

**Guide to
Management of
Sexually Transmitted
Diseases**



**National STD/AIDS Control
Programme
Department of Health Services
Colombo - Sri Lanka**

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FOREWORD

Sexually transmitted diseases (STD) are a group of communicable diseases transmitted mainly through unprotected sexual contact with an infected partner. The spectrum of STD has widened over the past two decades from the classical venereal diseases of syphilis, gonorrhoea and chancroid to diseases caused by more than 20 micro organisms consisting of bacterial, viral, mycological and protozoal agents.

STDs pose a continuing and serious health problem not simply because they cause acute symptoms such as genital ulcers and discharges but because they can have serious long-term effects on health such as chronic pain, ectopic pregnancies, puerperal sepsis, infertility and cervical cancer. The adverse effects may also extend to the foetus and the neonate. This is compounded by the fact that many STD are asymptomatic in both men and women making their detection difficult and more complex. Of critical importance is the fact that the presence of STD significantly increases the risk of transmission of the human immunodeficiency Virus (HIV).

Strategies to prevent and control STD effectively include comprehensive management of those with symptoms and identification and treatment of those without symptoms. To ensure consistent quality care, the National STD/AIDS control Programme (NSACP) has developed a guide for the management of STD in Sri Lanka. In development of this guide the NSACP has attempted to address the issues of diagnosis, treatment, partner notification, counselling and promotion of condoms.

These guidelines are meant to assist the physician in providing comprehensive care for patients with STD. They would be applicable mainly to settings where laboratory support is available.

Dr. Iyanthi Abeyewickreme

Director

National STD/AIDS Control Programme

GUIDE TO MANAGEMENT OF SEXUALLY TRANSMITTED DISEASES

The guide to the management of patients with STD presenting to STD clinics was developed by staff members of the National STD/ AIDS Control Programme Sri Lanka with the assistance of invited experts.

Standard text books on STD/AIDS and guidelines on management of STD published by World Health Organization(WHO), Centers for Disease Control (CDC), The Royal London Hospital Whitechapel, Royal Hallamshire Hospital Sheffield, Chelsea & Westminster Hospital London and STD Clinic, Adelaide Australia were used for reference.

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**CLINICAL
&
LABORATORY PROCEDURES**

**HISTORY TAKING, EXAMINATION IN
STD CLINICS & TECHNIQUES FOR
OBTAINING SPECIMENS**

HISTORY TAKING, EXAMINATION IN STD CLINICS...

Reason for attendance should be noted:

1. Voluntary – symptomatic or general check up
2. Referral- eg. Hospital, OPD, GP, Courts
3. Contact slip

The importance of obtaining an accurate case history is vital in the management of STDs. Reassurance is essential that all information provided will be kept confidential. Absolute confidentiality must always be respected.

Present Complaint:

- ◆ Nature, duration and severity of the complaint should be recorded

Exposure to Infection:

- ◆ Note the dates or periods during which exposures to infections occurred with marital / regular / casual partners during the past 3 months or longer if necessary.
- ◆ Accurate description of sexual practices – vaginal / anal / oral
- ◆ Protective sex with condom use or not
- ◆ Note whether exposures took place locally or if abroad in which country

Past History :

- ◆ Previous STDs
- ◆ Prior HIV test & results

Other illnesses :

- ◆ Presence of any medical / surgical / gynaecological disease

Current Medications:

- ◆ Use of recent antibiotics
- ◆ Use of self medication

Allergy to Drugs :

- ◆ Name of drug
- ◆ Type of reaction

Drug Abuse:

- ◆ Substance used, duration, route

Blood transfusions :

- ◆ Date transfused
- ◆ Reason for transfusion
- ◆ Where transfused (govt. hospital, private hospital)

Men :

- ◆ Time since last urination

Women :

- ◆ Note first day of last regular menstruation period. Record recent changes in the cycle.
- ◆ Method of contraception and duration of use
- ◆ Previous pregnancies, abortions, still births
- ◆ Date of last cervical cytology

EXAMINATION OF PATIENTS

A thorough physical examination similar to that performed in a general medical ward should be done. The genital examination should be carried out not only to inspect and define the anatomical lesions but also to enable the appropriate specimens to be taken, upon which correct laboratory tests can be carried out to make a diagnosis.

Examination of the male

Examine the following anatomical sites and note the following:

The external genitalia

- ◆ Skin rash
- ◆ Ulcers
- ◆ Swellings
- ◆ Lice or nits on pubic hair
- ◆ Warts

Inguinal region

- ◆ Palpate for enlarged lymph nodes
- ◆ Ulcers
- ◆ Abscesses

Urethral meatus

- ◆ Erythema
- ◆ Oedema
- ◆ Discharge
- ◆ Warts
- ◆ Ulcers

Prepuce -

(coronal sulcus, fraenum), glans, shaft of the penis (in uncircumcised men retract the prepuce)

- ◆ Rash
- ◆ Ulcers
- ◆ Warts

Testes, epididymes,

Spermatic cord

- ◆ Palpate the testes for swellings & tenderness or atrophy
- ◆ Epididymis for scars, cysts, swellings & tenderness
- ◆ Spermatic cord for thickening & tenderness

Scrotum

- ◆ Ulcers
- ◆ Burrows
- ◆ Rashes
- ◆ Warts

Anus & perianal skin -

The patient should be turned on to his left side and requested to draw up his knees so that the anus and perianal area can be inspected.

Examine for :

- ◆ Ulcers, tears
- ◆ Discharge
- ◆ Warts
- ◆ Note the laxity of the orifice

Rectum

examine using a proctoscope & look for

- ◆ Induration
- ◆ Ulcers
- ◆ Pus, blood
- ◆ Warts

THE GENITAL EXAMINATION OF WOMEN

The patient should be placed in the lithotomy position for examination. Examine the skin, inguinal folds. All lower abdominal scars should be noted.

Examine the

Perineum, vulva, Labia majora and minora for

- ◆ Discharge
- ◆ Erythema
- ◆ Oedema, vesicles
- ◆ Ulcers
- ◆ Rash
- ◆ Warts

Bartholin's gland

- ◆ Separate the labia and palpate the Bartholin's glands (between the finger & thumb) & duct of Skene's gland. Smears and cultures from secretions from the duct of Bartholin's & Skene's glands for N gonorrhoeae & scraping for chlamydia ELISA should be taken when indicated.

Urethral orifice

- ◆ Note the presence of discharge. May need to milk the urethra to expel the secretions. Specimens should be obtained by inserting a sterile cotton wool tipped swab, approximately 1cm into the orifice & gently rotated. Take smears & culture for N gonorrhoeae and chlamydia investigations.

provided the hymen is not intact, a cusco's bivalve vaginal speculum, dipped in warm water immediately before use, is passed into the vagina and the cervix exposed to view.

Vaginal walls

Note the presence of

- ◆ Erythema
- ◆ Warts
- ◆ Cheesy plaques of candida
- ◆ The nature, colour & odour of the discharge
- ◆ Check the pH

Technique for obtaining vaginal specimens

Dry smear

The lateral vaginal wall is scraped using a sterile cotton tipped applicator and the material is smeared on to a dry microscope slide and stained with Gram's stain. Diagnosis of candida is based on the presence of Gram positive yeast cells or pseudohyphae on microscopy. The presence of clue cells is one criteria in the diagnosis of bacterial vaginosis (clue cells)

KOH wet smear

Place 1-2 drops of the specimen on a glass slide and add 1 drop of 10% KOH. Place a cover slip and look for candida .

Whiff test.

Before placing the cover slip sniff the specimen and note the characteristic fishy odour,

Saline wet mount

A wet preparation is prepared by placing 1 ml of normal saline on a clean glass slide and placing the swab collected from secretions pooled in the posterior fornix. The cover slip is added and the slide is examined as soon as possible for *T vaginalis*. Look also for clue cells for diagnosis of Bacterial Vaginosis

cervix look for

- ◆ Erythema
- ◆ Oedema
- ◆ Discharge
- ◆ Ectopy
- ◆ Ulceration
- ◆ Warts

if cervical ulcer / erosions are noted scrapings should be examined by DG for *T pallidum*.

The PAP smear should be done first. Swabs from the cervix should be taken for smears & culture for *N gonorrhoeae*, scrapings for chlamydia ELISA. If indicated swabs for Herpes ELISA & culture are taken.

Bimanual pelvic examination

- ◆ The speculum is gently withdrawn & bimanual examination should be performed. The size / position / mobility of the uterus should be assessed. Note any swellings /tenderness of pelvis or adnexae

Technique for obtaining cervical smears & culture specimens

View the cervix clearly

1. Cervical smear (PAP smear) for cytological examination (refer section on CIN for details) should be taken before dry swabbing the cervix.
2. Take endocervical specimens as follows:
 - ◆ remove excess discharge from the cervix, using a cotton ball swab.
 - ◆ Insert a sterile cotton tipped swab / plastic loop into the endocervical canal. Rotate the swab, allow 10 - 30 seconds for absorption of organisms on to the swab

Gram stain

The swab is gently rolled on the slide. Do not rub. An air dried smear is then prepared.

GC culture

The Thayer- Martin culture plate is inoculated with the swab

HSV ELISA and culture

The swab taken from the ulcers / endo cervix should be introduced into the transport medium

Chlamydia ELISA

A scraping from the endocervix should be taken with the swab provided. A cytobrush can also be used to obtain good specimens

Techniques of examination and obtaining specimens when urethral discharge is present.

Examine the urethral meatus and the discharge. At times it may be necessary to squeeze the urethra and massage it forwards before the discharge becomes apparent. If there is an obvious discharge do not squeeze or milk the urethra.

If evidence of urethritis is found the following should be done

- ◆ A specimen of the discharge should be obtained by means of a sterile bacteriological loop and spread thinly and evenly on a microscope slide. The slide is stained with Gram stain and examined microscopically as soon as possible
- ◆ The Thayer – Martin culture plate should be inoculated with a sample of the discharge (if the culture plates are not available the sample could be sent using the transport medium which could be obtained from the Central lab)

- ◆ The patient should now be asked to void urine into 2 glasses. The anterior urethra is usually cleared of pus by 20ml of urine (maximum 40 ml). The specimen should be examined for:
Haziness, threads & flocs
- ◆ Haziness or any abnormality in the 1st glass is regarded as evidence of anterior urethritis, while if the abnormality extends to the second glass it is believed that the disease affects the posterior urethra.

Haziness -

- ◆ The haze is due to pyuria or due to the presence of phosphates. Adding a few drops of acetic acid will dissolve the phosphates.

Threads & flocs -

- ◆ The presence of threads is significant as it helps in the diagnosis of urethritis. Involvement of Littre's glands is shown by the presence of threads in the 1st glass of urine in the 2 glass test. They are casts of the ducts and if examined under the microscope they are seen to consist of numerous pus cells and a few epithelial cells.
- ◆ Threads sink quickly whereas flocs contain epithelial cells and float or sink slowly. All men have flocs from time to time in their urine.

Urine deposits

- ◆ It may be necessary to centrifuge a portion of urine and examine the deposit by microscopy for leucocytes, red blood cells, or organisms & by culture. A chlamydia EIA test could be performed with the deposit

Technique for Obtaining rectal- pharyngxal Specimens

Rectal Specimens

- ◆ Introduce the proctoscope
- ◆ Inspect the rectal walls and insert a sterile swab moistened with sterile saline into the anal canal. Move the swab from side to side in the anal canal to sample the crypts. Allow 10-30 seconds for absorption of organisms to the swab.
- ◆ Obtain specimens for GC culture, chlamydia ELISA, HSV ELISA & Culture. If ulcers / erosions are present a specimen should be taken for DG examination.

Pharyngeal Specimens

- ◆ After inspection of the oropharynx a throat swab is taken from the posterior aspect of the pharynx from one tonsillar region to the other.
- ◆ Separate specimens should be taken for GC culture, HSV ELISA & culture.

Technique for taking specimens for Dark ground examination.

1. Specimens can be collected from the ulcers or lymph nodes
2. The ideal specimen for DG examination is serous fluid with minimal red blood cells
3. The ulcer should be cleaned first with normal saline. Any scab or crust should be gently removed using a scalpel blade or a needle
4. The first exudate which may contain blood should be wiped away
5. Relatively clear fluid should be collected either by applying a clean microscopy slide or a cover slip to the lesion. The cover slip is then pressed on to the slide and examined on a dark field microscope
6. Dark field microscopy should be performed immediately after specimen collection
7. *Treponema pallidum* should be identified by the characteristic motility & morphology

Technique for obtaining specimens for Tzanck Smear (giant cells)

1. Clean the ulcer with normal saline
2. Wipe away the blood
3. Scrape the base of the ulcer with blunt edge of scalpel blade and make a smear with the scraping
4. The smear should be stained with the Giemsa stain.

The presence of multinucleated large epithelial cells helps in the diagnosis of herpes infection. The smear is specific, although it lacks sensitivity.

Technique for obtaining specimens for Herpes Elisa & Herpes Culture

Herpes ELISA

- ◆ Clean the lesion with normal saline
- ◆ Scrape the ulcer base with the swab provided
- ◆ Store at 4^oC and send to lab

Herpes Culture

Clean the lesions with normal saline

Scrape the ulcer base with a swab

Introduce the collected material into the transport medium provided and mix well

Store at 4^oC and sent to lab.

Routines serological tests that have to be carried out are :

In both male and female patients.

Serological tests for Syphilis (STS)

- ◆ The specific tests should be carried out routinely
VDRL & TPPA – routinely on all parts
FTA –ABS when indicated
- ◆ Blood is collected by venepuncture into a vacutainer tube
- ◆ Correctly label the tubes with patient numbers
- ◆ Centrifuge / allow to stand to separate the clot
- ◆ Remove the clot
- ◆ Serum can be used for testing immediately or stored at 4°C for 1 week or frozen.

Tests for Hepatitis B infection

- ◆ Blood to be collected by venepuncture into a vacutainer tube for HbsAg² when available / indicated.

HIV antibody test

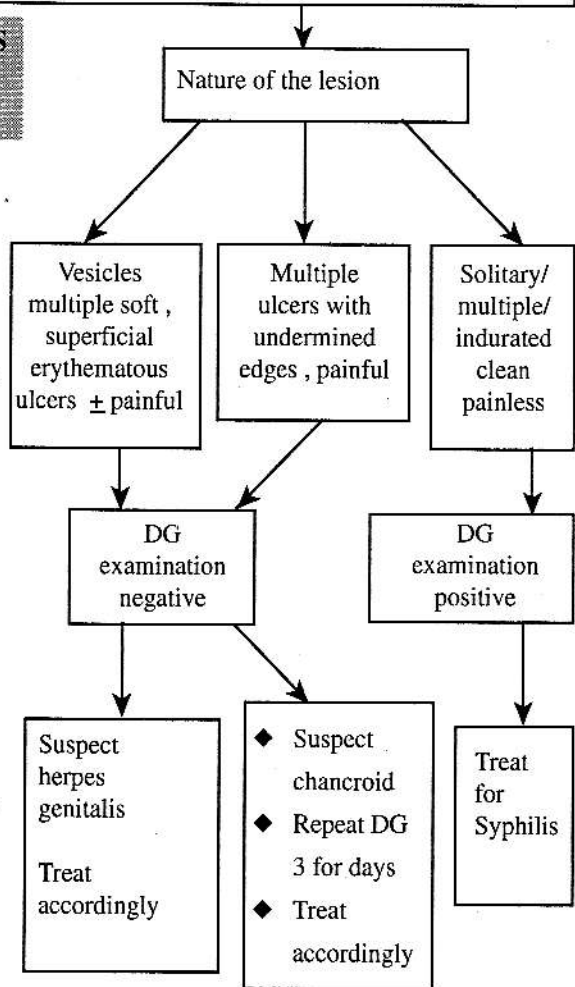
(with informed consent)

GENITAL ULCERS

Take a detailed history and carry out thorough physical examination

INVESTIGATIONS TO BE CARRIED OUT

1. **Dark ground Examination - (mandatory)**
2. **Scraping from the ulcer base & stain with Giemsa stain to identify Multinucleated Giant cells**
3. **HSV ELISA & Culture test From the sites involved**
4. **Serological tests for syphilis (STS)**



URETHRAL DISCHARGE

investigations
to be done

- ◆ Smear for Gram Stain
- ◆ GC Culture
- ◆ Chlamydia test
- ◆ 2 - glass urine test

GRAM STAIN

Gram negative
Intra cellular
diplococci +ve

- ◆ Treat for Gonorrhoea & chlamydia
- ◆ Investigate for other STD s
- ◆ Epi Rx for the Partner

