumours
Peripheral causes
Type 1 and 2 diabetes mellitus
Chronic renal failure
Polyneuropathy
Surgery (major surgery of pelvis/retroperitoneum, radical prostatectomy (RP), colorectal surgery, etc.)
Surgery of the urethra (urethral stricture, urethroplasty, etc.)

Anatomical or structural
Hypospadias, epispadias
Micropenis
Peyronie's disease
Penile cancer
Phimosis
Hormonal
Hypogonadism
Hyperprolactinaemia
Hyper- and hypothyroidism
Hyper- and hypocortisolism (Cushing's disease, etc.)
Panhypopituitarism and multiple endocrine disorders
Drug-induced
Antihypertensives (thiazide diuretics, etc.)
Antidepressants (selective serotonin reuptake inhibitors, tricyclics)
Antipsychotics (neuroleptics, etc.)
Antiandrogens (GnRH analogues and antagonists)
Recreational drugs (alcohol, heroin, cocaine, marijuana, methadone, synthetic drugs, anabolic steroids, etc.)
Psychogenic
Generalised type (e.g., lack of arousability and disorders of sexual intimacy)
Situational type (e.g., partner-related, performance-related issues or due to distress)
Trauma
Penile fracture
Pelvic fractures

31.2.1. Risk factors for erectile dysfunction

- Obesity
- Smoking
- Diabetes
- High blood pressure
- High cholesterol
- Cardiovascular disease
- Medication use

31.2.2. Diagnosis

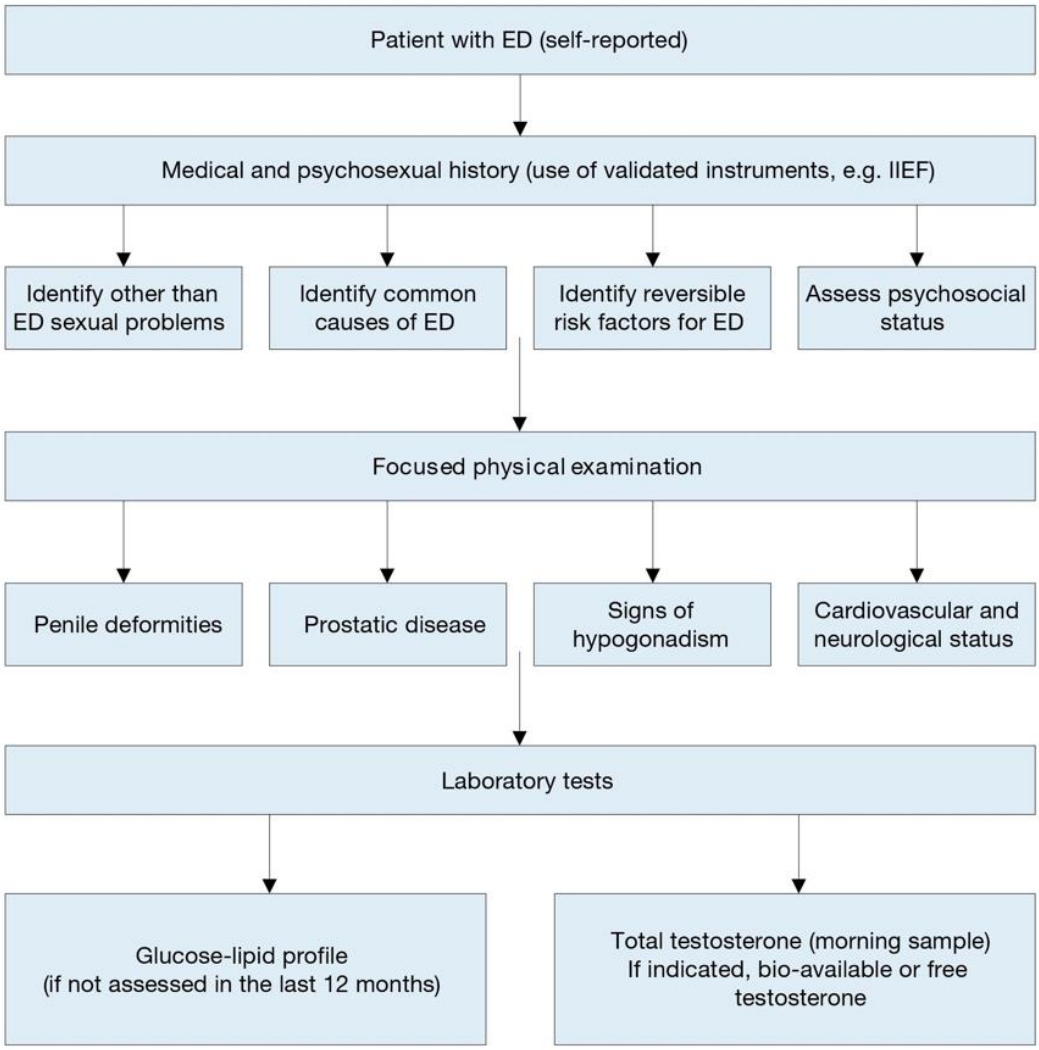
History

Specify the rapidity of onset, the presence of nocturnal erections, and the quality of the erection if it can be attained but not maintained. ED with sudden onset and no previous history of sexual dysfunction suggests a psychogenic cause. The loss of nocturnal erections will suggest a neurologic or vascular cause. If the erection is not sustained, its loss may be due to an underlying psychological cause or vascular problem.

Relationship issues, Medication history, Risk factors

In young men with primary ED or post-traumatic ED, a more detailed diagnostic work-up should be considered, including specific ED-related imaging procedures

physical examination - Secondary sexual characteristics, Blood pressure and pheriperal pulses, sensation and reflexes, genitals examination including testicles



ED = erectile dysfunction; IIEF = International Index of Erectile Function.

Source -EAU guidelines

Laboratory investigations

- Serum chemistry panel (FBC, FBS, HbA1c, LFT, RFT)
- Urinalysis
- Lipid profile
- Hormones (Testosterone, TSH/T4, LSH, FSH, Prolactin)
- PSA and Colour Doppler studies if indicated

31.2.3. Treatment for erectile dysfunction

Before pharmacological interventions, suggest change lifestyle habits. Therefore, regular exercise, a healthy diet, smoking cessation, and limiting alcohol consumption can all have an impact on erectile function.

Phosphodiesterase (PDE-5) inhibitors on demand

(If taking nitrates, phosphodiesterase inhibitors are not recommended since both medications taken simultaneously could cause severe hypotension)

- ☐ Sildenafil 50 – 100 mg
- ☐ Tadalafil 10 – 20mg
- ☐ Vardenafil 10 -20mg

(on demand, half to one hour before sexual encounter)

Side effects

Headache, Flush, Dyspepsia, Nasal congestion

Topical therapy with prostaglandin E1

- ☐ PGE1
- ☐ Alprostadil

Vasoactive drugs used for intracavernosal self-injection therapy

- ☐ PGE1 (Prostaglandin E1, syn.Alprostadil)
- ☐ Papaverin
- ☐ Combination Papaverine/Phentolamine
- ☐ Mixture of PGE1/Papaverine/Phentolamine

Side effects

priapism and fibrosis (scarring) but they are rare. Contraindications for intracavernous injections include sickle cell anaemia, schizophrenia, and severe psychiatric disorder.

Vacuum constriction device

Surgical treatments for erectile dysfunction

- ☐ Penile vascular surgery
- ☐ Prosthesis

New technologies

- ☐ External penile support devices
- ☐ Penile vibrators,

- ☐ Low intensity extracorporeal shockwave (LI-ESW)
- ☐ Tissue engineering
- ☐ Nanotechnology
- ☐ Endovascular technology

31.3. Premature ejaculation

Diagnostic criteria for PE (DSM V)

A. The persistent or recurrent ejaculation with minimal sexual stimulation before, on or shortly after penetration and before the person wishes. The clinician must take into account factors that affect duration of the excitement phase, such as age, novelty of the sexual partner or situation and recent frequency of sexual activity.

B. The disturbance causes marked distress or interpersonal difficulty.

C. Premature ejaculation is not due exclusively to the direct effects of a substance (e.g., withdrawal from opioids).

31.3.1. Symptoms of premature ejaculation

Classically, premature ejaculation includes:

- Brief ejaculatory latency
- Loss of control
- Psychological distress in the patient and/or partner

Generally, premature ejaculators will only have about a minute or less of intravaginal time before they ejaculate.

31.3.2. Causes of premature ejaculation

- Neurophysiological factors - hypersensitivity and hyper excitability of the glans, penile foreskin and frenulum
- Endocrine (Hormonal) factors - Hyperthyroidism
- chronic prostatitis or chronic pelvic pain syndrome

Premature ejaculation may be caused by negative conditioning and penile hypersensitivity.

31.3.3. Management of Premature Ejaculation (PE)

Assessment of patient

- It is important to assess time to ejaculation (IELT), perceived degree of ejaculatory control, degree of bother/stress, onset and duration of PE, psychosocial/relationship issues, other Medical disorders and drug history. Partner assessment also should be considered

Treatment of premature ejaculation

- Patient counselling/education
- Discussion of treatment options If PE is secondary to ED, treat ED first or concomitantly

Pharmacotherapy (recommended as first-line treatment option in lifelong PE)

- ☐ Dapoxetine (30-60mg) for on-demand use (the only approved drug for PE)
- ☐ Off-label treatments include chronic daily use of antidepressants (SSRIs or clomipramine) and topical anaesthetics or oral tramadol on demand
- Behavioural therapy, includes stop-start technique, squeeze technique and sensate focus
- Combination treatment

31.4. Delayed ejacualation

DSM V diagnostic criteria

A. Persistent or recurrent delay in orgasm after a normal sexual excitement phase during sexual activity that the clinician, taking into account the person's age, judges to be adequate in focus, intensity and duration and without the individual desiring for delay.

B. The disturbance causes marked distress or interpersonal difficulty.

C. It cannot be justified by another Axis I (clinical) disorder or caused exclusively by the direct physiologic effects of a substance or a general medical condition.

31.4.1. Causes for DE

- Age related
- Medications (methyldopa, diuretics, tricyclic antidepressants, SSRIs, phenothiazines and alcohol)
- Abnormal psychosexual education
- Emotional immaturity
- Religious orthodoxy
- Hypoactive sexual desire
- Changes in body image perception
- Anxiety
- Fear of partner or hostility
- Secondary to neurological lack of sensitivity
- Spinal cord injury (SCI)
- Peripheral vascular disease and diabetes mellitus (DM)
- Multiple Sclerosis

Retarded ejaculation may be an early sign of diabetes or may develop following surgery for benign prostatic hyperplasia (BPH). Anejaculation (retrograde ejaculation) may be caused by radical prostatectomy, cystoprostatectomy (removal of the bladder and the rectum), or the use of certain medications such as alpha-blockers (tamsulosin) and antidepressants (SSRIs).

31.4.2. Treatment of DE

Pharmacological methods:

Data on successful drug therapy of DE is sparse in the literature and so far, no drugs have been approved by regulatory agencies for this indication.

Psychosexual therapy

31.5. Retrograde ejaculation

Retrograde ejaculation (RE) is a special pattern of anejaculation with preserved orgasm. It is an ejection phase disorder, characterized by semen passing into the bladder during ejaculation due either to internal bladder sphincter incompetence or discoordination between the bladder neck closure and the external sphincter relaxation.

31.5.1. Etiology of retrograde ejaculation

- Medical treatment of LUTS/BPH with alpha-blockers
- Invasive BPH procedures, such as transurethral resection of prostate (TURP) or laser coagulations.
- Diabetic neuropathy
- Spinal cord injury
- Retroperitoneal lymphadenectomy (RLA)
- Medications (clonidine, methyldopa, tricyclic antidepressants and monoamine oxidase inhibitors (MAOI)

31.5.2. Diagnosis of RE

For the differentiation between emission disorder and true RE, the presence of sperm in post-orgasmic urine should be confirmed.

31.5.3. Treatment RE

- ☐ Pseudoephedrine
- ☐ Imipramine
- ☐ Phenylpropanolamine

31.6. Ageing and sexual dysfunction

- Longer delay between stimulation and erection
- Erection is less turgid
- Ejaculation is less strong
- Ejaculatory volume is smaller
- Time between erections is longer
- Less sensitivity to tactile stimuli
- Lower testosterone
- Orgasm is attained more slowly

Prognosis for sexual problems in men

Prognosis varies according to the method of treatment and the underlying disease. Nowadays, many innovations have changed the face of male sexual dysfunction giving men multiple options regarding treatment

Multi-disciplinary approach

Sexual health physician, psychiatrists and psychologists can be involved in the management of sexual dysfunction. Therapies targeting cognition and behaviour usually have good success rates.

32. Common sexual health issues in females

Sexual dysfunction is defined as difficulty or inability of having satisfactory sexual activity due to problems in sexual response cycle causing distress to the patient or to the partner. However as compared to male sexual dysfunction (MSD), FSD are difficult to define and the associated factors that are poorly understood. Its prevalence is said to be as high as 40%. Among postmenopausal women it has been self-reported in up to 87%. The prevalence of female sexual arousal disorders correlates significantly with increasing age. Sexual arousal and frequency of coitus in women decreases with increasing age.