No Intracellular gram -ve
gonococci
Polymorphonuclear leukocytes
+ve

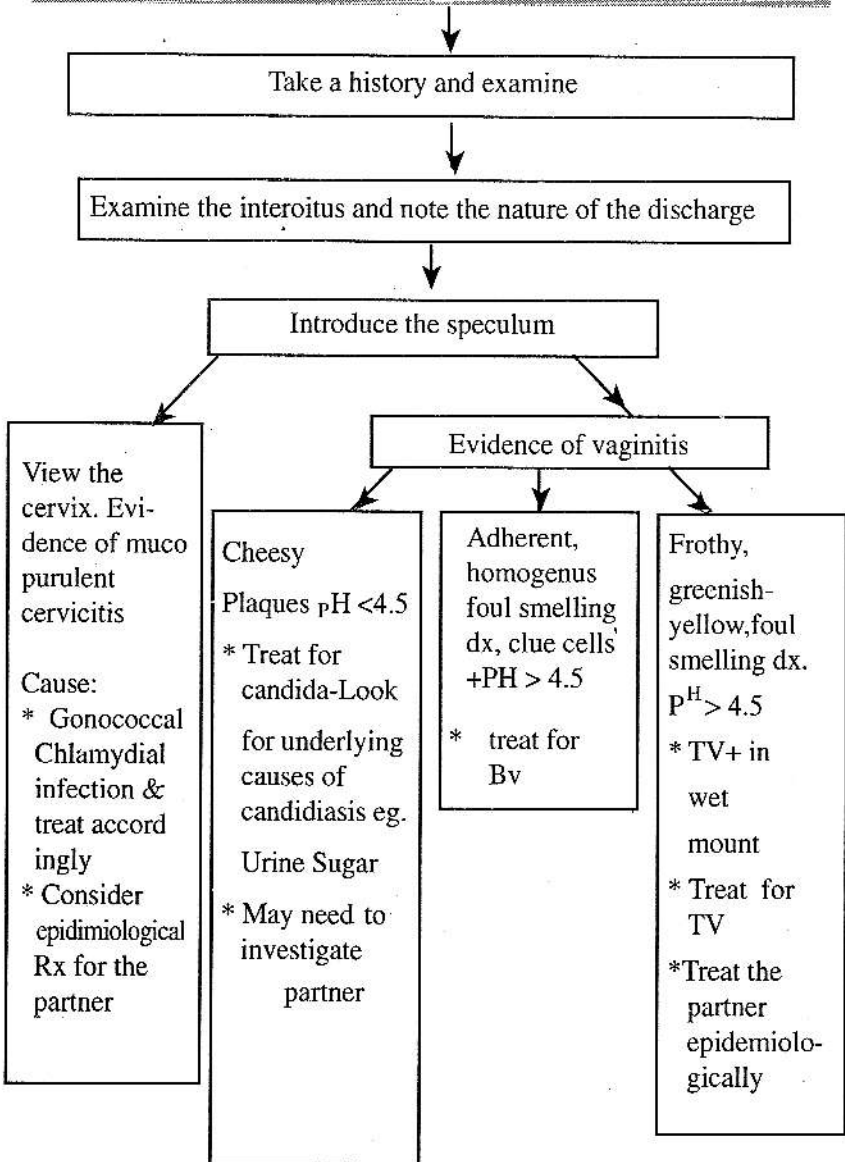
< 5PMN/hpf

Patient
return for
repeat
investigations
next morning
before
voiding urine

>5PMN/hpf

- ◆ Treat for NGU
- ◆ Investigate for other STDs
- ◆ Epi Rx for the partner

VAGINAL DISCHARGE



**SEXUALLY TRANSMITTED
DISEASES**

SYPHILIS

SYPHILIS

Is a chronic systemic infection caused by the bacterium *Treponema pallidum*. Syphilis is infectious in the early stages, sometimes with florid features and long periods of latency at other stages. It responds well to Penicillin and certain other antimicrobials. It may be transmitted to the foetus from an untreated infected mother leading to congenital syphilis.

The pre-requisite in diagnosis is clinical suspicion. Age, sexual behaviour and contact history are important.

PRIMARY SYPHILIS

Incubation period

9-90 days (average 3 weeks)

Primary lesion (chancre)

- ◆ Usually single or may be multiple, relatively painless, non-tender, indurated ulcer suggests a high probability of a chancre
- ◆ Enlarged, rubbery, non tender, discrete, inguinal lymphadenopathy may be present.

Sites of infection

Male

Coronal sulcus, glans penis, prepuce, scrotum, shaft of the penis, urethral meatus

Female

Vulva, clitoris, vagina, cervix

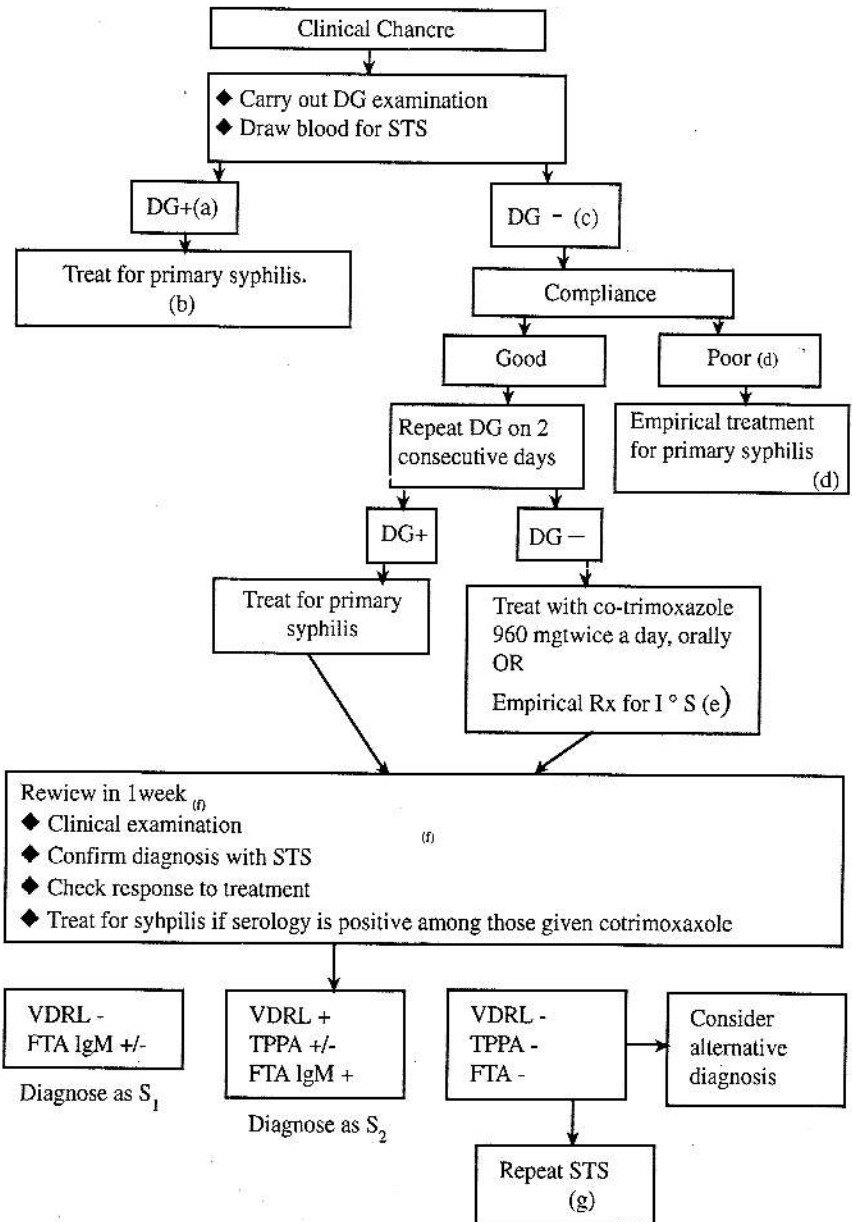
Extra genital sites

Tongue, cheek, lip, buccal mucosa, breast, rectum,

Diagnosis

- ◆ **Dark field microscopy is mandatory.**
Identify characteristic *Treponema pallidum* by its morphology and motility.
Refer page for specimen collection
- ◆ If the initial examination is negative in a suspected case, the procedure should be repeated on 2 consecutive days.
- ◆ **Serologic test for syphilis (STS)**
Non-treponemal (non-specific) test:
 - ◆ VDRLTreponemal (specific) tests:
 - ◆ FTA
 - ◆ TPPA/TPHA

FLOW CHART IN THE MANAGEMENT OF A PRIMARY CHANCRE



Annotations

- (a) DG examination is mandatory in the diagnosis of primary chancre. When positive it is definitive diagnosis of syphilis.
- (b) Treat for primary syphilis according to the schedule given on page 24
- (c) If DG examination is negative, repeat procedure on two consecutive days. The ulcer should be kept clean, wash with normal saline and the patient advised not to apply creams. A non treponemal antibiotic such as co-trimoxazole may be given if necessary.
- (d) If patient compliance cannot be guaranteed, although no laboratory evidence is available to support the diagnosis but clinically suspicious, empirical treatment for primary syphilis may be administered.
- (e) At this stage when repeated DG examinations are negative, the following should be considered :
 - ◆ On clinical suspicion treat empirically for primary syphilis,
OR
 - ◆ Continue co-trimoxazole and review in 1 week,
OR
 - ◆ If not on any therapy, commence co-trimoxazole if necessary.
- (f) Review in one week and confirm the diagnosis of syphilis with available laboratory evidence. If syphilis is diagnosed among those started on co-trimoxazole, treat for primary syphilis.
- (g) If VDRL is still negative, repeat VDRL at this stage or one week later as sero conversion may have now taken place. At the initial examination the lesions may have been sero negative primary syphilis or consider alternative diagnosis.

SECONDARY SYPHILIS

Signs and symptoms

- ◆ Skin rash (75%) - symmetrical, generalised, maculo-papular eruption, typically involving the palms and soles.
- ◆ Generalised lymphadenopathy (50%) - firm, enlarged painless nodes.
- ◆ Mucosal lesions (33%) - "mucous patches" - which are round lesions with a greyish-white base and a dull red areola involving the mucous surfaces of lips, cheeks, tongue, pharynx or the larynx. They become confluent to form snail track ulcers. Mucous patches are also seen on the genital mucous membranes including the vulva, the vaginal outlet, cervix, glans penis and the prepuce.
- ◆ Neurological involvement occurs in a small proportion (<10%) of patients. Aseptic meningitis, cranial nerve palsies have been described. Examination of the CSF shows abnormalities in about a third of patients (increased cell count, raised proteins) but most patients with abnormal CSF do not exhibit clinical symptoms or signs of neurologic disease. If neurological manifestations are seen management is as for Neurosyphilis (refer page).

Diagnosis

- ◆ Dark field microscopy
Dark field examination should be performed on skin scrapings including papules (condylomata lata), mucous patches and any other moist lesion
- ◆ Serologic tests for syphilis (STS)
- ◆ All STS are almost always reactive in secondary syphilis.

◆ VDRL test

Often reaches a high titre

A false negative result may be present in the following:

- ◆ Prozone phenomenon: excessive amounts of antibody can interfere with the test leading to a non reactive or atypical reaction. If there is overwhelming clinical evidence, request the test to be repeated in dilutions.
- ◆ HIV infection

LATENT SYPHILIS

In latent syphilis there are, by definition, no positive clinical features. A thorough clinical examination should be carried out to exclude tertiary (gummatous) and/or quaternary syphilis (cardiovascular and neurosyphilis).

Diagnosis of latent infection depends on a positive specific serologic test (TPPA/TPHA/FTA). VDRL test may or may not be positive

Latent syphilis is divided into 2 stages.

Early latent syphilis

- ◆ Asymptomatic infection within 2 years after acquisition of infection
- ◆ Specific serologic tests are positive. Diagnosis is based on a positive STS
- ◆ VDRL test may or may not be positive
- ◆ This stage is infectious

Late latent syphilis

- ◆ Asymptomatic infection in the absence of clinical activity in any system two years or more after acquisition of infection
- ◆ Specific serologic tests are positive. Diagnosis is based on a positive STS test.
- ◆ VDRL test may or may not be positive.
- ◆ This stage is considered to be non-infectious.

MANAGEMENT OF INFECTIOUS SYPHILIS IN ADULTS
PRIMARY, SECONDARY AND EARLY LATENT INFECTION

Treatment

Recommended therapy for adults

Benzathine penicillin 2.4 million units IM
after ST in a single dose
OR
Procaine penicillin 1.2 million units IM daily
after ST, for 15 days

Alternative therapy for patients allergic to penicillin

Doxycycline* 100 mg orally twice a day for 15 days
OR
Tetracycline* 500 mg orally 6 hourly for 15 days
OR
Erythromycin 500 mg orally 6 hourly for 15 days
OR
Consider desensitization for penicillin.

* Doxycycline and Tetracycline are contraindicated
in pregnancy and lactation

Other management issues

- 1 Partner notification and epidemiological treatment of partner.
- 2 Look for evidence of other STDs.
- 3 Encourage voluntary, confidential HIV testing.
- 4 Discuss safer sex practices and promote the use of condoms.

Management of partners

- ◆ Investigate and epidemiological treatment of sexual contacts is mandatory as these stages of syphilis are infectious. Epidemiological treatment should be given according to the stage of the disease.

Follow up

- ◆ Clinical examination and VDRL test

At monthly intervals in the first three months, then at 3rd, 6th, 9th, 12th, 18th and 24th month.

During follow up if a 4 fold drop in titre is not observed or if titre is persistently high in spite of adequate therapy. Rule out/consider:

- ◆ Reinfection
- ◆ Fresh infection
During follow up if a 4 fold rise in titre is observed confirm re-infection or fresh infection and treat accordingly.
- ◆ Relapse
- ◆ complications - cardiovascular, neurosyphilis, gumma. A complete cardiovascular and neurological examination should be done
- ◆ co infection with HIV

TREATMENT OF CHILDREN WITH EARLY INFECTIOUS SYPHILIS

Benzathine penicillin 50,000 IU/kg IM up to the adult dose of 2.4 million units in a single dose.

Treatment

Recommended therapy

Benzathine Penicillin 2.4 million units IM after ST weekly for 3 consecutive weeks
OR Procaine penicillin 1.2 million units IM daily after ST for 21 days
OR
Consider desensitisation for penicillin

In Penicillin allergy

Doxycycline* 100 mg orally tds for 30 days
OR
Tetracycline* 500 mg orally 6 hourly for 30 days
OR
Erythromycin 500 mg orally 6 hourly for 30 days

*Tetracycline and Doxycycline are contraindicated in pregnancy and lactation

Other management issues

1. Partner notification and investigations (STS).
2. Look for evidence of other STDs.
3. Encourage voluntary, confidential HIV testing
4. Discuss safer sex practices and promote the use of condoms.

Management of partners

Investigate and if serology is positive or clinical evidence of syphilis is present, treat the sexual partner according to his/her stage of syphilis.

TREATMENT OF CHILDREN WITH LATE LATENT SYPHILIS OR SYPHILIS OF UNKNOWN DURATION

Benzathine penicillin 50,000 IU/kg IM
up to the adult dose of 2.4 million units
administered as 3 doses at one weekly
intervals.

Follow up

◆ Clinical examination and VDRL test

At 1st, 3rd, 6th and 12th month for the first year and every 6 months for the second year.

During the follow up if a 4 fold drop in titre is not observed or if titre is persistently high in spite of adequate therapy, rule out

- a) re-infection
- b) relapse
- c) complications - cardiovascular, neurosyphilis
- d) co-infection with HIV

During follow up if a 4 fold rise in titre is observed confirm reinfection and treat accordingly and exclude the possibility of complications such as neurosyphilis, cardiovascular syphilis or gumma.

CARDIOVASCULAR SYPHILIS

Appears 20 years or more after exposure.

Signs and symptoms

Angina due to narrowing of coronary ostial, aortic incompetence, aortic aneurysms. Such presentations, however, are rarely seen now.

Diagnosis

- ◆ Clinical evaluation
- ◆ Serological tests for syphilis are usually positive
- ◆ Chest X ray - Posteroanterior (PA) and left anterior oblique view
- ◆ ECG
- ◆ Echo-cardiography

Treatment

Recommended regimen

Procaine penicillin 1.2 million units daily IM after ST + Probenecid 500 mg four times a day orally daily for 21 days
AND Prednisolone 20 mg twice a day for 2 days prior to commencement of Penicillin and continued for the first 48 hours of the course is recommended to reduce the risk of developing JH reaction. If possible treat patient in the hospital for the first 2-3 days to facilitate treatment in the event of a JH reaction.