In Sri Lanka very few data is available to decide local prevalence.

The definition of FSD was revised in 2014 in 2nd international consensus on sexual medicine (DMS 5) into three clinically significant types. Female hypoactive desire dysfunction and female arousal dysfunction were merged into a single syndrome called sexual interest/arousal disorder. Similarly, the formerly separate dyspareunia and vaginismus are now called Genito pelvic pain/penetration disorder. Female orgasmic disorder remains in place.

Definition of three categories of female sexual dysfunctions

1. **Sexual interest/ arousal disorders**

This is defined as reduced or absent sexual interest, responsiveness or erotic thoughts.

- A woman must have three of the following six symptoms in order to receive the diagnosis:
- absent or reduced interest in sexual activity;
- absent or reduced sexual thoughts or fantasies;
- no or reduced initiation of sexual activity, and typically unreceptive to a partner's attempts to initiate;
- absent or reduced sexual excitement or pleasure in almost all or all sexual encounters;
- absent or reduced sexual interest/arousal in response to any internal or external sexual cues;
- absent or reduced genital or non-genital sensations during sexual activity in all or almost all sexual encounters.

2. **Orgasmic disorder**

Persistent or recurrent delay in or absence of, orgasm following a normal sexual excitement

3. **Genito-pelvic pain/ penetration disorder (GPPPD)**

GPPPD is defined as persistent or recurrent difficulty in the following,

- Vaginal penetration during intercourse
- Marked vulvovaginal or pelvic pain during vaginal intercourse or penetration attempts
- Marked fear or anxiety about vulvovaginal or pelvic pain in anticipation of, during, or as a result of vaginal penetration
- Marked tensing or tightening of the pelvic floor muscles during attempted vaginal penetration or vaginal penetration,

Diagnosis can be made when one of the above is present persistently or recurrently.

- Vulvodynia is a closely related and overlapping term used to describe chronic pain in the vulvar region of at least 3 months duration. It may be generalized or localized to a specific

area, and provoked by contact or unprovoked (i.e., spontaneous). Vulvodynia is often associated with GPPPD and sexual pain, though not all cases of GPPPD are necessarily caused by vulvodynia. Vulvodynia is not itself classified as a sexual dysfunction, but is a term used to describe a type of chronic genital pain that is present with or without sexual contact.

To be considered dysfunctional, these symptoms must cause distress and must occur at least 75% of the time over a period of 6-month.

The three categories may frequently overlap. Each category can again be subdivided into following sub categories

- Lifelong verses acquired
- Generalised verses situational
- Based on aetiology - Organic, psychogenic, mixed or unknown aetiology

32.1. Pathophysiology

Female sexual function involves hormonal, neurological, vascular, psychological and emotional aspects. Dysfunction may be triggered or maintained by any of these, or by the interplay between them. Female sexual function is also highly dependent on physical and psychological feedback, so that physical, emotional and psychological factors will affect one another, so that an original issue becomes clouded by others.

32.1.1. Sex hormones

Sex hormones are involved in the sexual response, particularly in terms of the integrity and sensitivity of genital tissues. The menopause brings with it reduction in blood flow, clitoral shrinkage and reduction in sensitivity

- Androgens: androgens are important in female sexual function but the full role of testosterone in female physiology is not well understood. Androgens do affect clitoral size and sensitivity and can at higher levels influence libido and arousal.
- Estrogen/progesterone: estrogen insufficiency is associated with urogenital atrophy. This is likely to increase the possibility of associated discomfort, whilst reducing the likelihood of orgasm.

32.1.2. Other endocrine conditions

- Thyroid disease (both hyperthyroidism and hypothyroidism).- Low libido, lower vaginal lubrication
- Diabetes: Type 1 diabetes has a strong association with FSD. Type 2 diabetes is particularly associated with disorders of arousal.
- Polycystic ovary syndrome, obesity and metabolic syndrome could be associated with FSD.

32.1.3. Pregnancy

The reported prevalence of FSD among pregnant women is about 50-80% , mainly in the first and third trimesters. Contributory factors are physical and hormonal changes, perceived loss of attractiveness, concerns about the baby, breast tenderness and vaginal dryness.

32.1.4. Sexual dysfunction in the postpartum period

Short-term postpartum sexual changes, such as dyspareunia and loss of desire, are highly prevalent in postpartum women. Assisted vaginal delivery is associated with increased risk of postpartum sexual dysfunction. Perineal trauma and operative vaginal delivery are associated with increasing severity and incidence of dyspareunia.

32.1.5. Cardiovascular diseases (CVD)

Cardiovascular disease is associated with an increased prevalence of FSD. Sexual dysfunction is related to the severity of CVD. CVD has an effect on arousal/desire, sensitivity of the clitoris and vaginal labia, and orgasm. Women with heart failure are particularly prone to experience problems with vaginal lubrication and many report moderate to severe sexual pain.

32.1.6. Neurological factors

Neurological conditions can interfere with female sexual function. These include, Parkinson's disease and stroke, spinal cord lesions, diabetic autonomic neuropathy and aortic aneurysm affecting the pelvic nerve plexuses.

32.1.7. Pelvic surgery

Sexual dysfunction after pelvic surgery is most commonly related to injury of the autonomic pelvic nerves.

32.1.8. Psychological factors

Psychological factors (history of sexual abuse, depression, anxiety, obsessive-compulsive disorders), sociocultural issues (beliefs regarding sexual activity) and interpersonal issues (partner availability, partner function, relationship with partner, communication with partner) affect sexual function in all age groups. With ageing, additional psychological stresses may emerge, particularly loss of fertility, interruption of the menstrual cycle, the start of postmenstrual changes and altered body image.

32.1.9. Chronic pain and illness

Sexual difficulties in chronic pain are frequent and wide-ranging. Difficulties occur particularly with arousal, positioning, anticipation of pain, and lowered confidence. The partner's fear of triggering pain through sexual activity is significant. Assessing pain is an important part of assessing FSD.

32.1.10. Musculogenic factors

The pelvic floor muscles, in particular the levator ani and perineal membrane, participate in female sexual function and responsiveness. When hypertonic, vaginismus can develop leading to sexual pain. When hypotonic (for instance, after difficult childbirth) vaginal hypo-anaesthesia and coital anorgasmia can develop.

32.1.11. Female sexual dysfunction with ageing

Sexual dysfunction is highly prevalent in older women. Many women experience a change in their sexual function during the years immediately before and after menopause. As women age, genital blood flow decreases and a degree of clitoral and vulval neuropathy - with reduced touch sensitivity - is found with increasing age. Common complaints include a loss of desire, diminished responsiveness and low sexual arousal. Evaluation is difficult because the dysfunction is usually

multifactorial, but recently a cultural shift has led to increased expectation of a satisfactory sex life in older age.

32.1.12. Medication

Medications for depression can significantly affect the female sexual response. Women receiving selective serotonin reuptake inhibitors (SSRIs) often complain of decreased desire, decreased arousal, decreased genital sensation, and difficulty achieving orgasm. Other medications which can affect female sexual function include: Antihistamines, sympathomimetic amines. Anticonvulsants. Metronidazole. Metoclopramide, cimetidine. Antihypertensives, diuretics, adrenergic antagonists (terazosin, doxazosin), beta-blockers, calcium-channel blockers, spironolactone. Alkylating agents, cyclophosphamide. Anticholinergics. Oral contraceptives. Hypnotics, sedatives. Alcohol. Anti-androgens, anti-oestrogens, tamoxifen, raloxifene, gonadotropin-releasing hormone analogues (leuprolide, goserelin). Analgesics, opiates, Drug dependency.

Risk factors for FSD

- Increasing age.
- Peripheral arterial disease or CVD.
- Metabolic syndrome.
- Neurological disease (stroke, Parkinson's disease, spinal cord injury).
- Endocrine failure, including premature ovarian failure.
- Hypertension.
- Smoking.
- Genital atrophy.
- Genital surgery.
- Endocrinopathies.
- Diabetes. Hyperprolactinaemia.
- Severe liver disease.
- Severe chronic kidney disease.
- Sexual abuse.
- Psychological factors, life stressors.
- Interpersonal, relationship disorders
- Obesity, which may affect sexual function through insulin resistance, dyslipidaemia, psychological factors and biological factors

32.2. Evaluation of a patient with FSD

Sexual Symptom Checklist for Women

Please answer the following questions about your overall sexual function:

1. Are you satisfied with your sexual function? ❑ Yes ❑ No

If no, please continue.

2. How long have you been dissatisfied with your sexual function? _____

3. Mark which of the following problems you are having, and circle the one that is most bothersome:
   - ❑ Little or no interest in sex
   - ❑ Decreased genital sensation (feeling)
   - ❑ Decreased vaginal lubrication (dryness)
   - ❑ Problem reaching orgasm
   - ❑ Pain during sex
   - ❑ Other: _____

4. Would you like to talk about it with your doctor? ❑ Yes ❑ No

History

- Location of any pain or discomfort
- Current sexual function and practice
- Whether there is disparity of desire between partners
- Whether there are stressors such as relationship issues or family problems exacerbating the problem
- Whether there are sexual problems in the partner
- Substance abuse in patient and partner
- Whether woman had a history of physical, emotional or sexual abuse in the past
- Medical history- assess co morbid conditions which affect sexual desire and function. In particular past history of bilateral oophorectomy, post-partum complications, premature ovarian failure, cardiovascular diseases, diabetes, depression, thyroid disorders
- Drug history- Antidepressants, antipsychotics, antihypertensive, corticosteroids, hormone therapy including contraceptives and HRT

Examination

Thorough physical examination and psychological evaluation is a must, aim of examination would be to exclude relevant comorbidities that can contribute to FSD.

Blood pressure

Examination of vulva

- Assess the muscle tone, skin color/texture, skin turgor and thickness, pubic hair amount, vaginal pH,
- Cotton swab test of vulva, vestibule, hymenal ring, Bartholins and Skenes gland openings
- (pain mapping)
- Retract clitoral prepuce, expose clitoral glans
- Examine posterior fourchette and hymenal ring

Vaginal examination

Palpate rectovaginal surface, assess contraction/relaxation capability and tenderness with palpation of levator muscles, bladder, urethra. Evaluate vaginal depth

Using speculum, examine the vaginal lining and mucosa, and vaginal vault for vaginal atrophy etc. Perform genital cultures if infection is suspected. Test vaginal pH if vaginal atrophy is a concern.

pelvic examination

Bimanually palpate uterus and adenexia and perform rectovaginal examination

Laboratory evaluation

The aim is to rule out comorbid conditions

- Full blood count
- Fasting blood glucose
- Serum creatinine
- Liver function tests
- Thyroid function tests
- Hormone assays- indicated only in women with amenorrhoea or oligomenorrhoea
- Other additional investigations depending on the clinical findings

32.3. Management of FSD

32.3.1. General principals

It is important to discuss the normal anatomy of the genital area and the physiology of the normal sexual response cycle in males and female as many patients have no or minimum knowledge about sexual health.

In general young patients are more likely to have psychosexual causes than organic causes and situational causes than persistent and progressive causes. Always use less invasive simple measure first and gradually go into more invasive procedures if required.

A foundation for treating sexual concerns includes:

- Detail history and examination to find out the causes and contributing factors
- Lifestyle changers: obesity, lack of physical activity, poor diet, metabolic syndrome, and smoking and excessive alcohol consumption can aggravate FSD. Therefore it is important to advice on importance of regular exercise, maintenance of ideal body weight, healthy diet and cessation of smoking and alcohol consumption.
- Facilitating patient and partner education , relationship counselling or psychosexual counselling
- Identifying and treating medical conditions that may contribute
- Considering medication and substance use (both current and past) as a possible causative role, and resolving appropriately
- Providing sexual counselling, coaching, and intensive sex therapy, when indicated

Management of specific conditions need to be attempted only under supervision of consultant Venereologist

Management of specific FSD

32.3.2. Sexual interest/desire disorders

It is the most commonly found FSD. It peaks among women between 40- 60 years of age and those had surgical menopause. It may situational due to depression or underline chronic disorder. In such situations treatment of the underline disorder will improve the condition. However, among younger women it may be often isolated event.

Non pharmacologic interventions

It is aimed at education, therapy, and treatment of contributing factors.

- Educate about the normal female sexual function and she need to be explained that the desire may change with age and relationship duration.
- Discuss relationship issues if any and couple counselling to address issues
- Lifestyle changes such as stress management, adequate rest, and regular exercise.
- Management of contributing factors like diabetes, depression, UTI
- Adjustment of medications causing FSD
- Mechanical stimulation:(EROS clitoral stimulator, vacuum device)
- Psychological interventions

Three frequently used psychological interventions are behaviour therapy, cognitive behaviour therapy (CBT), and mindfulness therapy.

- Behavioural therapy follows from the conceptualization
- Relaxation exercises with graded and patient-controlled reintroduction of sexual behaviour (e.g., Yoga meditation, rhythmic breathing, music therapy, guided imagery)
- Self-stimulation and masturbation, sensate focus exercises coupled with improving communication with partners.
- Sexual accessories may be adjunctive aids as well as sexual education to understand genitor-pelvic anatomy and sexual response

Pharmacologic interventions.