In penicillin allergy

Doxycycline 100 mg orally tds for 30 days OR
Tetracycline *500 mg orally 6 hourly daily for 30 days OR
Erythromycin 500 mg orally 6 hourly daily for 30 days

Treat in consultation with a cardiologist

NEURO SYPHILIS

Central nervous system disease can occur during any stage of syphilis. Neurosyphilis includes the clinical entities of asymptomatic neurosyphilis, acute syphilitic meningitis, cerebrovascular neurosyphilis, parietic neurosyphilis, tabes dorsalis, CNS gumma, isolated neural events such as optic neuritis/atrophy, sensorineural deafness and congenital neurosyphilis.

Clinical presentations:

Dementia, personality changes, multifocal neurological disorders, nerve deafness, pupillary abnormalities, optic neuritis, optic disc swelling, optic atrophy, retinal disease or uveitis.

Diagnosis

- ◆ Thorough clinical examination
- ◆ LP is mandatory. CSF examination
 - ◆ White cell count - raised lymphocyte count $>5/\text{mm}^3$
 - ◆ Total proteins $> 50 \text{ mg/dl}$
 - ◆ VDRL test - The standard test on CSF is the VDRL test. A positive VDRL in the absence of a bloody tap, is diagnostic of neurosyphilis. But a negative result does not exclude the diagnosis.

The diagnosis of neurosyphilis may depend on a combination of clinical findings, CSF proteins and cell count, and serological tests.

- ◆ Asymptomatic patients with positive CSF findings should be treated as having neurosyphilis.
- ◆ If the history, clinical presentations and syphilis serology is positive but the CSF findings are normal the therapeutic approach should be to treat the possibility of

neurosyphilis and observe the clinical response while continuing to investigate other possible causes of the neurologic picture.

Treatment

Discuss management with Consultant/Senior Medical Officer

Recommended therapy

Aqueous crystalline Benzyl Penicillin 4 MU, IV 4 hourly after ST for 10-14 days

OR

Procaine Penicillin 2.4 MU, IM daily after ST for 10-14 days +

Probenecid 500 mg orally four times a day for 10-14 days

In Penicillin allergy

It is preferable to desensitise the patient to penicillin. The alternative would be to use the following:

Tetracycline 500 mg 6 hourly orally for 30 days

OR

Doxycycline 100 mg three times a day orally for 30 days

In pregnancy use **Erythromycin** 500 mg orally 6 hourly for 30 days.

Prednisolone 20 mg twice a day orally for 2 days prior to commencement of therapy and continued for the first 48 hours of the course is recommended to reduce the risk of a JH reaction.

Benzathine Penicillin should not be used in neurosyphilis because an adequate level of penicillin in the CSF is not achieved.

Follow up

CSF examination should be repeated at 6 monthly intervals until the cell count is normal. Thereafter re-evaluation should be performed annually for several years.

If the cell count has not decreased after 6 months, or if the CSF is not entirely normal after 2 years, re-treatment should be considered.

Blood serologic testing should be performed at 6 and 12 months and thereafter at yearly intervals for at least 3 years.

Management of sex partners

- ◆ Issue contact slips to all current & past partners and investigate. If evidence of syphilis is present treat according to the stage of syphilis.

Other management issues

- ◆ Look for evidence of other STDs
- ◆ Encourage voluntary confidential HIV testing

SYPHILIS IN PREGNANCY

- ◆ All women should have a VDRL test at the 1st antenatal visit. Women at high risk should have a further test in the third trimester
- ◆ Women with a positive serologic test (VDRL, TPPA/TPHA, FTA) should preferably be referred to the STD clinic for management
- ◆ Penicillin should be prescribed in doses recommended for non pregnant patients appropriate for the stage of syphilis

- ◆ In penicillin allergy the alternative therapy is Erythro mycin
- ◆ Women treated for syphilis during the second half of pregnancy are at a risk of premature labour/foetal distress if the treatment precipitates a JH reaction
- ◆ Patients should have monthly clinical evaluation and VDRL testing for the remainder of the pregnancy
- ◆ If a 4 fold rise in titre is observed after therapy, re-evaluate and treat accordingly
- ◆ Inform obstetrician who is managing the pregnancy
- ◆ Look for evidence of other STDs
- ◆ All patients who have syphilis should be encouraged to undergo voluntary, confidential testing for HIV
- ◆ Trace partner and offer epidemiological treatment if the diagnosis is infectious syphilis, others investigate and treat accordingly
- ◆ Arrange for the baby to be referred to the STD clinic for review
- ◆ Baby's blood should be tested for VDRL and FTA (IgM)

All infants born to mothers with syphilis should be epidemiologically treated with a single dose of benzathine penicillin 50,000 units/kg Im irrespective of maternal treatment during pregnancy, either with or without penicillin

CONGENITAL SYPHILIS

Definitive case

An infant in whom *Treponema pallidum* is identified by dark field microscopy or other specific stains in specimens from lesions (skin rash, nasal discharge), placenta, umbilical cord or autopsy material.

Presumptive case

1. Any infant whose mother had untreated or inadequately treated syphilis at delivery regardless of signs and symptoms in the infant

OR

2. Any infant or child who has a reactive treponemal serology test for syphilis and any one of the following
 - ◆ Evidence of congenital syphilis on physical examination
 - ◆ Evidence of congenital syphilis on long bone X rays
 - ◆ Reactive CSF, VDRL.
 - ◆ Elevated CSF cell count - WBC > 5 mm³ or Protein > 50 mg /dl
 - ◆ Reactive test for FTA-Abs IgM antibody

OR

when specific treponemal tests are not available

A quantitative treponemal serologic test (VDRL) titre that is four fold greater than the mother's titre or a rising VDRL titre in the baby's serum should be present.

Diagnosis

All babies born to mothers with a positive test should have:

- ◆ Clinical evaluation - if lesions are present - DG examination.
- ◆ Serological tests for Syphilis. VDRL, TPHA. FTA(IgM).
- ◆ If clinical signs are positive or if STS is positive a bone survey should be considered.

Treatment of Early congenital syphilis : < 2 years of age

Symptomatic

Aqueous procaine penicillin 50,000 IU/Kg IM for 10 days
OR

Aqueous Benzyl Penicillin 200,000 IU/kg daily IV in two divided doses for 10 days

(This regimen is preferred to the above daily IM injections)

Asymptomatic

Benzathine Penicillin 50,000 IU /kg IM as a single dose

Follow up

The clinical & serological condition of the baby should be assessed and attempts made to detect relapses during the first year after therapy

After 3 months: Clinical examination

Check VDRL

At 6 months : 2nd evaluation - clinical examination,
check VDRL

By the end of 6 months the baby's VDRL titre should have dropped four folds. If not seek the opinion of a Venereologist

At 12 months: Evaluation is indicated by the results of the earlier results

Treatment of Late congenital syphilis : >2 years of age

Benzathine Penicillin 50,000 IU / Kg by IM injection (up to 2.4 MU) weekly for 3 consecutive weeks

For Penicillin allergic children

Erythromycin 7.5-12.5 mg / Kg orally 4 times daily for 30 days

Follow up:

Clinical & serologic evaluation at 3,6,9,12,18,24 months. If the titres are stable or increasing after 6-12 months, the child should be evaluated including a CSF examination.

Uninfected babies after epidemiological treatment.

Follow-up is necessary :

If the maternal treatment was appropriate for the stage of infection but was given less than 4 weeks before delivery

If the mother was treated for syphilis and the non treponemal syphilis titres did not decrease 4 fold after appropriate therapy

SYPHILIS IN HIV INFECTED PERSONS

The presentation, diagnosis, course and response to treatment of syphilis may all be modified by pre existing HIV infection.

- ◆ Accelerated progress from early infectious syphilis to meningovascular syphilis has been observed.
- ◆ Progression to late syphilitic complications has been reported following treatment with doses of penicillin known to be adequate in immunocompetent patients.

- ◆ Unusual serological responses have been observed. Serologic titres that were higher than expected but false negative serologic test results or delayed appearances of sero reactivity also have been reported
- ◆ When clinical findings are suggestive of but serologic tests are non reactive or unclear alternative tests eg biopsy of lesion, dark ground examination may be useful
- ◆ Neuro syphilis should be considered in the differential diagnosis of neurological disease in HIV infected persons

Treatment

Primary, secondary and early infectious Syphilis

Benzathine penicillin 2.4 MU IM in a single dose after ST x 15 days

Treatment is as for HIV negatives

Follow up

- ◆ Clinical & serological follow up at 3, 6, 9, 12, 18, 24 months.
- ◆ If VDRL does not decline 4 folds within 6-12 months most experts re-treat with Benzathine penicillin 2.4 MU weekly for 3 weeks if CSF is normal.

Late latent syphilis

Treat as for HIV negative patients. No difference in treatment regimens.

Benzathine penicillin 2.4 MU IM weekly after ST for 3 consecutive weeks

Follow up

- ◆ Evaluate clinically and serologically at 6, 12, 18 and 24 months
- ◆ If a 4 fold (2 dilution) increase in titre is noted, CSF should be examined and treated accordingly
- ◆ If between 12-24 months titre fails to decline 4 folds, CSF should be examined and treated for neurosyphilis in conjunction with a Venereologist and a Neurologist
- ◆ Evaluate for cardiovascular syphilis

NEUROSYPHILIS

Treatment regimen is the same as for HIV negative patients. No treatment regimens for syphilis are demonstrable more effective in preventing neurosyphilis in HIV infected patients than the syphilis regimens recommended for HIV negative patients.

Penicillin allergy

Should be managed according to the recommendations for penicillin allergy HIV negative patients.

GONORRHOEA

GONORRHOEA

The causative organism is *Neisseria gonorrhoeae*, a fastidious, non motile, non spore bearing, gram negative diplococcus which characteristically grows in pairs with adjacent sides flattened. It predominantly affects mucosal and glandular structures of the genital tract and less commonly the rectum, oropharynx or conjunctiva.

Incubation period

Usually 2-7 days (may be longer in females)

Clinical manifestations

Signs & symptoms

Gonococcal urethritis

- ◆ Urethral discharge – mucoid, followed by a yellow purulent discharge which is first turbid and then opaque
- Urethral discomfort
- ◆ Dysuria
- ◆ Frequency
- ◆ Meatitis – erythema, oedema of the meatus

Gonococcal cervicitis

The endocervical canal is the primary site of urogenital gonococcal infection in women. However, is often asymptomatic.

Signs & symptoms

- ◆ Discoloured vaginal discharge, sometimes with associated vaginal & vulval irritation
- ◆ Dysuria
- ◆ Frequency
- ◆ Intermenstrual bleeding
- ◆ menorrhagia

Many infected females have cervical abnormalities such as

- ◆ erythema, oedema of the cervix
- ◆ cervical ectopy
- ◆ induced cervical bleeding
- ◆ mucopurulent / purulent discharge

Urethritis in females

Urethral colonization is present in 70-90% of infected women, but is uncommon in the absence of endocervical infection except in hysterectomised women, in whom the urethra is the usual site of infection.

Anorectal infection

The rectal mucosa in females, may be infected by local spread of infected cervical secretions and in male homosexuals through receptive unprotected sexual intercourse.

Signs & symptoms

- ◆ mucopurulent anal discharge
- ◆ anal discomfort
- ◆ sometimes may be asymptomatic

Proctoscopy examination – erythema, oedema of the rectal mucosa, presence of discharge

Management

Diagnosis

Presumptive

- ◆ Gram stain smear – identify typical Gram negative intracellular diplococci

Definitive

- ◆ Culture

Isolation of organisms on selective culture medium eg Thayer Martin medium by Gram stain morphology, oxidase test, sugar utilization test.

- ◆ Antibiotic sensitivity by

1. Beta lactamase test – for Penicillin Producing Neisseria Gonorrhoeae (PPNG)
2. Disk diffusion test
3. Minimum Inhibitory Concentration test (MIC)

Other tests

- ◆ Macroscopic examination of urine – 2 glass test
- ◆ Tests for chlamydia (As co-infection with chlamydia is common it is essential to test for chlamydia infection)

Males/Females:

Uncomplicated gonococcal infections of the Urethra, Cervix and Rectum

Recommended Therapy

Cefuroxime axetil 1g orally, + Probenecid 1g in a single oral dose OR Ceftriaxone 250mg IM in a single dose

Alternative Therapy

Spectinomycin 2g IM in a single dose

OR

Ciprofloxacin 500 mg orally in a single dose

Co-infection with chlamydia trachomatis is common therefore add :

Recommended Therapy

Tetracycline 500 mg 6 hourly orally for 7 days

OR

Doxycycline 100 mg twice a day orally for 7 days

Alternative Therapy

Erythromycin 500 mg 6 hourly orally for 7 days

For both males & females, on the first day of the examination, if the Gram stain smear is positive a presumptive diagnosis of gonococcal infection is made & treatment should be commenced for GC as given above.

For women, on the same day give treatment for chlamydial co-infection and follow up as indicated.

For men, treat for chlamydial co-infection preferably, on the first follow up date ie the day of the first TOC and follow up thereafter as instructed.(if patient compliance is doubtful then treatment for chlamydia may be prescribed on the first day of examination.)

A confirmatory diagnosis can be made only on a positive culture result. This is important for medico legal cases especially.

Management of Partner:

- ◆ Investigate and give epidemiological treatment for both gonococcal and chlamydia infections
- ◆ Encourage voluntary confidential HIV testing

Follow up

Males

First follow up-

3rd day after initial therapy

1. clinical examination
2. test of cure (TOC)
 - ◆ culture mandatory from all infected sites
 - ◆ if discharge present - urethral smear for Gram stain
 - ◆ 2 glass urine test
 - ◆ if purulent discharge is absent and direct smear shows no evidence of gonococcal infection consider cured for gonococcal infection.
 - ◆ If purulent discharge is present and direct smear is positive for Neisseria gonorrhoea rule out reinfection. Check whether partner has been investigated and treated epidemiologically. Since resistance to the recommended therapy (eg cephalosporins) is unlikely you may repeat same regimen or give an increased dose. Consult a senior medical officer / consultant. If a quinolone has been given change to cephalosporins. (It is extremely important to give the new regimen to the partner)
3. Treat for chlamydia urethritis (as co-infection with chlamydia trachomatis occurs in about 15-35%) -

Tetracycline / Doxycycline / Erythromycin for 7 days

2nd follow up -

5-7 days after completion of chlamydia therapy

- ◆ clinical evaluation
- laboratory tests

- if discharge present smear for gram stain
- 2nd TOC for GC (mandatory) – even in the absence of a discharge this test has to be done
- 2 glass urine test
- repeat chlamydia test if necessary
- ◆ Check on partner management

depending on the laboratory evidence diagnose non gonococcal urethritis and treat accordingly (refer management of NGU)

Females:

First follow up

10th day after initial therapy is completed (ie single dose treatment for gonorrhoea and 7 day treatment for chlamydia)

1. clinical evaluation – speculum examination – note the state of cervix etc
2. First TOC - test of cure
 - ◆ cervical smear for Gram stain
 - ◆ culture for GC from all infected sites
3. check whether partner has been treated
4. give an appointment to check TOC results

2nd Follow-up

i.e. one week after the first follow-up.

- ◆ Clinical evaluation
- ◆ Second TOC (mandatory)

if signs & symptoms persist – refer management of Mucopurulent cervicitis (MPC)

Local complications in males

Infection of the neighbouring structures of the genito-urinary tract

- ◆ Tysonitis – infection of the tyson's glands situated on both sides of the frenum
- ◆ Littritis- infection of the Littré's glands is a common complication of anterior urethritis. Littré's glands surrounds the urethra into which they open
- ◆ Cowperitis – infection of the Cowper's glands which are situated in the perineum and open into the posterior urethra

Treatment

Recommended therapy

Cefuroxime axetil 1 g in a single oral dose together with Probenecid 1 g in a single oral dose, followed by Cefuroxime axetil 500mg orally twice a day for 5-7 days together with Probenecid 500mg orally four times a day.

OR

Ceftriaxone 250mg IM in a single dose

Treat for chlamydia infection as well, as co-infection is common

Recommended therapy

Tetracycline 500 mg orally 6 hourly for a minimum of 7 days

OR

Doxycycline 100 mg orally twice a day for 7 days

Alternative therapy

Erythromycin 500mg orally 6 hourly for 7 days

UNCOMPLICATED GONOCOCCAL INFECTION OF THE PHARYNX

Oral sex may result in oropharyngeal infection.

Signs & symptoms

- ◆ Sore throat
- ◆ Pain on swallowing

Sometimes may be asymptomatic

Gonococcal infection of the pharynx is more difficult to eradicate than infections at urogenital and anorectal sites. Few antigonococcal regimens can reliably cure such infections > 90% of the time.

Treatment

Recommended therapy

Ceftriaxone 250 mg IM in a single dose

OR

Ciprofloxacin 500 mg orally in a single dose

- ◆ treat the partner epidemiologically but transmission from the pharynx to the sex partner is rare
- ◆ Although chlamydial co-infection of the pharynx is unusual, co-infection at genital sites sometimes occur. Therefore treatment for both gonorrhoea & chlamydia is suggested.

Local complications in females:

Infection of the Bartholin's Glands

Clinical Manifestations

- ◆ Pain or swelling in the lower part of 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

Management

Plan should be to immediately treat the acute symptoms and then refer to a specialist unit for specific therapy

- ◆ Mild analgesics – paracetamol,
- ◆ Ice packs – to relieve the pain
- ◆ Treatment for gonococcal and chlamydia infections

Recommended Therapy

Cefuroxime axetil 1g orally together with
Probenecid 1g orally as a single dose and continue Cefuroxime
axetil 500 mg twice a day orally together with Probenecid 500
mg four times a day orally for 7 days

OR

Ceftriaxone 250 mg IM in a single dose

PLUS

Tetracycline 500 mg orally 6 hourly for a minimum of 7 days,
continue if indicated

OR

Doxycycline 100 mg orally twice a day for 7 days

OR

Erythromycin 500 mg orally 6 hourly for 7 days

- ◆ As anaerobic bacteria and sometimes trichomonas vaginalis may cause Bartholinitis –

Metronidazole 400 mg twice a day orally for 7 days may be
added to the above regimen

- ◆ If the swelling does not subside rapidly or is increasing in size, aspiration with a wide bore needle under local anaesthesia should be performed. It is done to relieve the acute symptoms and should not be repeated.
- ◆ Some have consistently recurring acute or sub-acute attacks of Bartholin's cyst or abscess formation. Marsupialisation has to be considered if the cyst or abscess recurs. Surgery in between attacks is not feasible as the gland is no more than a fibrous remnant which cannot be identified.
- ◆ An attempt to excise the gland should be resisted as the cyst is formed by the dilated ducts while the glandular component is embedded within the labial fat.

Other Management Issues

- ◆ Investigate for other STDs
- ◆ Encourage voluntary HIV testing
- ◆ Discuss safer sex practices and promote use of condom
- ◆ Partner notification and treatment of partners

Management of Sex Partners

- ◆ Investigate and treat epidemiologically partners for both gonococcal and chlamydial infections
- ◆ Patients should be instructed to avoid sexual intercourse or use a condom until therapy is completed and they and their sexual partners no longer have symptoms

TREATMENT SCHEDULE FOR CHILDREN

Uncomplicated Gonococcal urethritis, vulvovaginitis, cervicitis, pharyngitis, proctitis

Children < 45 Kg

Recommended therapy

Ceftriaxone 125 mg IM in a single dose

Alternative therapy

Spectinomycin 40 mg / kg (maximum of 2g IM in a single dose

(not recommended for pharyngeal infections)

Bacterimia or arthritis

Ceftriaxone 5 mg /kg IM / IV in a single dose for 7 days

Children weighing > 45 Kg

Can be given the adult dose

- ◆ Only parenteral cephalosporins are recommended for use in children. Oral cephalosporins used for treatment for Gonococcal infection in children have not been evaluated adequately

GONORRHOEA & PREGNANCY

- ◆ The manifestations of gonorrhoea during pregnancy are not significantly different from those in non pregnant women except that pelvic inflammatory disease is probably less common and pharyngeal infection appears to be more purulent than in non pregnant women.
- ◆ Reported complications of genital gonorrhoea in pregnancy include spontaneous abortion, premature rupture of foetal membranes, premature delivery, acute chorioamnionitis and ophthalmia neonatorum
- ◆ Quinolones or tetracycline should not be used in pregnancy, erythromycin is recommended for treatment of chlamydia trachomatis co infection

SYSTEMIC COMPLICATION OF GONOCOCCAL INFECTION

DISSEMINATED GONOCOCCAL INFECTION (DGI)

Haematogenous dissemination occurs in about 1-3% of cases. Arthritis and dermatological manifestations are the common clinical manifestations.

Signs & Symptoms

The main findings are – pyrexia, vasulitic rash and an arthropathy, which is usually confined to a single joint such as a knee or elbow joint. This presentation is called the “dermatitis-arthritis” syndrome. Most patients with DGI have no genitourinary symptoms. This clinical entity is more common in women.

Diagnosis

A presumptive diagnosis of DGI can be made based upon a combination of 2 of the following 3 criteria provided other diagnosis have been eliminated.

- ◆ The isolation of gonococci from a mucosal site of patient or the patients sexual partner
- ◆ The finding of pustular, haemorrhagic or necrotic skin lesions on the extremities
- ◆ Rapid resolution of signs and symptoms on appropriate antimicrobial therapy

A definitive diagnosis is made by culturing the organisms in blood or synovial fluid

Treatment

Recommended therapy

Ceftriaxone 1g IM / IV every 24 hours until 24-48 hours after improvement.

Then switch on to

Cefuroxime axetil orally 500 mg twice a day+ Probenecid 500 mg four times a day to complete 7 days of therapy.

Treat for **chlamydia infection**, as co-infection is common

Recommended therapy

Tetracycline 500mg orally 6 hourly for 14 days

OR

Doxycycline 100 mg orally twice a day for 14 days

Alternative therapy

Erythromycin 500 mg orally 6 hourly for 14 days

Hospitalization is recommended

- ◆ For initial therapy
- ◆ Diagnosis is uncertain
- ◆ Purulent synovial effusion
- ◆ Presence of other complications

NON GONOCOCCAL URETHRITIS

NON GONOCOCCAL URETHRITIS

Cause:

Chlamydia trachomatis (serovars D to K) found in 40-50%

Other possible causes : ◆ Bacteria eg *Mycoplasma*, *Ureaplasma*
Trichomonas vaginalis,
◆ Viruses – *HSV / HPV*

Chlamydia urethritis in men.

Incubation period 1 – 3 weeks (long standing silent infections are commonly seen)

Clinical manifestations

- ◆ Urethral discharge – classically mucopurulent but may be purulent, watery or sticky, sometimes visible only on examining the early morning specimen after withholding urine for 4 hours
- ◆ Evidence of meatitis – erythema, oedema,
- ◆ Itchiness or tingling sensation in the urethra
- ◆ Dysuria
- ◆ Frequency
- ◆ Urgency
- ◆ As much as 50-70% with chlamydia urethritis are asymptomatic

Complications

- ◆ Epididymitis – genital pain, usually unilateral tenderness and scrotal swelling
- ◆ Prostatitis
- ◆ Reiter's Disease (reactive arthritis)
- ◆ Infertility as a chronic sequelae

Other sites of infection

- ◆ Rectum
- ◆ conjunctiva

Diagnosis

2 out of 3 criteria should be present to make a clinical diagnosis of NGU

- ◆ Symptoms (dysuria, urethral discharge)

- ◆ Urethral smear

If more than 5 pus cells per oil immersion field are observed on Gram stained urethral smear, in the absence of *Neisseria gonorrhoeae*

- ◆ Two glass urine test

presence of haziness & threads

In the absence of a visible discharge it is advisable to call the patient for an **early morning sample**, after withholding urine for at least 4 hours.

- ◆ If a discharge is now visible examine a Gram stain smear

- ◆ If the discharge is still not visible or scant, examine the sediment of a centrifuged sample of first voided urine. A diagnosis of NGU can be made, if 15 or more pus cells per high power field are detected from the urine deposit, in the absence of *Neisseria gonorrhoeae*

Definitive diagnosis

Laboratory tests to confirm a CT aetiology (Direct test for detection of antigen – the chlamydia ELISA test is carried out once a week at the central clinic. For further details contact the laboratory)

Management

Treatment

Uncomplicated urethral or rectal chlamydia infection

Recommended therapy

Tetracycline 500 mg orally 6 hourly for 7 days
OR
Doxycycline 100 mg orally twice a day for 7 days

Alternative therapy

Erythromycin 500 mg orally 6 hourly for 7 days
OR
If intolerant to the above dose
Erythromycin 250mg orally 6 hourly for 14 days

Other management issues

- ◆ Look for evidence for other STDs
- ◆ Encourage voluntary, confidential HIV testing
- ◆ Advice to avoid sexual intercourse (especially unprotected) until cured and partner treated. Discuss safer sex practices
- ◆ Issue contact slip to partner & give epidemiological treatment

Follow up

Review 5-10 days after completion of therapy

- ◆ Inquire about symptoms
- ◆ Clinical examination – look for evidence of urethral discharge
- ◆ Direct smear if discharge persists
- ◆ 2 glass urine test

Symptoms alone, without documentation of signs or laboratory evidence of urethral inflammation, are not a sufficient basis for retreatment.

Treatment failures

- ◆ rule out re-infection
- ◆ check on compliance
 - if reinfection is ruled out among those given Tetracycline now commence on
 - Erythromycin 500 mg orally 6 hourly for 7 days
 - + / - Metronidazole 400mg orally twice a day for 7 days
- ◆ review after 2 weeks of completion of therapy

Test of cure (TOC)

A test of cure for chlamydia after completing treatment with tetracycline or doxycycline is usually not necessary as these therapies are highly efficacious. A TOC may be considered 3 weeks after completion of treatment with Erythromycin. The validity of such a test however, has not been established)

If NGU still persist, continue the same regimen for another 7 days
or

- ◆ if an urethral exudate is present, a drop should be mixed with a drop of saline to evaluate for T vaginalis
- ◆ urethritis in males that has persisted and never resolved suggests HSV urethritis, which often lasts 2 weeks during the primary infection
- ◆ 10-15% of men develop persistent or relapsing symptoms perhaps due to simultaneous infection with other agents therefore further investigations eg urine culture will be required. Urethral foreign bodies, calculi, fistulae etc should also be excluded, hence urethroscopy, ultrasound examination, may be necessary therefore refer to a surgical clinic

MUCOPURULENT CERVICITIS

MUCOPURULENT CERVICITIS (MPC)

MPC is characterized by

- ◆ Purulent or mucopurulent endocervical exudate
- ◆ Induced cervical bleeding
- ◆ Gram stain of mucopus containing > 30 leucocytes per high power microscopic field. Although some experts consider an increased number of pus cells on endocervical Gram stain as being useful in the diagnosis of MPC, this criterion has not been standardized
- ◆ Oedema & erythema of an area of ectopy
(ectopy when not associated with visible or microscopic evidence of mucopurulent exudate is a normal finding and requires no therapy.)
- ◆ Majority are, however, asymptomatic

MPC is caused by

- ◆ C trachomatis
- ◆ N.gonorrhoeae

In most cases, however, neither organism can be isolated

In the differential diagnosis of mucopurulent discharge from the cervical canal in a sexually active young woman includes:

Endometritis of various causes, including induced inflammation.

Not infrequently, cervicitis co-exists with vaginal infection, particularly with bacterial vaginosis or trichomoniasis.

CHLAMYDIAL INFECTION IN WOMEN

The commonest site of infection is the endocervix. Clinical diagnosis of chlamydial cervicitis depends upon a high index of suspicion and a careful cervical examination.

Symptoms

- ◆ Increased vaginal discharge due to cervicitis (not vaginitis)
- ◆ Dysuria

Signs

- ◆ Mucopurulent cervical discharge (cervical mucopus)
- ◆ Induced endocervical bleeding
- ◆ Oedema & erythema of an area of ectopy (ectopy when not associated with visible or microscopic evidence of mucopurulent exudate is a normal finding and requires no therapy)

Management

Diagnosis

- ◆ Clinical evidence of endocervicitis
- ◆ Presence of more than 30 pus cells / oil immersion high power field in a cervical Gram stain smear (not during menstruation) with one or more symptoms
- ◆ Laboratory evidence to confirm a CT aetiology.

Treatment

Uncomplicated infection

Recommended therapy

Tetracycline 500 mg orally 6 hourly for 7 days

OR

Doxycycline 100 mg orally twice a day for 7 days

It has been shown that this regimen, eliminates mucopurulent endocervical discharge in women within 3 weeks after completion of therapy.

Alternative therapy

In Pregnancy or lactation

Erythromycin 500 mg orally 6 hourly for 7 days

If intolerant to the above dose Erythromycin

250 mg twice a day for 14 days

Other management issues

- Look for other STDs
- All partners should be seen and given epidemiological treatment
- Advice to avoid sexual intercourse (particularly unprotected sex) until cured and partner treated

Follow up

Review 5-10 days after completion of therapy

- Inquire about symptoms
- Clinical examination – assess the state of cervix
- Repeat Gram stain cervical smear

Non specific cervicitis can persist despite repeated courses of antibacterial therapy.

Because relapse & reinfection with *C trachomatis* or *N gonorrhoeaea* usually does not apply to persistent cases of cervicitis, other non microbiological determinants (eg inflammation in an ectopic) could be involved. Management of persistent non specific cervicitis is unclear. For such cases, additional antimicrobial therapy may be of little benefit.

**OTHER SEXUALLY TRANSMITTED
DISEASES**

BACTERIAL VAGINOSIS

BACTERIAL VAGINOSIS (BV)

Bacterial vaginosis is a condition in which the natural balance of organisms in the vagina is changed. Lactobacilli of the vagina is replaced with a mixed, predominantly anaerobic flora. There is a concomitant overgrowth of:

- ◆ *Bacteroides* spp
- ◆ *Peptostreptococcus* spp
- ◆ *Mobiluncus* spp
- ◆ Facultative anaerobes
- ◆ *Gardnerella vaginalis*
- ◆ *Mycoplasma hominis*

The concentration of anaerobic bacteria increase 100-1000 fold in women with BV. Lactobacilli are absent or greatly reduced.

Clinical Manifestations

- ◆ Unpleasant, fishy, malodorous, thin, homogenous, grey vaginal discharge. The odour, which is a result of metabolic by products produced primarily by anaerobic bacteria, is exacerbated during menses and following intercourse due to the alkaline nature of blood and semen.
- ◆ Increased vaginal discharge
- ◆ Vaginal itching and irritation

However more than 50% are asymptomatic

Management

Diagnosis

Three out of four of the following criteria (they are referred to as Amsels criteria) should be ideally present

- ◆ The presence of the characteristic discharge
- ◆ pH > 4.5
- ◆ Positive Whiff test (add 10% KOH to the swab or blade of the speculum containing the discharge, a fishy odour will be noted due to the liberation of amines)
- ◆ Presence of clue cells on microscopic examination of a Gram stain or a wet saline smear (clue cell is a squamous epithelial cell with numerous bacteria adherent to it)

Treatment

Recommended therapy

Metronidazole 400 mg orally twice a day for 7 days. OR
Metronidazole 2 G orally in a single dose is also used.

Alternative therapy

Clindamycin 300 mg orally twice a day for 7 days

Warn the patient of the possible side effects – metallic taste in the mouth, nausea, interaction with alcohol, advice to avoid alcohol during therapy and for 24 hours after as a disulfiram reaction may occur.

* avoid Metronidazole and Clindamycin during the first trimester of pregnancy

Management of Sex Partners

Treatment of the sexual partner does not improve the initial response to therapy nor decrease the frequency of recurrence.

Follow up

Recommended, but optional if symptoms have resolved. Recurrences of BV is not unusual.

COMPLICATIONS

Gynaecological

- ◆ Pelvic inflammatory disease (PID)
- ◆ Endometritis
- ◆ Cervicitis
- ◆ Post operative infections - post-hysterectomy vaginal cuff cellulitis
- ◆ Post abortal infections

Obstetric

- ◆ Preterm delivery
- ◆ Chorioamnionitis
- ◆ Premature rupture of membranes (PROM)
- ◆ Post partum endometritis

BV & Pregnancy

As BV is associated with increased rates of second trimester abortions and preterm delivery, any treatment aimed at its eradication in pregnancy should be given no later than the beginning of the second trimester of pregnancy.

BACTERIAL VAGINOSIS AND HIV

Patients who have BV and also HIV infection should receive the same treatment regimen as those who are HIV negative.