- ☐ Lubricants: Over-the-counter-lubricants, feminine arousal oil, and/or long-acting vaginal moisturizers
- ☐ Testosterone therapy: Testosterone deficiency is not proven to be directly related to decrease sexual desire. However, some specialist recommend short term transdermal testosterone therapy.
- ☐ Oestrogen therapy: Topical oestrogen improves vaginal lubrication in postmenopausal women with vaginal atrophy, but the therapy has not been shown to consistently increase desire or arousal.
- ☐ Phosphodiesterase inhibitors have not been shown to improve diminished desire.
- ☐ Antidepressants may be helpful for those who have anxiety

There is significant overlap with arousal and orgasmic disorders, and distinguishing between the two may be difficult.

32.3.3. Orgasmic disorder

It may be primary where the female has never experienced orgasm or secondary resulting from another sexual dysfunction. Primary orgasmic disorder may be genetic or resulting following childhood trauma or sexual abuse. Following management is recommended for females with orgasmic disorders

- Cognitive-behavioural approaches that alter negative attitudes and reduce anxiety
- Psychotherapy and couple counselling specially in patients with orgasmic disorders following trauma or abuse.
- Clinician should encourage patient to:
    - Become educated about sexual response including orgasmic response
    - Practice and explore self-stimulation/masturbation in privacy
    - Use fantasy, erotic literature, and/or self-stimulators or vibrators to heighten arousal
    - Practice sensate focus exercises

32.3.4. Genito - pelvic pain/ penetration disorder (GPPPD)

The aim of treatment is two-fold:

(1) to reduce sexual and genital pain,

(2) to restore or improve sexual function

General guideline to progress from least to most invasive treatment options is usually followed. As mentioned previously, possible medical causes of pain should be assessed and treated first

and foremost, before attempting treatment of idiopathic sexual or genital pain. As clinical presentations of GPPPD and vulvodynia can vary widely, treatment should be client-centred and tailored to the unique characteristics of the specific individual undergoing treatment. The best strategy usually results from the combination of several therapeutic modalities.

Non-pharmacological interventions

- Education about vulvar self-care, including avoidance of douches, possible irritants, and allergens, is an important first step for practitioners.
- Avoidance of soap and use of emollients as soap substitutes
- Knowledge of genital anatomy and the female sexual response cycle may also be beneficial to facilitate greater understanding of what to expect from sexual encounters and to reduce anxiety.
- Engaging in long foreplay to encourage secretion of the body's natural lubricants
- Using comfortable sexual positions to minimize deep pain
- Psychological intervention, often in the form of CBT, aims to explore a woman's thoughts, emotions, behaviours and relationship dynamics associated with the experience of her sexual pain. Thus, maladaptive or unhelpful cognitions that may be perpetuating the physical experience of pain or feelings of fear and anxiety can be identified and replaced with more helpful thoughts. This may be undertaken individually, as a couple, or in a group.
- Anxiety management and coping — Refer for cognitive behavioural therapy
- Referral for couple sexual counselling/therapy to explore non-penetrating pleasuring techniques (as appropriate)
- Pelvic floor physical therapy aims to reduce elevated tone or tension in the pelvic floor muscles that are contributing to the experience of sexual pain and making intercourse painful or difficult. This is done through increased awareness of pelvic muscles, improving relaxation techniques, normalizing tone, and providing stretching stimuli at the introitus to gradually reduce anxiety surrounding penetration.
- Electromyography biofeedback (EMG), electrical stimulation, manual tissue manipulation, stretching/strengthening exercises, and the use of dilators or accommodators are also helpful to relax pelvic flow muscles

Pharmacological interventions

- Local anaesthetics such as topical lidocaine attempt to block peripheral nerves
- Capsaicin, conversely, decreased pain with intercourse by 95% in one study, though the residual burning sensation was not tolerable as a side effect for many women.
- Botulinum Toxin Type A (Botox) acts at nociceptors to cause local muscle paralysis of 3-6 month duration, making it an appropriate choice for women who have difficulties with pelvic floor hyperactivity causing pain.
- Use of water base vaginal lubricants
- Anti-inflammatory agents such as corticosteroids have had only minimal efficacy in treating genital pain,
- For vulvovaginal atrophy : Topical/local oestrogen preparations (tablets, creams, rings)
- For burning pain (indicative of neuroproliferation): Low-dose tricyclic antidepressants (e.g., amitriptyline), SSRIs (e.g., duloxetine), or anticonvulsants (e.g., gabapentin)
- Low-dose muscle relaxing agent (e.g., cyclobenzaprine, diazepam) may be helpful if pelvic floor myofascial pain and guarding of pelvic floor muscles is present.

Surgical interventions

Vulvar vestibulectomy, or the complete removal of the vestibular mucosa, is a well-established treatment for provoked vestibulodynia (localized provoked pain at the vaginal vestibule) associated with neuroproliferation. This option is usually considered following failure of other less invasive measures.

- Invasive approach but high success rates
- Complications: bleeding, infection, and rarely worsening of pain

32.3.5. Sex therapy interventions

Sexuality counsellors and sex therapists typically treat patients with desire, arousal, performance, and satisfaction issues. They also counsel patients and their partners who have experienced sexual trauma or abuse, or those who may be struggling with gender identity or sexual orientation issues, sexual pain, or sexual compulsions/addictions. Qualified specialists, including sex therapists, offer a variety of interventions that may help a patient reconnect emotionally and sexually with their partner(s).

Some common strategies include:

- Helping patients develop realistic and appropriate expectations
- Identifying contextual catalysts for sexual activity and helping patients gain awareness of positive sexual cues/triggers
- Assigning sensate focus exercises that help individuals and couples desensitize to sexual activity that causes anxiety or avoidance and increase non-demanding pleasure
- Teaching the practice of mindfulness
- Exploring alternate forms of sexual expression
- Addressing sexual boredom
- Discussing the use of lubricants, moisturizers, dilators, vibrators, and sexual enhancers

33. Management of STIs in special populations

33.1. Men who have sex with men (MSM)

Men who have sex with men is an important group when considering the STI prevention, treatment and care in Sri Lanka. Therefore, different approaches need to carry out in order to control STIs among MSM based on prevalence of STIs, rate of partner change, rate of unprotected sex and drug using habits and frequency.

33.1.1. Primary prevention

- Promotion of knowledge and STI prevention methods in the general population
- Coverage of MSM communities with STI prevention programmes (targeted interventions) which include the promotion of risk elimination and risk reduction behaviours such as
    - Stick to one partner, reduction of number of partners, or non-penetrative sex, avoiding sex under the influence of drugs, promotion of consistent and correct use of condoms
- Harm reduction intervention for drug using MSMs.
- Pre and post exposure prophylaxis for HIV
- Partner treatment as epidemiological treatment
- Post exposure prophylaxis for sexual abuse or assault
- **HPV vaccination;** The HPV vaccine is an option for prevention.