CHANCROID

CHANCROID

Chancroid is an acute infectious disease, usually of the genitals, which is caused by a facultative anaerobic gram negative bacillus called *Haemophilus ducreyi*. It characteristically causes one or more ulcerative lesions in the genital area. Chancroid is a co-factor for HIV transmission. The organism is difficult to detect in gram stained exudates of ulcer material but may be cultured on selective media. An estimated 10% of patients who have chancroid could be co-infected with *T. pallidum* or HSV.

Incubation Period

Is usually between 4-7 days (rarely less than 3 days or more than 10 days).

Clinical Manifestations

Signs and symptoms

Primary genital lesion

- ◆ Chancroid begins as a tender papule surrounded by erythema and becomes pustular, eroded and ulcerated over 24-48 hours.
- ◆ Ulcers are non indurated, painful with undermined edges. The base is usually covered with a purulent exudate.
- ◆ Multiple ulcers may develop
- ◆ Several ulcers may merge to form giant ulcers called serpiginous ulcers (> 2cm).
- ◆ The so called dwarf chancroid resembles folliculitis or pyogenic infection.

Following symptoms develop depending on the site of ulcer:

- ◆ Pain on passing urine
- ◆ Pain on defaecation
- ◆ Rectal bleeding
- ◆ Dyspareunia
- ◆ Vaginal discharge

May be misdiagnosed as acute non reducible hernia.

Site of lesions

Males:

Prepuce, glans, frenum, coronal sulcus, penile shaft, anus,

Females:

Majority are at the entrance to the vagina fourchette, labia, vestibule, clitoris, vagina, perianal and cervical ulcers can occur rarely.

Extra genital ulcers are less common but have been described on the breasts, fingers, thighs and within the mouth. They are usually due to autoinoculation.

Inguinal buboes

Is defined as painful swelling of the lymph nodes in the groin

Acute suppurative inguinal lymphadenitis develops soon after infection. Usually within 7-10 days of the primary lesion. The affected lymph nodes are usually matted together and are swollen and acutely tender. These are called "inguinal buboes".

Management

Diagnosis

Presumptive

Based on microscopic examination of smears of material from a carefully cleaned ulcer. The gram negative bacilli may demonstrate the "shoal of fish" appearance.

Definitive

By culture

Treatment

Recommended Therapy

Erythromycin 500mg orally 6 hourly for 7 days.

Alternative therapy

Cotrimoxazole 960 mg orally twice a day for 7 days OR

Ceftriaxone 250 mg IM in a single dose OR

Ciprofloxacin 500 mg orally in a single dose

Other management issues

- ◆ Transcutaneous aspiration of bubo through normal skin if necessary. Never incise as it will lead to sinus formation and fistulae.
- ◆ Look for other STDs
- ◆ Partner notification and epidemiological treatment.
- ◆ Encourage voluntary, confidential HIV testing
- ◆ Discuss safer sex practices

Management of sex partner

Investigate & give epidemiological treatment

CHANCROID IN PERSONS WITH HIV INFECTION

The clinical presentation may be different from that seen in HIV negative persons. The atypical presentation is usually the result of immune suppression associated with HIV.

The following manifestations may be seen

- ◆ Genital ulcers and inguinal buboes as seen in HIV negative persons
- ◆ Failure to respond to single dose therapy
- ◆ Persistent ulcers despite seemingly adequate therapy
- ◆ Typical ulcers of chancroid with no evidence of bubo formation

The above given regimens are effective for treatment of chancroid in HIV infected patients.

CHANCROID IN PREGNANCY

Ciprofloxacin is contraindicated in pregnancy.

No adverse effects of chancroid on pregnancy outcome or on the foetus have been reported.

CANDIDIASIS GENTAL

CANDIDIASIS GENITAL

Candidiasis is a common fungal infection of the urogenital tract causing vaginitis.

Candida albicans is the commonest yeast found and most cases are due to this species.

Most women have had at least one symptomatic vaginal infection during their lifetime.

Clinical Manifestations

Signs and symptoms

Females

- ◆ Pruritus of acute onset which usually occurs premenstrually is the prominent symptom
- ◆ Vaginal soreness / irritation / itchiness / burning sensation in the vulva
- ◆ Vaginal discharge +/-
- ◆ Dyspareunia
- ◆ External dysuria
- ◆ Thick curd like white discharge, free or attached to the vaginal walls
- ◆ Vaginal erythema - especially when attached discharge / plaque is dislodged
- ◆ Erythema / Fissures in the vulva

Males

- ◆ Itchiness of the glans/prepuce
- ◆ Balanitis (inflammation of the glans penis)
- ◆ Balanoposthitis (inflammation of the prepuce and glans)
- ◆ Fissures in the prepuce

Management

Diagnosis

- ◆ Detection of budding spores or hyphae on a 10% Potassium hydroxide (KOH) preparation or Gram stain smear taken from the lateral vaginal fornix
- ◆ Culture on Sabouraud's agar medium is more sensitive
- ◆ Papanicolaou smear - hyphae (pink or maroon colour) resembling small bamboo shoots amongst a relatively clear background

Exclude precipitating causes

Uncontrolled diabetes mellitus,

Use of broad spectrum antimicrobials,

Immunosuppressive therapy,

Corticosteroid therapy,

Pregnancy,

Oral contraceptive pill.

Treatment

Topical antimycotic agents are available as creams, lotions, aerosol sprays, vaginal tablets, suppositories.

Clotrimazole	Miconazole
100 mg vaginal tablet nocte for 7 days OR 500 mg vaginal tablet in a single dose nocte 1% vaginal cream once nocte for 7 days (mild cases)	100 mg vaginal suppository nocte daily for 7 days OR 200 mg vaginal suppository nocte for 3 days 2% 5g vaginal cream once nocte for 7 days (mild cases)

Econazole	Isoconazole
<p>Econazole nitrate cream 1% insert 5g applicator intravaginally and apply to vulva at night for 14 days</p> <p>Econazole nitrate 150 mg pessary nocte for 3 nights.</p>	<p>Isoconazole nitrate 600 mg. Insert pessary into the vagina as a single dose at night.</p>
<p>Nystatin vaginal tablets 100,000 IU pessaries nocte for 14 days.</p> <p>Nystatin vaginal cream 100,000 IU/4g applicator. Insert 1-2 applicatorfuls at night for 14 days.</p> <p>Nystatin gel 100,000 IU. Apply 2-4 times a day to the anogenital area.</p>	

Oral antimycotic therapy is recommended for chronic resistant vaginal candidiasis. Clinical results with oral therapy are good as, if not superior to, those of conventional topical antimycotic therapy. Several studies indicate that, given the choice most women prefer oral therapy.

Fluconazole 150 mg single dose
OR
Ketoconazole 400 daily x 5 days
OR
Itracanazole 200 mg twice a day x 1 day

Reducing the chances of candida infection

- ◆ Wear cotton underclothes. Avoid nylon or other non absorbent pants, pantyhose which help provide an ideal environment for various bacterial and fungal growth
- ◆ Wear loose underclothes as tight clothes will restrict air movement particularly in hot weather and provide a warm, moist area ideal for fungal growth
- ◆ Avoid local antiseptics, perfumes and deodorants

Management of sex partners

- ◆ Vulvo-vaginal candidiasis (VVC) is not always acquired through sexual intercourse hence treatment of sex partners is not recommended, but may be considered for women who have recurrent infections.
- ◆ A minority of male sex partners may have balanitis, which is characterised by erythematous areas on the glans in conjunction with pruritus and irritation. The symptoms typically appear after intercourse. Treat symptomatic partners with topical antifungals to relieve symptoms. Look for precipitating factors such as diabetes, as candida balanitis may be the first presenting symptom in diabetes.

Recurrent VVC

Recurrent VVC is defined as 4 or more episodes of symptomatic infections annually. Aim is to control rather than to cure the infection. Excluding predisposing factors such as prolonged antibiotic use, local antiseptics, diabetes, may be of value.

Recurrences with mild symptoms

Topical treatment for 3 days in the immediate premenstrual period may prevent symptoms.

Recurrences with severe symptoms

An intensive systemic regimen continued for 10-14 days followed immediately by a maintenance regimen for at least 6 months is recommended. All cases of RVVC should be confirmed by culture before maintenance therapy.

HIV infection and VVC

Controlled trials are in progress to confirm an alleged increase in incidence of VVC in HIV infected women. No confirmed evidence has indicated a differential response to conventional antifungal therapy among HIV + women who have RVVC. As such, women who have acute VVC and also are HIV infected should receive the same treatment regimen as those who are HIV negative.

**CERVICAL INTRAEPITHELIAL
NEOPLASIA**

CERVICAL INTRAEPITHELIAL NEOPLASIA (CIN)

INTRODUCTION

CIN is an asymptomatic condition that is usually suspected on the basis of routine cytological screening and confirmed histologically by examination of cervical biopsy tissue.

The dyskaryotic changes are graded as mild, moderate and severe on cytological examination.

CIN-I	Mild dyskaryosis (low grade)
CIN-II	Moderate dyskaryosis (high grade)
CIN-III	Severe dyskaryosis (high grade)

CERVICAL CYTOLOGY SCREENING

The aim of cervical cytology screening is to identify the premalignant lesions and to treat with the objective of reducing cervical cancer.

GUIDELINES FOR CERVICAL CYTOLOGY

- 1) Any woman attending an STD clinic should have a smear.
- 2) Women with genital warts or HSV infection and those with high risk behaviour should have a smear annually.
- 3) Women aged >20 years without other indications should have a smear if they:
 - ◆ have not had one within the last 3 years
 - ◆ are unreliable attenders and unlikely to respond to the recall system.
- 4) Treat infection and perform pap smear on women with an

active genital infection.

Steps in taking the pap smear

- 1) Explain the reason and procedure of taking the pap smear to the women.
- 2) Keep the necessary equipment ready
 - ◆ Ayre's spatula
 - ◆ Cusco's bivalve speculum
 - ◆ fixative (methyl alcohol)
 - ◆ glass slide.

Taking the smear

If the Ayre's spatula is used, which best suits the shape of the cervix and os, place the spatula firmly into the os. Rotate the instrument twice through 360° deg. of the cervix, ensuring the whole transformation zone is sampled.

Preparing the slide

Smears should be made from both sides of the Ayre's spatula and the cytobrush.

- 1) Transfer cervical cell sample on to the 1st glass slide with an even spreading motion and make a smear covering the whole length of slide.
- 2) Make a similar smear using the other side of the spatula and spread to cover half of the second slide and the balance half should be used to spread the cytobrush.
- 3) Fix immediately with spray or in absolute ethyl alcohol and the slide should be immersed in the glass jar so as to cover the glass slide fully.

If an ectropion is present:

A smear including the ectropion border is also needed as this usually represents the upper margin of the transformation zone.

Peri and post menopausal women:

The squamo columnar junction is often within the endocervical canal and not visible. It is preferable to use cytobrush and spatula for these women.

(A cytobrush usually gives a good endocervical cell sample but when used alone will not give an adequate ectocervical sample)

- Use the spatula first to avoid the bleeding which may result from cytobrush sampling.
- Use the cytobrush second as endocervical cells deteriorate more rapidly than ectocervical cells.

Cytobrush should not be used on pregnant women, because of the risk of rupturing the membranes and introducing infection.

Negative smear

No cytological evidence of dysplasia or malignancy detected

Inconclusive smear

This category comprises those smears in which a confident cytological diagnosis is not possible. Either due to:

- ◆ a potentially remedial factor such as inflammation or epithelial atrophy in which case this may justify a request for a repeat smear after specified treatment
- ◆ no such remedial factor apparent, in which case there is an indication for immediate further investigation

Unsatisfactory smear

The smear does not contain adequate cellular material, has cellular detail obscured by excessive blood or inflammatory changes, or contains cells which have not been properly fixed or are atrophic. These smears cannot be accurately interpreted and must be repeated.

Explaining the results to women

- ◆ Women should get their results with minimum delay
- ◆ Communicating the results of the pap smear should be ideally done by a medical officer after counselling
- ◆ Ensure that the woman understands what the results mean and the reasons for any further follow-up.
- ◆ If a pap smear needs to be repeated because it was inconclusive or unsatisfactory, make sure you explain this.
- ◆ It is important that any letters sent out to women informing them of smear results are worded carefully to avoid creating unnecessary anxiety, yet emphasising the importance of appropriate follow-up.

Factors that should be taken into consideration in quality assurance in cytology

- ◆ Percentage of smears which are satisfactory
- ◆ Percentage of smears with an adequate endocervical component
- ◆ Percentage of smears in each diagnostic category

LOW GRADE EPITHELIAL ABNORMALITIES

Minor nuclear changes

Benign, atypical changes in the cells which are not suggestive of neoplasia have been noted. These changes are non specific and are usually related to inflammation, which may or may not be of clinical significance or may be due to atrophy.

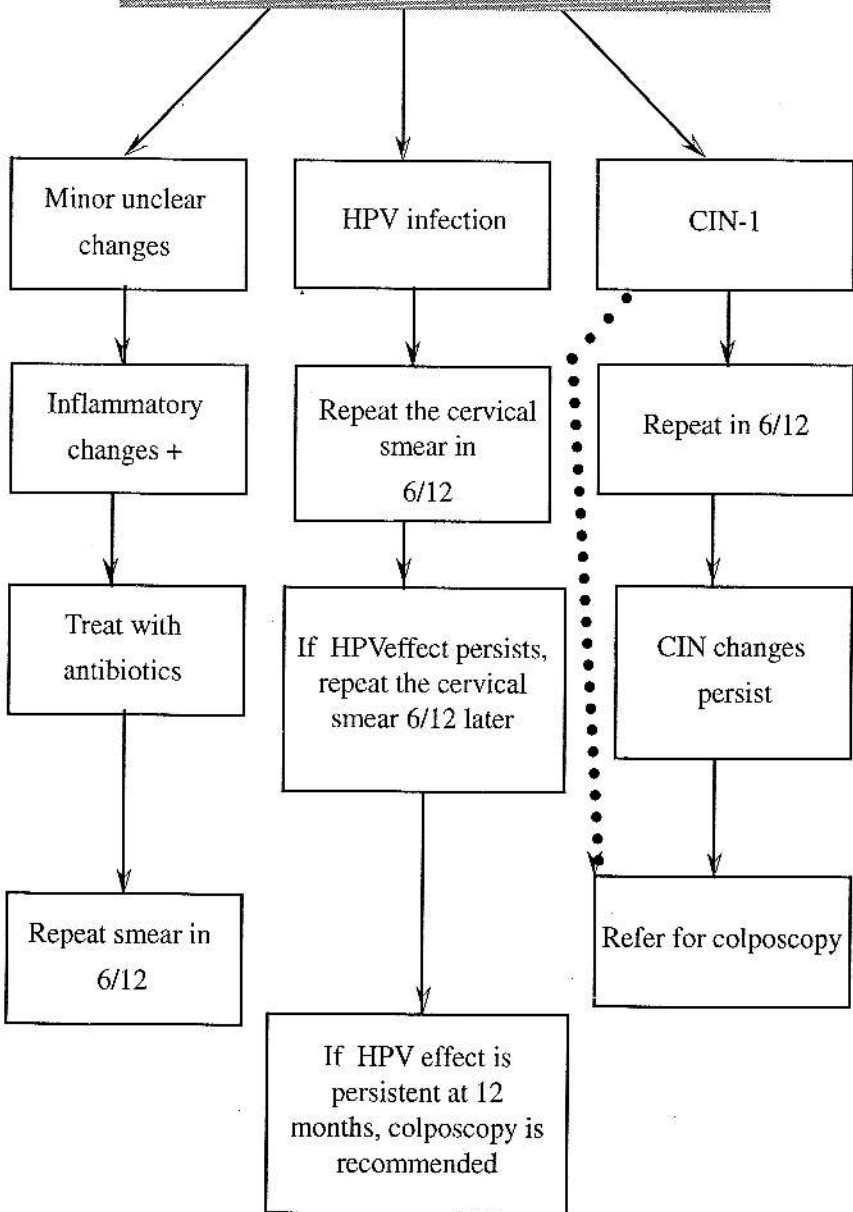
Human Papilloma Virus infection (HPV)

Cellular changes which usually (but not always) indicate the presence of HPV. Since a strong association between HPV infection and cervical carcinoma has been established early diagnosis of HPV infection and appropriate management is useful.

CIN-I

CIN-I is a minor abnormality, which may regress spontaneously. Some however, progress to CIN-II.

LOW GRADE EPITHELIAL ABNORMALITIES



HIGH GRADE EPITHELIAL ABNORMALITIES

1. Squamous changes
 - 1) CIN-II and CIN-III
 - 2) CIN-III with possible invasion
 - 3) Micro invasive squamous carcinoma

2. Glandular changes (cervical glandular intraepithelial neoplasia - CGIN)
 - 1) Adenocarcinoma-in-situ
 - 2) Invasive carcinoma

High grade epithelial abnormalities.

Refer to gynaecologist for further management.

HIGH GRADE EPITHELIAL ABNORMALITIES

CIN-II
Moderate dysplasia

CIN-III
Severe dysplasia

Microinvasive (CIS)
or

REFER TO GYNAECOLOGIST FOR COLPOSCOPY

CIN NEGATIVE

No abnormal cells
detected

Minimal or benign cell changes of
inflammatory or reactive type

- ◆ Treat infection
- ◆ Repeat smear in 6/12
- ◆ If normal repeat smear in 3 years

EPIDIDYMITIS

EPIDIDYMITIS

Among sexually active men aged <35 years, epididymitis is most often caused by *Chlamydia trachomatis* or *Neisseria gonorrhoeae*.

Is accompanied by urethritis, which is often asymptomatic.

Epididymitis caused by E.coli also occurs among homosexual men who are the insertive partner during anal intercourse.

Clinical manifestations

Symptoms

- ◆ Pain in the scrotum, testes, loin - usually unilateral
- ◆ Scrotal swelling – tender & warm
- ◆ May be associated with urethritis (very often asymptomatic), prostatitis, bacteriuria
- ◆ **Torsion of the testes is a surgical emergency** which should be considered in all cases, but is more frequent in adolescents. Torsion is associated with
 - ◆ Acute onset
 - ◆ Severe pain
 - ◆ No evidence of urethritis / urinary tract infectionIf in doubt always seek expert opinion.

Investigations

- ◆ Gram stained smear of urethral exudate for presumptive diagnosis of gonorrhoea, polymorphs >5 cell/oil immersion field in the absence of GC suggest NGU (in the absence of discharge the deposit of first void urine should be examined).
- ◆ Culture for GC and swabs for chlamydia investigations
- ◆ Serological tests for syphilis
- ◆ Look for other STDs

Management

Treatment

Recommended Therapy

For gonococcal infection

Ceftriaxone 250 mg IM in a Single dose

OR

Cefuroxime axetil 1g orally + Probenecid 1g orally in a single dose, followed by Cefuroxime 500mg twice a day orally together with Probenecid 500mg orally 4 times a day for 7 days.

OR

Ciprofloxacin 500 mg orally in a single dose followed by 500 mg orally twice daily for 7 days.

PLUS Treat for Chlamydia infection with

Tetracycline 500mg 6hourly for a minimum of 7 days & continue if indicate.

OR

Doxycycline 100mg orally twice a day for minimum of 7 days and continue if indicated

OR

Erythromycin 500 mg orally 6 hourly for a minimum of 7 days and continue if indicated.

Supportive Therapy

- ◆ Bed rest
- ◆ Scrotal Support
- ◆ Analgesics

Other management issues

- ◆ Look for other STDs
- ◆ Encourage voluntary, confidential HIV testing
- ◆ Partner notification & epidemiological treatment
- ◆ Discuss safer sex practices

Management of sexual partners

- ◆ Investigate and treat epidemiologically

Follow up

- ◆ Review in 3 days. If no improvement check on compliance of therapy, re-infection. If both ruled out either refer for expert opinion or continue treatment and review in 7 days.
- ◆ Review after completion of therapy. If signs persist refer to a surgeon to exclude tumours, tuberculosis.

GRANULOMA INGUINALAE

GRANULOMA INGUINALAE

Causative organism

Is caused by the intracellular Gram negative bacterium *Calymmatobacterium granulomatis*. Causative organism cannot be cultured easily. The diagnosis requires visualisation of dark staining donovan bodies on tissue crush preparation or biopsy.

Clinical presentation

The disease presents clinically as painless, progressive, ulcerative lesions without regional lymphadenopathy. The lesions are highly vascular (a beefy red appearance) and bleeds easily on contact but without regional lymphadenopathy. The inguinal lesions which are subcutaneous granulomas (pseudo buboes) may mimic the buboes of other genital infections.

Sites of infection

In the male, lesions usually occur on the glans or prepuce, in the female lesions on the labia are the most common. Cervical and intravaginal lesions may occur. Involvement of the liver, thorax and bone has been reported. A verrucous form of disease is likely to occur in the perianal area.

Management

Diagnosis

The causative organism cannot be cultured easily on an artificial media. The diagnosis is made by spreading a piece of clean granulation tissue from a lesion against the slide to be examined and stained with Wright's or Giemsa stain. " Donovan bodies " appear as clusters of blue staining or black staining organisms with a "safety pin" appearance in the cytoplasm of large mononuclear cells in the crush preparation or biopsy.

Treatment

Recommended therapy

Doxycycline 100 mg orally twice a day for a minimum of 3 weeks

OR

Tetracycline 500 mg orally 6 hourly for a minimum of 3 weeks

Therapy should be continued until all lesions have healed completely

Alternative therapy

Ciprofloxacin 750 mg orally twice a day for a minimum of 3 weeks

OR

Erythromycin 500 mg orally 6 hourly for a minimum of 3 weeks

OR

Co-trimoxazole 960 mg orally twice a day for a minimum of 3 weeks

For any of the above regimens, the addition of an aminoglycoside (gentamycin) 1 mg / kg IV 8 hourly should be considered if lesions do not respond within the first few days of commencement of therapy recommended above.

Other Management Issues

Screen for other STDs

Encourage voluntary, confidential HIV testing

Partner notification and treatment of partner

Discuss safer sex practices and promote condom use

Serological tests for syphilis should be carried out for 3 months

Management of sex partner/s

Should be investigated and given epidemiological treatment

HERPES GENTAL

HERPES GENITAL

Genital infection with either *Herpes Simplex Virus -1* or *Herpes Simplex virus-2*.

Both infections can result from contact with infected secretions on oral or genital mucosal surfaces. Often preceded by 'flu' like symptoms (fever, malaise, pharyngitis).

Primary or First Episode Genital Herpes

Clinical Manifestations

Symptoms

Painful vesicles/ulcers, itching, dysuria, vaginal or urethral discharge with tender inguinal lymphadenopathy.

Signs

- ◆ Vesicles or ulcers (ulcers are usually very tender small, rounded, discrete, superficial but may coalesce to form larger areas of ulceration).
- ◆ Tender inguinal lymphadenopathy, vaginal or urethral discharge.

Management

Diagnosis

- ◆ Clinical history and appearance often typical but always attempt to confirm diagnosis by tissue culture.
- ◆ Culture becomes less sensitive as lesions age. Therefore, a negative culture does not exclude the diagnosis.

Definite

Isolation of HSV in cell culture from the cervix, urethra or a genital or perianal lesion.

Presumptive

Positive antigen detection test (HSV ELISA),
OR
evidence of HSV on PAP smear
OR

clinical feature suggestive of HSV and presence of multinuclear giant cells in a scraping from lesion stained with Giemsa stain.

Treatment

Treat on suspicion of diagnosis - do not wait for culture or ELISA result. Maximum benefit seen if therapy started as soon as lesions appear.

Aciclovir 200 mg orally 5 times daily for 5-7 days
OR
Valaciclovir 500 mg twice daily PO for 5 days

Contraindications

Aciclovir/Valaciclovir are not licensed for use in pregnancy.

Other Management Issues

- ◆ Screen for other STDs. In women with severe ulceration do not attempt speculum examination until lesions have resolved.
- ◆ Blind vaginal swab can be performed if candida is suspected.

Other measures that may help are:

- 1) Mild analgesics/tranquilliser - Paracetamol/Diazepam if pain is severe.
- 2) Applying ice-packs to the sores (wrap ice cubes in a piece of clean cloth and apply)
- 3) Bathe the affected areas with salt solution. Add one teaspoon of salt to one pint of tepid water and wash 2-4 times a day. For females adding a handful of salt to bath water and if passing urine is painful, urinating while in the bath is comfortable.
- 4) Keep sores dry and clean. Do not overwash them as this may delay healing. Leaving the sores exposed to the air as much as possible to help them dry out.
- 5) Avoid over worrying - as stress induces recurrences and delay healing.
- 6) Rest and good sleep.
- 7) Maintain good personal hygiene - extra care during menstrual periods in women.

Management of retention of urine

1. First try analgesics and in women getting them to sit in a tepid salt water bath and urinating while in the bath.
2. Supra pubic catheterization is recommended if the above procedure is not successful.
3. Urethral catheterization with indwelling catheter is discouraged due to possibility of ascending infection.

Management of bacterial infection (severe)

If there is severe superadded bacterial infection

Treat with a non-treponemacidal antibiotic such as Co-trimoxazole 960 mg twice a day orally for 5-7 days.

Management of fungal infection

Treat with Fluconazole 50 mg twice a day for 7 days orally,

Avoid sexual intercourse until the lesions are completely healed.

Follow Up

- ◆ If severe attack see on day2; otherwise day 5 or 7.
- ◆ Repeat STS for 3 months at monthly intervals.
- ◆ Encourage voluntary confidential HIV testing.
- ◆ Repeat cytology at 12 months - if negative.

Counselling

Initial counselling can influence how well sufferers cope with the diagnosis and thus influence the likelihood of recurrences. Safer sex practices including condom use to be discussed. Issue contact slip to partner/s.

MANAGEMENT OF SEXUAL PARTNER/S

- ◆ Screen for other STDs.
- ◆ If asymptomatic, specimen from urethra/cervix for HSV culture.
- ◆ Offer counselling.

Complications

Autoinoculation to other sites (eg. cornea).
Secondary bacterial infection and fungal infections
Urinary retention - (due to sacral radiculomyelopathy or pain).
Meningitis, encephalitis.

Recurrent Genital Herpes

Precipitating Factors

- Stress
- Pregnancy
- Local trauma eg; coitus
- UV light
- Menstruation
- Steroids
- Fever

Clinical manifestations

Symptoms

- Recurrent ulceration.
- Less severe and less painful than at initial presentation.

Signs

- ◆ Vesicles/ulcers.
- ◆ Sometimes inguinal lymphadenopathy.

Management

Diagnosis

- ◆ Clinical.
- ◆ Confirmation by culture if not already documented.

Treatment

Episodic treatment:

- ◆ Aciclovir 200 mg 5 times daily for 5 days -
- ◆ Counselling and support
- ◆ Saline baths, analgesia as for primary episode

Frequency of recurrences in last 12 months.

If > 5, consider need for suppressive therapy.

Suppressive therapy

Aciclovir 400mg bd for 6 -12 months initially OR Valaciclovir 500 mg once daily for 6-12 months OR Famciclovir 250 mg bd daily for 6-12 months*

*Very effective but expensive. Not available in Sri Lanka.

Do not start before complete discussion with patient and Senior Medical Officer/Consultant

Studies have shown that topical Aciclovir is not effective.

Genital Herpes in Pregnancy

Genital herpes during pregnancy presents risks to the fetus and, to a lesser extent to the mother. First episode genital herpes can result in spontaneous abortion, congenital and neonatal herpes simplex virus infections (HSV), or disseminated infection in the mother.

Factors associated with high risk of transmission to neonate	Factors associated with low risk
True primary genital HSV during pregnancy	Recurrent genital herpes before pregnancy
Absence of maternal antibody before pregnancy	Maternal HSV -2 antibody before pregnancy
Use of fetal scalp electrodes in HSV-2 seropositive women and instrumentation at delivery	
Seronegative woman with HSV-seropositive partner	

Aciclovir in pregnancy

Aciclovir is not licensed for use in pregnancy. In pregnancy, the potential benefits of treatment should be balanced against the potential for adverse outcomes.

Data from studies where pregnant women were treated with Aciclovir do not show increased rates of birth defects compared to that observed in the general population.

Studies have also shown that Aciclovir 200 mg 5 times daily reduces the rate of virus shedding at delivery and the number of Caesarean sections in women with primary or recurrent genital herpes near term.

Primary or first episode HSV in 1st or 2nd Trimester:

Always discuss management with senior MO/Consultant.
Risk of abortion, growth retardation, but little evidence of fetal malformation.

If it is felt that the benefits of Aciclovir treatment outweigh the risks, ensure that the discussion with patient and her decision to take the drug are fully documented.

Primary or first episode HSV in 3rd trimester:

- ◆ Risks of preterm labour, growth retardation documented.
- ◆ High probability of having active lesions (at term) and 50 - 70% risk of transmission to neonate, with serious consequences.
- ◆ Elective Caesarean section at 38 weeks indicated
- ◆ Less concern about Aciclovir at this stage.

In the presence of life-threatening maternal HSV infection, intravenous Aciclovir may be indicated.

Recurrent genital herpes infection in pregnancy:

Recurrences during pregnancy do not have any adverse effects on fetus. There is a very small (1-4%) risk of transmission from a recurrent episode at term.

- ◆ Follow up mother regularly and examine for lesions suggestive of HSV
- ◆ Saline baths should be adequate unless severe
- ◆ Keep Obstetrician informed
- ◆ Careful examination of vulva, perineum, vagina and cervix during labour
- ◆ Vaginal delivery indicated if no lesions seen
- ◆ If lesions suggestive of HSV noted - deliver by C. section is recommended

Infants exposed to HSV at birth

All babies born to women with genital HSV should be examined carefully at birth and close clinical follow up necessary. Clinical disease manifest at 3-30 days of age with 70% of cases presenting with localized infection of skin, eyes and mouth.

Take swabs for HSV culture from eyes, nose and mouth of baby.

If clinical evidence of HSV infection (skin, eyes and mouth) in baby:

Aciclovir syrup 10 mg/Kg every 8 hours for 10-21 days.

Herpes Encephalitis

Aciclovir 5 -10mg / kg, IIV 8 hourly for
5 - 7 days.

Herpes Simplex Virus and HIV infection

Genital ulcer disease, including genital herpes has been implicated in the transmission of HIV.

HSV infection is a significant cause of morbidity and mortality in individuals with HIV infection. Persistent mucocutaneous herpes is one of the AIDS defining conditions.

Data also suggest that HIV may be a factor in HSV reactivation during pregnancy.

HIV infection has also been shown to increase HSV shedding in men.

Treatment

Primary or First Episode HSV

Aciclovir 200 - 400 mg 5 times daily orally for 7-10 days, or until clinical resolution.

Severe Disease

Aciclovir 5-10 mg/kg intravenously every 8 hours for 7-10 days or until clinical resolution (dose frequency reduced in renal failure).

Aciclovir-resistant severe disease

Foscarnet 40 mg/kg IV every 8 hours.

Hydrate well.

Monitor renal function and serum calcium, magnesium and phosphate levels.

Long-term Suppressive Therapy for Frequent Recurrences

Aciclovir 400 mg orally bd or 200 mg four times a day.

The aim of treatment is to suppress severe outbreaks of HSV. Because immunosuppression is ongoing, treatment usually continues for life.

HEPATITIS B

HEPATITIS B

There are at least five human viruses causing acute viral hepatitis. Of these *hepatitis B virus* (HBV) and hepatitis C virus (HCV) are known to be transmitted sexually.

HBV is a hepadna virus belonging to DNA viruses. Antigens which have been associated with HBV are:

- ◆ Hepatitis B surface antigen (HbsAg)
- ◆ Hepatitis B core antigen (HbcAg)
- ◆ Hepatitis B e antigen (HbeAg)

Incubation period

45-180 days (average 60-90 days).

Clinical manifestations

- Acute illness, insidious onset with malaise, nausea and vomiting, fever not prominent. 15 to 20% develop a transient illness with rash, arthralgia, arthritis, myalgia, headache, photophobia, pharyngitis and cough
- Dark urine and light coloured stools appear before the onset of jaundice
- Jaundice persists for 1 to 4 weeks
- Hepatosplenomegaly may be noted

Diagnosis

The organism cannot be cultured. The diagnosis is established by the demonstration of serological markers in blood. The markers present in varying combinations during the course of the infection.