HBV vaccination as recommended by the national guideline to those who not received HBV in EPI vaccines

33.1.2. STI screening recommendations for MSM

- Offer HIV screening tests
- Screening for syphilis
- A test/s for possible urethral inflammation and aetiologies such as infection with *N. gonorrhoeae* and *C. trachomatis* in men who have had insertive intercourse during the preceding year (testing of the urine using NAAT is the preferred approach).
- A test for rectal infection with *N. gonorrhoeae* and *C. trachomatis* in men who have had receptive anal intercourse during the preceding year (NAAT of a rectal specimen is the preferred approach).
- A test for pharyngeal infection with *N. gonorrhoeae* in men who have had receptive oral intercourse during the preceding year (NAAT of a pharyngeal specimen is the preferred approach). Testing for *C. trachomatis* pharyngeal infection is not recommended.
- All MSM should be tested for HBsAg to detect chronic HBV infection
- HCV screening is recommended for IDU MSMs and HIV positive MSMs

33.1.3. Management of STI among MSM

Follow appropriate sections of this guideline for the management of STIs

33.2. Women who have sex with women (WSW)

Introduction: Women who have sex with women (WSW) are a heterogeneous group in terms of sexual identity, sexual behaviours and sexual practices. Sri Lanka has organizations working for LGBT rights and some less formal organizations for lesbians. However, there are STI attendees with lesbian sexual exposures or as bisexuals. Furthermore, research evidences for pattern of their behaviours are scarce.

33.2.1. Risk of STIs/HIV among WSW:

Recent studies indicate that some WSW, particularly adolescents and young women as well as women with both male and female partners, might be at increased risk for STIs and HIV based on reported risk behaviours. But transmission risk probably varies by the specific STI and sexual practice (e.g., oral-genital sex; vaginal or anal sex using hands, fingers, or penetrative sex items; and oral-anal sex). Practices such as digital-vaginal or digital-anal contact, sharing of penetrative sex items, can be a possible way of transmission of STIs infected through ano-genital secretions.

- HPV, which can be transmitted through skin-to-skin contact, is common among WSW, and sexual transmission of HPV likely occurs between female sex partners. Therefore, routine cervical cancer screening should be offered to all women, regardless of sexual orientation or sexual practices, and women should be offered HPV vaccine as per current guidelines
- Genital transmission of HSV-2 between female sex partners is inefficient, but can occur
- The relatively frequent practice of oro-genital sex among WSW might place them at higher risk for genital infection with HSV-1. Thus, sexual transmission of HSV-1 and HSV-2 can occur between female sex partners.
- Less is known regarding transmission of bacterial STDs between female partners. However, Syphilis (case report evidence) and *Chlamydia trachomatis infections were reported.*
- BV is common among women in general and even more so among women with female partners. These studies have continued to support, though have not proven, the hypothesis that sexual behaviours, specific BV-associated bacteria, and possibly exchange of vaginal or extra-vaginal microbiota (e.g., oral bacterial communities) between partners might be involved in the pathogenesis of BV in WSW. Although BV is common in WSW, routine screening for BV is not recommended.
- WSW should not be presumed to be at low or no risk for STDs based on sexual orientation. Report of same sex behaviour in women should not deter providers from considering and performing screening for STDs and cervical cancer according to current guidelines. Effective screening requires that care providers and their female patients engage in a comprehensive and open discussion of sexual and behavioural risks that extends beyond sexual identity.

33.3. Transgender men and women

Transgender is a broader term to describe people with gender identity and gender expression that is different from the biological sex. Therefore, transgender people sometimes seek medical or surgical treatments for gender transformation or gender affirmation. Transgender people are called transsexuals when they are taking for gender transformation treatments and surgeries. Being transgender, transsexual and gender nonconforming is a matter of diversity not a disease or pathology. Provision of sexual health services for transgender people needs health promotion, trans cultural sensitivity and understanding of their needs.

Gender dysphoria

Gender nonconformity refers to the extent to which a person's gender identity, role, or expression differs from the cultural norms prescribed for people of a particular sex (Institute of Medicine, 2011). *Gender dysphoria* refers to discomfort or distress that is caused by a discrepancy between a person's gender identity and that person's sex assigned at birth (and the associated gender role and/or primary and secondary sex characteristics). Only some gender nonconforming people experience gender dysphoria at *some* point in their lives. Gender dysphoric individuals should be referred for psychological and psychiatric assessment.

Gender affirmation

Transgender people may take number of lifestyle adaptations and gender affirming interventions as outlined below.

Lifestyle modifications: transgender people may show some spontaneous or adopted lifestyle changes to express their desired gender such as facial hair removal, hair style, plucking eyebrows, modification of speech and communication, genital tucking or packing or chest binding, way of walking, actions, gestures and mannerism

Medical interventions: Gender affirming hormone therapy (masculinizing or feminizing) which is the most common initial medical intervention sought by transgender people. Hormone therapy allows the acquisition of secondary sex characteristics more aligned with the desired gender identity.

Surgical interventions: There are number of gender affirming surgeries available to transgender people. These include surgeries specific to gender affirmation, as well as procedures commonly performed in non-transgender populations.

Surgeries specific to the transgender populations:

Feminizing vaginoplasty, masculinizing phalloplasty/scrotoplasty, metoidioplasty (clitoral release/enlargement may include urethral lengthening, Masculinizing chest surgery (top surgery), Facial feminizing procedures, reduction thyrochondroplasty (tracheal cartilage shave), voice surgery

Surgeries not specific to transgender populations:

Augmentation mammoplasty, hysterectomy, oophorectomy, Orchidectomy, Vaginectomy

33.3.1. STI care among TGW/TGM

Care providers should have knowledge on the current lifestyle modifications, hormonal and surgical interventions (current modified anatomy) and patterns of sexual behaviour in the client for complete assessment for sexually transmitted infections.

33.3.2. Sexual history and risk assessment

Clinicians should assess risk for sexually transmitted infections (STIs) based on the patient's sexual behaviors and current anatomy. Because transgender people differ in hormone use, history of gender affirming surgical procedures, and patterns of sexual behaviours, providers should avoid making any assumptions about presence or absence of specific anatomy; sexual orientation; or sexual practices. Anatomy and behaviour may change over time; therefore, it will be important to assess for changes that may impact STI risk. To facilitate a respectful rapport, use the patient's preferred terminology to refer to anatomic parts. And take a complete sexual history

which would include relationship types, frequency of sexual activity, type of sex and use of protections, age of sexual debut, use of drugs or alcohol during sex, sex work history, history of sexual abuse, and sexual function.