Management

- ◆ If Hepatitis B infection is diagnosed refer to a physician for further management
- ◆ Encourage voluntary confidential HIV testing

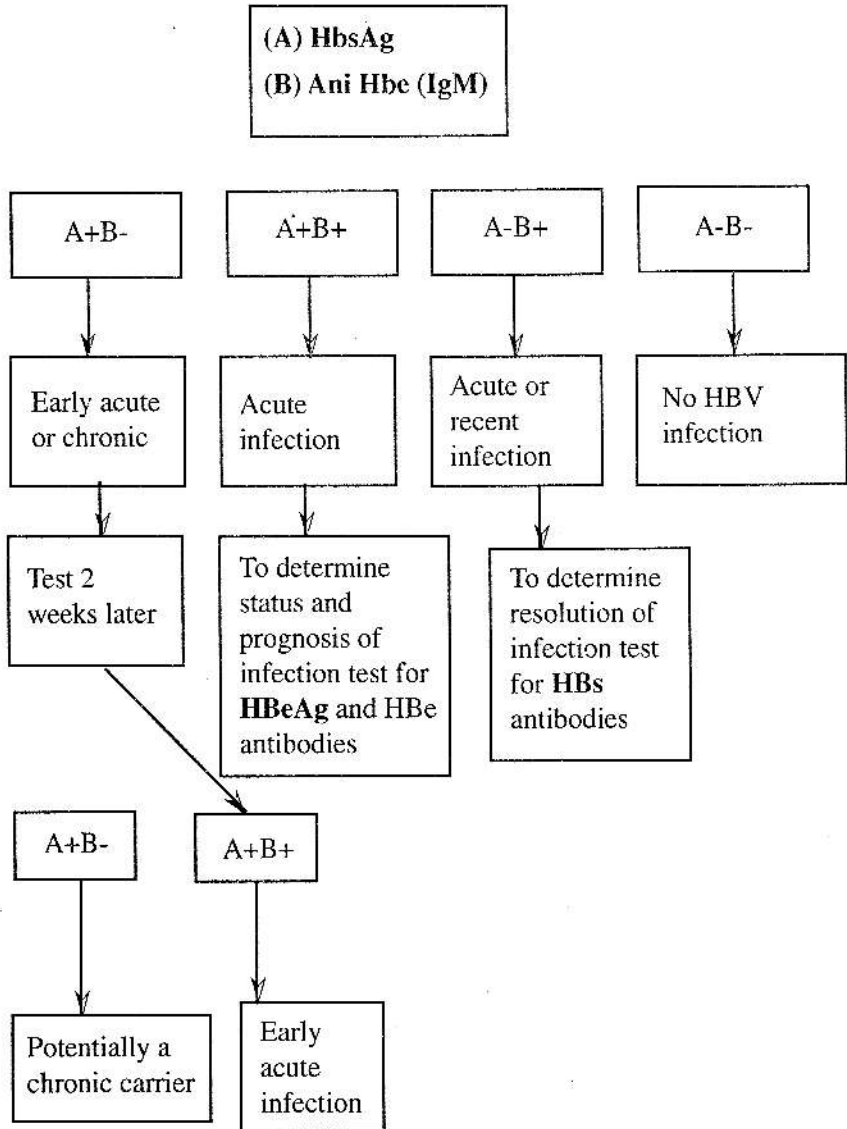
Management of sexual partners

- Exclude hepatitis B
- Offer hepatitis B immunoglobulin / vaccination as appropriate
- Examine for STDs as indicated
- Counselling on behaviour modifications to reduce the risk of infection including condom use and decreasing the number of sexual partners

Common patterns of serological marker's of hepatitis B Infection

	HBs Ag	HBe Ag	Anti HBc	HBc Igm	Anti HBe	Anti HBs	Infectivity
Early acute	+	+/-	-	-	-	-	++
Acute hepatitis	+	+	+	+	-	-	++
Resolving	+/-	+/-	+	+	+/-	-	+/-
Window	-	-	+	+	+	-	+/-
Recovery	-	-	+	+/-	+/-	+	-
Past Infection	-	-	+	-	-	+/-	-
Chronic carrier	+	+/-	+	-	+/-	-	+
Chronic hepatitis B	+	+/-	+	+/-	-	-	++
Post immunisation	-	-	-	-	-	+	-

FOR DETECTING THE GREATEST POSSIBLE NUMBER OF HBV INFECTIONS TEST FOR:



Hepatitis B vaccination is recommended for the following groups:

- health care workers
- household and sexual contacts of persons who have chronic hepatitis B infection
- sexual partners of HbsAg positive persons
- persons with a recently acquired STD
- persons in commercial sex trade
- homosexual and bisexual men
- persons with more than one sex partner in the previous 6 months

The currently used vaccines are :

- ◆ Engerix B
- ◆ HB vax-II

Both recombinant hepatitis B vaccines should be stored at 2 to 6°C as freezing destroys the potency.

A course of three doses induces protective levels of antibody, 3 months after the third dose in over 90% of young adults. But in some individuals, the antibody level (anti HBs) may rise slowly and reach lower levels. These should be offered a 4th dose of vaccine. If adequate levels are not reached following 4th dose, no assurance can be given regarding complete immunity. Such individuals should be informed of the need for hepatitis B immunoglobulins within 48 hours of exposure to HBV.

Recommendations for post exposure prophylaxis needle prick exposure and blood

Known HbsAg Positive Source

Immediate administration of Hepatitis B immunoglobulin (HBIg) – 0.06 mg/kg, intramuscularly with the HBV vaccine at a separate site within 7 days

The hepatitis B vaccine is administered intramuscularly into the deltoid muscle in adults and adolescents. Neonates and infants, intramuscular injection into the anterolateral thigh region.

Dosage schedule for persons not previously exposed to hepatitis B virus

Engerix B vaccine	Vaccine dose
◆ Adults – adolescents over 15 years	20 mg
◆ From 10 years up to and including 15 years	10 mg
◆ Neonates – children up to 10 years	10 mg

HB – vax II	Vaccine dose
◆ Infants and children up to 10 years	2.5 mg
◆ 10 years – 19 years of age	5 mg
◆ Adults > 20 years	10 mg
◆ Adult dialysis and pre dialysis patients	40 mg

A rapid schedule of initial dose, 1 month, 2 months, 12 months is also available. Need for booster doses is still unclear, a single booster dose after 5 years should be considered in individuals at high risk.

Known source but unknown HbsAg Status

- ◆ Obtain blood samples from the donor and recipient
- ◆ Immediately administer HBIG – 0.06 mg/kg intramuscular
- ◆ If the donor is HbsAg negative no further therapy is required. If donor is HbsAg positive, administer hepatitis B vaccination within 7 days.

Source and HbsAg status unknown

- ◆ Immediately administer HBIG – 0.06 mg/kg intramuscularly, &
- ◆ Hepatitis B vaccination within 7 days

Neonates of HbsAg positive mothers

For neonates of HBV infected mothers who are HbsAg positive at deliver :-

Passive immunisation with HBIg within hours of birth
Dose = 0.5 ml at birth
Then again at 3 months, 6 months
Intramuscular injection is given to the anterolateral aspect of the thigh, and

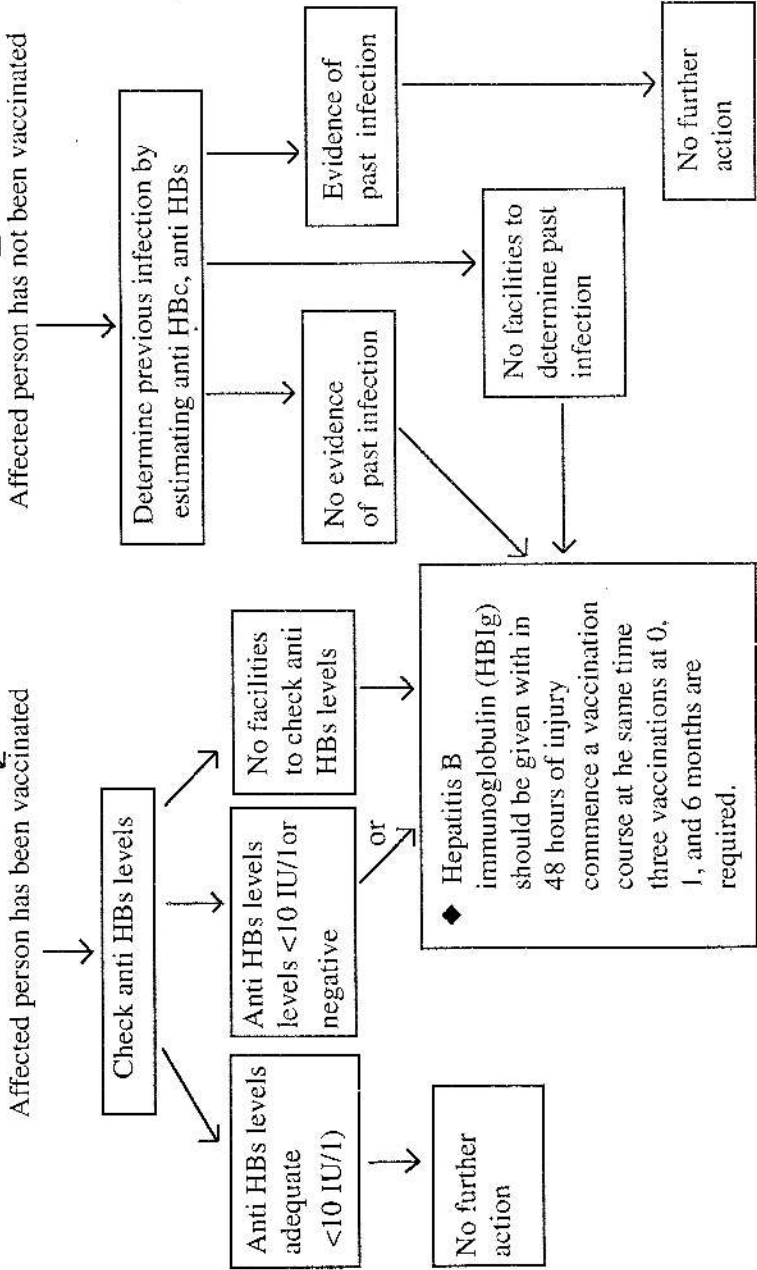
Hepatitis B vaccine in appropriate dose should be given at birth, at 1 month and 6 months.

The first dose of vaccine and immunoglobulin should be given within 24 hours of birth at separate sites.

If affected person has been vaccinated :

- ◆ Check anti HBs level. If anti HBs levels are > 10 IU/l no further action is necessary
- ◆ If less than 10 IU/l proceed as for a non vaccinated individuals

When source is HBV positive (HBsAg positive)



HUMAN PAPILLOMA VIRUS
INFECTION - VENEREAL WARTS

HUMAN PAPILLOMA VIRUS INFECTION (HPV) – VENEREAL WARTS

Genital warts also known as condylomata acuminata are epithelial tumors caused by infection with *human papilloma virus*. Transmission is usually by sexual contact, however auto inoculation can occur. Vertical transmission from an infected mother to the baby is reported. There is a close relationship between HPV infection and cervical intra epithelial neoplasia (CIN), carcinoma –in-situ (CIS) and invasive squamous cell carcinoma.

Incubation period

1- 6 months or more

Clinical manifestations

- ◆ Flat small lesions in dry areas
- ◆ Large filiform lesions in warm moist areas
- ◆ Sessile / pedunculated warts
- ◆ Cauliflower like in severe cases

Sites of infection

Females – vulva, clitoris, vagina, cervix, (cervical lesions are generally flat and subclinical), perianal

Males – prepuce, frenum, coronal sulcus, meatus, shaft of penis, scrotum, perianal, rectum.

Management

Diagnosis

1. Usually clinical but can be confirmed by histology
2. Aceto-white test – 5% acetic acid applied to the external genitalia and cervix. HPV infected cells will turn white. Previously undetected subclinical lesions can be detected by this method. However, sometimes even normal skin could turn white on application of acetic acid. Thus it lacks specificity.

3. Proctoscopy
When warts at the anal verge are noted proctoscopy will reveal lesions in the anal canal as far as the squamocolumnar junction.
4. Cervical cytology
5. Colposcopy – if
 - ◆ warts are present on the cervix or cervix has an unusual appearance
 - ◆ warts are present in the vagina
 - ◆ cervical cytology results show mild, moderate or severe dyskaryosis
6. Biopsy – is recommended when lesions are large, ulcerated or atypical

Differential diagnosis

- ◆ Condylomata lata of secondary syphilis
- ◆ Hirsutes papillaris penis – penile papillae
- ◆ Fordyce's syndrome
- ◆ Molluscum contagiosum
- ◆ Skin tags
- ◆ Malignancy

Treatment

Treatment may not eradicate the virus infection but may ameliorate symptoms.

Cytotoxic Treatment

Topical applications

Podophyllin

10-20% solution in alcohol / solvent compound tincture of benzoin.

Method of application

The resin is painted on to individual lesions with a cotton bud carefully avoiding the surrounding skin. Allow to dry, then carefully wash the area after 6 hours with water.

Area surrounding warts may be protected by applying vaseline or petroleum jelly. This may be repeated weekly for a maximum of 6 weeks, after which if unsuccessful, other modalities may be considered. Minimal amounts should be applied due to neurotoxicity and oncogenicity.

- > Podophyllin application is contraindicated in pregnancy and for cervical warts

Dosage

< 0.5 ml per treatment session

less than 2 cm² / area per treatment session

apply weekly or twice a week

Podophyllotoxin

Active ingredient of podophyllin. Is available as a cream or an alcoholic solution. Applied twice daily for 3 days and then should not be used for a further 4 days. These weekly cycles can be repeated for up to 5 weeks.

Advantage

- ◆ Less toxic than podophyllin
- ◆ Self treatment regimen
- ◆ More effective

Disadvantage

- ◆ Expensive

Trichloroacetic acid (TCA).

Method of application as for podophyllin

Cryotherapy

Liquid nitrogen is applied to the involved area via two 1-minute freeze thaw cycles

Safe for use in pregnancy

Surgical treatment

1. excision
2. curettage
3. electrocautery
4. scissor excision

multiple large warts at any site should be referred for surgical treatment.

Other management issues

- ◆ personal hygiene – the genital area should be kept clean and dry as moisture aggravates the lesions
- ◆ partner notification and treatment of partner if lesions are present
- ◆ look for other STDs
- ◆ encourage voluntary, confidential HIV testing
- ◆ discuss safer sex practices

Management of partner

Examination of the partner is mandatory. The female partner should undergo a pap smear test

Genital Warts in pregnancy

genital warts should be removed before delivery by suitable treatment.

- ◆ best treated with TCA / cryotherapy
- ◆ podophyllin is contraindicated
- ◆ however, warts may regress after puerperium

in an individual mother the risk of delivering a child who develops papilloma appears relatively low, in the range of 1 to 400. Caesarian delivery for prevention of transmission of HPV infection to the newborn is not indicated since the risk of transmission is low and caesarian section does not always prevent development of papillomatosis.

HPV infection & HIV

1. Cervical cytology examination should be performed at regular intervals in HIV positive women as there is evidence of increased rate of severe dysplasia. Refer Guidelines on clinical management of HIV / AIDS published by NSACP

2. HPV may be reactivated by HIV. Therefore regular follow up is necessary
3. Anoscopy at regular intervals in HIV positive homosexuals.

Anatomical sites	Treatment
Vaginal warts	TCA / podophyllin / liquid nitrogen
Cervical warts	Liquid nitrogen / TCA / surgery
External genitalia and perianal	Liquid nitrogen Alternate – podophyllin, TCA, electrocautery, surgery
Urethral meatus	Liquid nitrogen / surgery
Anal warts	Liquid nitrogen / TCA / surgery
Penile shaft	Podophyllin / TCA
Oral lesions	Liquid nitrogen Surgical removal
Pregnancy	Liquid nitrogen /TCA could be used, But Podophyllin is contraindicated

LYMPOGRANULOMA VENEREUM

LYMPHOGRANULOMA VENEREUM (LGV)

Lymphogranuloma venereum is caused by *Chlamydia trachomatis* serotypes L1, L2, L3 and is characterised by inguinal lymphadenopathy (buboes) and late sequelae such as rectal strictures.

Incubation period

Is variable ranging from 3-30 days.

Clinical manifestations

Primary lesion:

Is usually inconspicuous. A herpeticiform vesicle or papule develops at the site of infection. The vesicle ruptures leading to a small painless punched out ulcer which heals spontaneously and leaves no scar and therefore often not recognized.

Secondary lesions

Develop after about 4 months. The characteristic finding is unilateral or bilateral inguinal lymphadenopathy known as buboes. Lymph glands may become adherent together and divided by the groin fold into an upper and lower group resulting in the characteristic "sign of the groove."