33.3.3. Physical examination and STI screening

- Explain the examination procedure to the client. Care providers should take a chaperone for examination to provide a sense of control to the patient (because many people have experienced sexual violence)
- Serologic screening recommendations for transgender people (HIV, Hepatitis B and C, Syphilis) do not differ in recommendations or technique from those for non-transgender people.
- The physical exam should focus on organs that are present (natural or neo-constructed) and have the potential for infection based on the sexual history, hormonal and surgical history.
- Feminizing vaginoplasty in transgender women (either penile inversion or colo-vaginoplasty) do not have a cervix, therefore screening for cervical HPV is not appropriate. Some surgical approaches include the use of urethral tissue, which could result in mucosal infectious such as chlamydia or gonorrhoea. The risk of infection of intact, inverted penile skin with these organisms is unknown, though lesions such as a syphilitic chancre, herpes or chancroid are possible. When clinically indicated due to symptoms, a physical examination and appropriate testing should be performed.

Care of neovagina: Neovagina is a blind tube and may have a more posterior orientation. Anoscope may be a more anatomically appropriate approach for a visual examination. The anoscopy can be used for internal examination. Neovaginal samples for chlamydia and gonorrhoea are generally not a routine test, though it is reasonable to consider urinary screening in women with risk factors

Care for inverted penis and urinary tract; Providers should consider urinary samples as essential for NG and CT

Care for remaining prostate tissue; Transgender with vaginoplasty retain prostate tissue, therefore infectious prostatitis should be included in the differential diagnoses for sexually active trans women with suggestive symptoms.

Care for remaining vagina: Testosterone use is associated with vaginal atrophy; therefore, use of lubricant and a small speculum may be appropriate for pelvic and speculum exams among transgender men with vaginas. Some transgender men retain patent vaginas after metoidoplasty and may require vaginal screening based on sexual history.

Care for remaining uterus and fallopian tubes: Pelvic inflammatory disease should be in the differential for transgender men with a uterus and fallopian tubes who have vaginal intercourse.

Care for patent vagina after metoidoplasty: Some transgender men retain patent vaginas after metoidoplasty and may require vaginal screening based on sexual history.

34. Vaccine preventable STDs

Sexually transmitted infections (STIs) can be prevented by consistent condom use. Risk of STIs can be further reduced by being vaccinated for STIs. Certain Vaccines are available to prevent STIs while some are still in the development stage. Following vaccines are currently available to prevent STIs.

34.1. Human papillomavirus Vaccine

Human papilloma infection is one of the most common STIs in Sri Lanka. Majority of infected patients are asymptomatic. The patients who get symptoms may develop genital warts and some can develop cervical and oro-genital cancers. Studies have shown that the vaccine protects against HPV infection for at least 10 years, however experts expect protection to last for much longer.

34.1.1. Three types of HPV vaccines are currently available

Quadrivalent vaccine

- It protects against 4 types of HPV: 6, 11, 16 and 18. HPV types 6 and 11 cause nearly all cases of genital warts (90%) and types 16 and 18 cause most of cervical cancers (more than 70%) and oro-genital cancers in both men and women.
- This is indicted for use in both males and females who are 9-26 years.
- Through National immunization programme in Sri Lanka, all the school children will receive 2 doses of HPV vaccine and the first dose at the age of 10 years and the second dose in 6 months.(0,6 months)
- If they are unable to get it before 15 years, 3 doses of the vaccine is recommended to be given to have an adequate protection (0, 2, 6 months).
- For children with HIV infection three doses of quadrivalent vaccine are recommended and the first dose needs to be given at the same time as in non HIV infected children. Second and third doses need to be given after 2 months and 6 months respectively. It's important to complete all doses of the vaccine to be fully protected.
- Vaccination of sexually active women is not a contraindication. As it is unlikely to get exposed to all of the types that the vaccine protects against before vaccination, it may still be of benefit for giving the vaccine to sexually active individuals even after the recommended age. Hence this vaccine can be offered to any sexually active individual (eg: FSW,MSM,TG) who are at high risk of getting HPV.
- The vaccine can be offered to individuals even with genital warts or abnormal Pap smear as it can still protect the individuals against the types that can cause cancers that they have not yet acquired. However these women should be told that the vaccination will not cure the current HPV infections or treat the abnormal results of their Pap test
- For previously unvaccinated HIV infected men and women aged up to 26 years, vaccine could be offered regardless of CD4 count, ART use and viral load. Previously unvaccinated HIV positive men having sex with men aged up to 40 years be offered HPV vaccination regardless of CD4 count, ART use and viral load. It may be useful to offer HPV vaccination for previously unvaccinated HIV positive women aged up to 40 years regardless of CD4 count, ART use and viral load. In ART naïve people with CD4 cell count <200 cells /µL vaccination may be postponed until the patient is established on ART.

Bivalent vaccine

- Targets HPV types 16 and 18 which are responsible for over 70% of cervical and other oro-genital cancers. It may offer some cross protection against other cancer-causing HPV types including 31,33,45 and 52.
- It needs to be given in 3 doses at 0, 1 and 6 months.

Nine valent vaccine

- 9-valent HPV vaccine addresses the four HPV types (6, 11, 16, 18) that are in the quadrivalent HPV vaccine plus five additional oncogenic types (31, 33, 45, 52, and 58). While preventing 90% of genital warts it has a potential to increase overall prevention of cervical cancers from 70% to approximately 90%.

Because the vaccines do not protect against all types of HPV infection, the recommended screening for cervical cancer should continue until evidence in the HPV-vaccine era shows otherwise.

34.1.2. Contraindications and Precautions

- A severe allergic reaction to a vaccine component or following a prior dose of HPV vaccine
- Quadrivalent and 9-valent HPV vaccines are produced in yeast and are contraindicated for persons with a history of immediate hypersensitivity to yeast.
- Vaccine need to be deferred if an individual is having a moderate or severe acute illness. However, a minor acute illness (e.g., diarrhoea or mild upper respiratory tract infection, with or without fever) is not a reason to defer vaccination.
- Women known to be pregnant should delay initiation of the vaccine series until after the pregnancy. Pregnancy testing is not needed before vaccination. However, if a woman is found to be pregnant after initiation of the vaccination series, the remainder of the series should be delayed till she is no longer pregnant. No intervention is indicated.

34.1.3. Adverse reactions

The most common adverse reactions reported were local reactions at the site of injection. Nausea, dizziness, myalgia and malaise have been reported following vaccination. No serious adverse events have been associated with any HPV vaccine.

34.2. Hepatitis A

Hepatitis A is an acute viral infection in the liver and most infections are from contaminated water or food. However sexual transmission can happen, especially in men having sex with men and injecting drug users. Therefore, Hepatitis A vaccine can be offered to at risk people (MSM, PWID, PLHIV, and known patients with Hep B and C) if they have not already immune to the infection.

Two types of vaccines are available.

1. Inactivated vaccines
2. Live attenuated vaccines

Following inactivated vaccines are available in Sri Lanka

1. Monovalent Hepatitis A vaccine
2. Combined vaccines with Hepatitis A and B

The vaccine can be used as a pre exposure prophylaxis (94-95% efficacy) as well as a post exposure prophylaxis (79% efficacy).

34.2.1. Dosage and administration

1. Monovalent vaccine – Two doses given at 6-12 months intervals, IM to the deltoid muscle.
2. Combined vaccine – Three doses given at 0, 1 and 6 months. Alternatively 4 doses can be given on days 0, 7 and 21- 30 days followed by a booster dose at 12 months.

34.2.2. Contraindications

- Acute febrile illness
- Hypersensitivity to previous dose or any component of the vaccine

34.2.3. Adverse effects

No serious events have been reported

Local – transient erythema, soreness and induration at injection site

Systemic- fever, headache, vomiting, malaise

34.3. Hepatitis B

Hepatitis B is an infection which can cause acute and chronic liver disease. As the vaccine has shown a significant reduction in morbidity and mortality due to Hepatitis B infection, it is recommended to offer the vaccine to people at higher risk of acquisition.

34.3.1. Eligible people

1. All children

2. Individuals who are at high risk including ,

- Infants born to mothers who had hepatitis B infection during pregnancy or are HBsAg positive
- Sexual partners of persons with acute hepatitis B virus infection/chronic carriers
- Household contacts of persons with acute hepatitis B virus infection/chronic carriers
- Men having sex with men
- Female sex workers
- Transgender people
- Injecting drug users
- Prison inmates
- Patients who are undergoing dialysis
- Patients who frequently need blood and blood products
- Recipients of organ transplantations
- Individuals who at occupational risk
- Travellers to endemic areas
- People living with HIV infection
- Patients with chronic liver disease and hepatitis C infection
- All previously unvaccinated adults aged 19-59 years with diabetes mellitus

Types of vaccine

1. Recombinant Hepatitis B vaccine
   i. Monovalent formulation
   ii. Combination with other vaccines

34.3.2. Dosage and administration

- Infants- Three doses to all infants at 2,4 and 6 months of age.
- Infants born to infected mothers with positive HBsAg, a regimen combining one dose of hepatitis B specific immunoglobulin with the first dose of hepatitis B vaccine should be administered within 12 hours of birth. HBIG is not indicated if mother is positive for HBeAb in spite of being a HBsAg positive carrier.
- HBIG +HBV vaccine at 0,2,4,6 months or
- HBIG+HBV vaccine at 0, 1,6 months or
- If HBIG is not available HBV vaccine accelerated schedule at 0,1,2 and 12 months
- Children and adults: 3 doses of vaccine can be given at any age at 0,1,6 months schedule.
- Travellers and high risk groups can be vaccinated with an accelerated schedule of 0,1,2 months and a booster at 12 months
- **People living with HIV infection:** High dose (40 µg,-2 doses of 20 µg/ml vaccine) vaccination should be offered. Four vaccine doses should be given at 0, 1, 2, and 6 months.
- Sexual partners of persons with acute hepatitis B virus infection
- Sexual partners of patients with Hepatitis B infection should receive a single dose of HBIG and hepatitis B vaccination at 0,1 and 6 months after screening for hepatitis B infection.
- Sexual partners of chronic carriers of hepatitis B infection
- They should be screened for hepatitis B infection and if negative, need to be vaccinated at 0,1 and 6 months.

Missed doses of hepatitis B vaccine

No need to restart the series.

If Series is interrupted after the first dose second dose should be given as soon as possible and the third dose at least 2 months after the second dose

If only third dose is delayed it should be given as soon as possible

34.3.3. Testing antibody levels following vaccination

HIV uninfected

It is recommended to measure the HBsAb levels 4-8 weeks after the last vaccine dose. If titres are > 10mIU/mL, response is known to be adequate. If response is < 10mIU/mL, the response is inadequate, and the person need to be evaluated for HBsAg positivity. If negative, a second three dose vaccine series should be given. Even after two vaccine series if the person does not develop antibody titre > 10mIU/mL, the person could be considered as a non-responder.

HIV infected individuals

Antibody level >100IU/L are regarded as ideal, whereas a level <10 IU/L is classified as non-responsive. It is recommended that individuals with HBsAb levels ≥10 but <100 IU/L should receive one booster dose. If retesting of HBsAb level shows antibody level between ≥10- 100 IU/L regular annual HBsAb testing is needed to guide subsequent boosting requirement.

Individuals who have HBsAb levels <10 IU/L after the primary vaccine course should receive three further vaccine doses at monthly intervals. It is better to delay the revaccination until the viral load is suppressed on ART and the CD4 count has increased > 350 cells/μL.

Screening of HBsAb levels with longer intervals (2-4 yearly) are indicated for individuals with initial HBsAb levels >100 IU/L, CD4 count >350 cells/μL and viral load suppression on ART. Other individuals should undergo yearly HBsAb screening.

34.3.4. Post exposure prophylaxis

Status of exposed person	Source status		
	HBsAg positive	**HBsAg negative**	**HBsAg unknown**
Unvaccinated	HBIG x1 and initiate the vaccination preferably within 24 hours	Initiate the vaccination	Initiate the vaccination
Vaccine responder	No immunization needed	No immunization needed	No immunization needed
Vaccine non responder	HBIG x2 one month apart	No immunization needed	If high risk treat as HBsAg positive
Response unknown	Test exposed person for HBsAb level.If inadequate HBIG x1 and initiate the vaccination	No immunization needed	Test exposed person for HBsAb level. If inadequate initiate the vaccination. If adequate no vaccination is needed

34.3.5. Contraindications

1. Anaphylactic reactions to a previous dose of Hepatitis B vaccine
2. Hypersensitivity to any of the vaccine components
3. Allergy to common bakers' yeast

Pregnancy and lactation are not contraindications for use of the vaccine

34.3.6. Adverse effects

No major side effects have detected

Local – soreness and redness at the site

Systemic – fever, diarrhoea, vomiting

For more information, Contact;
National STD / AIDS Control Programme,
29, De Saram Place, Colombo 10.
Sri Lanka
E-mail : info@aidscontrol.gov.lk
WEB : http://www.aidscontrol.gov.lk