Systemic manifestations such as headache, fever, chills, sweating, splenomegaly and arthritis may be present. Within 1-2 weeks the nodes become tender and fluctuant and frequently ulcerate discharging purulent exudate. The buboes are common in males.

Site of primary infection	Affected lymph nodes
Penis, anterior urethra	Superficial and deep inguinal
Posterior urethra	Deep iliac, perirectal
Vulva	Inguinal
Vagina, cervix	Deep iliac, perirectal, lumbosacral
Anal	Inguinal
Rectum	Perirectal, deep iliac

Late sequelae

If not treated adequately chronic or late manifestations such as perirectal abscess, ischiorectal and rectovaginal fistulae, anal fistulae and rectal strictures of the urethra and rectum and elephantiasis of the external genitalia (esthiomene) may develop.

◆ Consider the diagnosis of LGV among those from the Far East countries.

Management Investigations

Serology

◆ Complement fixation test (CFT)

Is more sensitive than the previously used Frei antigen test. The test becomes positive 2-4 weeks after onset of illness. In general, active LGV lesions have CF titres of 1:64 or greater but high titres may be found in asymptomatic patients also. The CFT however, gives cross reactions in infections caused by other chlamydia infections. Antibody may persist in high or low titre for many years.

◆ Micro - immunofluorescence test

Culture

Isolation of chlamydia by inoculation of mouse brain, yolk sac or tissue culture is the definitive means of diagnosis. Bubo pus is the most suitable specimen.

Treatment

Tetracycline 500 mg orally 6 hourly for 21 days or longer as assessed clinically especially in chronic cases.

OR

Doxycycline 100 mg orally twice a day for 21 days or longer

OR

Erythromycin 500 mg orally 6 hourly for 21 days or longer

Fluctuant lymph nodes should be aspirated through healthy skin. Incision and drainage or excision of nodes will delay healing and are contraindicated. However, late sequelae such as stricture and/or fistula may require surgical intervention.

Other management issues

- ◆ Look for other STDs.
- ◆ Encourage to undergo voluntary, confidential HIV testing
- ◆ Management of sexual partners
- ◆ - Screen for other STDs
- Offer epidemiological treatment

MOLLUSCUM CONTAGIOSUM

MOLLUSCUM CONTAGIOSUM

Molluscum contagiosum is a benign condition of the skin and mucous membranes. It is caused by the *Molluscum contagiosum* virus, a member of the pox family. It is infectious and is transmitted by both sexual and non-sexual routes of transmission. Non-sexual transmission is by direct contact with the skin of infected individuals following close body contact and / or fomites.

Incubation period

Ranges from 1 week – 6 months

Clinical manifestations

- ◆ The non-verbal form occurs primarily in children on the face, trunk and extremities
- ◆ The lesions are more widespread in children than in adults
- ◆ Adults with genital molluscum rarely develop extragenital lesions
- ◆ 10-50% of children with molluscum contagiosum have lesions in the genital region In adults occur on lower abdomen, pubic area, penile shaft, labia majora, inner aspect of thighs

Lesions are elevated, smooth, flesh colour or pearly white dome shaped papules with a characteristic central umbilication from which caseous material can be expelled.

Diagnosis

- ◆ Clinical features are diagnostic
- ◆ Demonstrating the pathognomonic enlarged epithelial cells with intracytoplasmic molluscum bodies on cytologic or histologic studies
- ◆ Wright / Giemsa / Gram stain demonstrate sheets of infected cells

- ◆ Haematoxylin-Eosin stained sections of punch biopsies reveal characteristic epidermal histopathologic changes
- ◆ MCV antigen with fluorescent antibody studies (not available in Sri Lanka)
- ◆ Electron microscopy

Management

Treatment

1. Puncture the lesion with a sharp sterile needle (19G)
2. Chemical cauterization – apply 10% phenol / trichloroacetic acid / podophyllin / silver nitrate / iodine with a wooden stick
3. Electro desiccation
4. Cryotherapy – with liquid nitrogen, especially in immuno-suppressed patients with generalised lesions
5. Excisional curettage under local anaesthesia

Complications

- ◆ Bacterial superinfection. Should be treated with antibiotics
- ◆ Molluscum dermatitis. Should be treated with steroids

Other management issues

- ◆ Counselling: explain the benign nature of the lesion
- ◆ Look for other STDs
- ◆ Patient and the sexual partners should be investigated
- ◆ HIV should be suspected if widespread lesions occur
- ◆ Voluntary, confidential testing for HIV should be encouraged

Follow Up

Review clinical outcome 5-10 days after completion of treatment.

OPHTHALMIA NEONATORUM

OPHTHALMIA NEONATORUM (ON)

Conjunctivitis of the new born within the first 28 days of life.

Causes

- ◆ Neisseria gonorrhoeae
- ◆ Chlamydia trachomatis
- ◆ Other bacteria

Gonococcal ophthalmia neonatorum (ON) – Risk of transmission from infected mother to child in the absence of prophylaxis is estimated at 30-50%.

Gonococcal / ON	Chlamydial / ON
IP – 2-6 days	Usually 5 - 12 days
Typically bilateral	Initially unilateral
Purulent discharge	Muco-purulent discharge to purulent /sticky/ serous discharge
Palpebral oedema	Pseudomembrane formation
Conjunctival infection	Milder than GC / ON. Diffuse infection

Dual infection with gonorrhoea and chlamydia can occur.

MANAGEMENT

Diagnosis

Conjunctivae

- ◆ Gonococcal – Gram stain smear and culture
- from the conjunctival discharge
- ◆ Chlamydia – ELISA – for the detection of antigen – Culture

(Specimens should contain conjunctival cells and should be obtained from averted eyelids)

- ◆ Culture for other bacteria – to be done, if facilities are available.

Nasopharynx

- ◆ Gonococcal – culture
- ◆ Chlamydia – ELISA/culture

Rectum

- ◆ Gonococcal – culture
- ◆ Chlamydia – ELISA/culture

Chest x Ray – If symptomatic or duration of conjunctivitis lasts more than 3 weeks.

- ◆ Culture for gonococcal ON and ELISA test for chlamydial ON can be done if requested from the STD clinic
- ◆ Serological tests for syphilis are mandatory

Treatment

Gonococcal and chlamydia ophthalmia neonatorum require systemic therapy.

a) Gonococcal ON

Ceftriaxone 50mg/kg (to a maximum of 125 mg) IM single dose OR Spectinomycin 25mg/kg (to a minimum of 75 mg) IM single dose

b) Chlamydial ON

Syrup Erythromycin 50mg/kg/day in 4 divided doses orally for 14 days

b)Bacterial ON

Neomycin eye ointment 0.5% 6 hourly to both eyes after feeds + appropriate antibiotic.

Other management issues:

- ◆ Local irrigation of eyes with sterile / water
- ◆ Careful hand washing of personnel caring for infected baby
- ◆ If facilities for GC / chlamydia diagnosis are not available
OR if in doubt neonate should be treated for both
gonococcal and chlamydial infection
- ◆ Investigate mother and her partner /s for STDs and give
epidemiological treatment to mother and her sexual partner /s
for gonococcal / chlamydial infection
- ◆ Look for other STDs in mother and father

Follow up

If severe infection – review in 48 hours and manage in consultation with an ophthalmologist, otherwise review in 1 week.

- ◆ Clinical examination
- ◆ Swabs for TOC – smear & culture for GC
- ◆ Monthly STS for 3 months

PREVENTION OF OPHTHALMIA NEONATORUM

Gonococcal ophthalmia neonatorum could be prevented by using timely eye prophylaxis & epidemiological treatment of infants born to mothers infected with gonorrhoea.

Eye prophylaxis

The infant's eye should be carefully cleaned immediately after birth and instillation of a prophylactic antibiotic into the eyes of all newborn infants is recommended to prevent ON.

Recommended therapy

Erythromycin (0.5%) ophthalmic ointment in a single application
OR
Tetracycline (1%) ophthalmic ointment in a single dose

Epidemiological treatment

Infants born to mothers with untreated gonococcal infection should receive additional treatment as follows:

Recommended Therapy

Ceftriaxone 50 mg / kg by intra muscular injection as a single dose
to a maximum of 125mg

Alternative Therapy

Kanamycin 25 mg /kg by IM injection as a single dose, to a maximum of 75mg OR
Spectinomycin 25 mg /kg by IM injection as a single dose, to a maximum of 75 mg.

Infants born to mothers who have untreated chlamydia are at high risk for infection, however, prophylactic antibiotic treatment is not indicated as the efficacy of such treatment is unknown. Infants should be monitored to ensure appropriate treatment if infection develops.

PROSTATITIS

PROSTATITIS

Management of Prostatitis Syndromes

Acute Prostatitis

Is best viewed as an uncommon complication of urinary tract infection (UTI) which may occur in male adults at any age. The commonest organisms are: *Escherichia coli*, *Proteus* spp, *Klebsiella* spp, *enterococci*, *staphylococcus aureus* and rarely anaerobes (bacteroides)

Clinical manifestations

- ◆ Sudden onset of features of UTI – frequency, dysuria, urgency
- ◆ Associated with pain referred from the prostrate – perineal, testicular, suprapubic, rectal or pain in the tip of the penis
- ◆ Sometimes obstructive urinary symptoms – acute retention of urine
- ◆ Fever and tachycardia
- ◆ PR examination will reveal a very tender and often swollen prostrate (prostatic massage is contraindicated at this stage)

Management

Investigations

- ◆ Examination of mid stream urine (MSU).
- ◆ Presence of protein and pyuria
- ◆ Significant bacterial growth on culture

Treatment

- ◆ Appropriate broad spectrum antibiotic (eg. cefuroxime / quinolones / trimethoprim)
- ◆ A prolonged course of treatment is recommended, of at least 4 weeks to reduce the risk of developing chronic bacterial prostatitis (CBP)
- ◆ In order to exclude a structural cause for UTI urinary ultra

sound and abdominal plain X-ray or intravenous urogram are advised following recovery

Chronic prostatitis

The term chronic prostatitis is used loosely to describe a group of conditions causing genito-pelvic pain and urinary dysfunction in adult men. Therefore for practical purposes it remains useful to classify the chronic syndromes into 3 major categories.

- ◆ Chronic bacterial prostatitis (CBP),
- ◆ Chronic abacterial prostatitis (CABP) and
- ◆ Prostatodynia (PD)

Based on the Stamey Test.

The Stamey Test

Advise the patient to hold urine for 2 hours and not to ejaculate for at least 2 days. No antibiotics for 1 week.

Procedure

1. Clean end of penis with sterile saline or water
2. Collect first void urine (urine 1) VB₁
3. Collect mid stream urine (urine 2) VB₂
4. Prostatic massage for 1 minute (collect expressed prostatic secretions – EPS)
5. Clean penis
6. Collect next 5-10 ml. And empty bladder (urine 3) VB₃

The classification of prostatitis based on prostatic fluid examination

Category	Mid Stream Urine(VB2)		Expressed prostatic secretions (EPS)		Organism
	WC	Culture	WC	Culture	
ABP	++	+	++	+	Enterobacteriaceae
CBP	+	+	+	+	“ “ “
CAP	-	-	+	+	NIL
PD	-	-	-	-	NIL

- ABP - Acute bacterial prostatitis PD - Prostatodynia
 CBP - Chronic bacterial prostatitis WC - White cells
 CAP - Chronic abacterial prostatitis

The level at which inflammatory cells become significant in the EPS is regarded as 10 wc/Hpf. In cases of dry expressate, a wc of 4/Hpf in VB₃ over and above those in VB₁ and VB₂ is highly suggestive of prostatitis.

Clinical bacterial prostatitis

Is an important cause of recurrent bacterial UTI in men and should be suspected in men who experience recurrent urinary tract infections often with the same organism. Gram negative rods – Escherechia coli are the commonest pathogens. Enterococci are also implicated.

Clinical manifestations

- ◆ Perineal / testicular / suprapubic / rectal or pain in the tip of the penis
- ◆ A history of documented UTI should be sought and would support the diagnosis
- ◆ Urinary dysfunction – frequency, urgency, incomplete bladder emptying
- ◆ Ejaculatory dysfunction – pain during or after ejaculation, discolouration of ejaculate, haemospermia
- ◆ PR – prostate is usually normal, no tenderness / swelling

Management of Chronic bacterial prostatitis

Diagnosis

1. Urethral swab for gram stain
2. Culture for GC
3. Swab for chlamydia EIA
4. Urine deposit – gram stain, wet mount, GC culture, chlamydia EIA
5. PR examination and prostatic massage – carry out the above tests with the prostatic massage fluid

Treatment

Recommended Therapy

Appropriate antibiotic with good prostatic penetration should be chosen according to the sensitivity of the organisms isolated from urine culture or Stamey test.

Fluoroquinolones (particularly Ciprofloxacin, Norfloxacin and Ofloxacin) are effective

Chronic abacterial prostatitis

Clinical manifestations

- ◆ Perineal / testicular / suprapubic / penile pain
- ◆ Usually no history of documented UTI
- ◆ Stamey test may demonstrate significant prostatic inflammation

Organisms have features prominently as possible causes –
chlamydia trachomatis, ureaplasma urealyticum and mycoplasma
hominis

Management

Diagnosis

- ◆ Urine FR and culture
- ◆ PR – examination and prostatic massage
- ◆ Examine the fluid

Treatment

If chlamydia aetiology is suspected

Recommended Therapy

Doxycycline 100 mg orally twice a day OR Tetracycline 500 mg orally 6 hourly

Alternative Therapy

Erythromycin 500 mg orally 6 hourly

Prolonged therapy for 1-3 months may be necessary depending
on the clinical manifestations

Supportive measures

- u Non-steroid anti-inflammatory drugs (NSAID) –
indomethacin, ibuprofen
- u Counselling
- u Other investigations – ultrasound scan to exclude prostatic
calculi

PUBIC PEDICULOSIS

PUBIC PEDICULOSIS (CRAB LOUSE)

Cause

Is due to infestation with the crab louse *Phthirus pubis*. The adult louse is just visible to the naked eye. Eggs (nits) are in chitin sacs firmly attached to the base of single hairs. Although this is usually a sexually transmitted infestation, it may be acquired from contaminated toilet seats, towels underclothing or bedding.

Site of infection

Usually involves only pubic hair. It may spread to other hairy parts of the body (including the eyelashes) except the scalp.

Incubation period

Few days to several weeks

Clinical manifestations

- ◆ Intense irritation or itchiness
- ◆ Black specks on underpants
- ◆ Many are asymptomatic

Management

Diagnosis

Clinically or by demonstration of the louse or nits

Treatment

Topical application of

- ◆ 25% Benzyl benzoate application – apply to the affected area and wash off after 24 hours
- ◆ 1% Gamma benzene hexachloride cream or lotion * - (quellada – 100ml) – apply to the affected areas and wash off after 24 hours

- ◆ 0.5% Malathion* - (Derbac M Liquid) – 50ml

OR

- ◆ 5% Permethrin cream* (Lyclear-30g) – apply to affected areas and wash off after 24 hours

Eyelashes – to be treated with vaseline lotion twice a day for 10 days

- ◆ When treatment is commenced clean clothes should be used. Warn patient that eggs may be found for some time after successful treatment
- ◆ Contraindicated in young children and women in first trimester of pregnancy and lactation

Management of partners

- ◆ Look for other STDs
- ◆ Epidemiological treatment given at the same time. The family and other close contacts should be examined and then treated if necessary.

PELVIC INFLAMMATORY DISEASE

PELVIC INFLAMMATORY DISEASE (PID)

Is a clinical syndrome found in females resulting from infection of the uterus, fallopian tubes, ovaries, peritoneal surfaces and surrounding anatomic structures and often associated with ascending or contiguous spread of micro-organisms from the lower genital tract and uterine cervix.

Micro-organisms isolated from upper genital tract specimens of women with PID are given in the table below.

Sexually transmitted

Chlamydia trachomatis

Neisseria gonorrhoeae

Genital mycoplasma

Non-sexually transmitted

Bacteroides spp.

Clostridium spp.

Coliforms

CLINICAL MAINIFE STATIONS

Signs and symptoms

Minimum criteria for clinical diagnosis of PID

- ◆ Lower abdominal tenderness
- ◆ Bilateral adnexial tenderness
- ◆ Cervical motion tenderness
- ◆ Conjunctive dysmenorrhoea
- ◆ Pelvic induration
- ◆ Negative pregnancy test

Additional criteria useful in diagnosing PID

- ◆ Fever > 38.3°C (anal)
- ◆ Abnormal vaginal discharge
- ◆ Raised ESR or CRP
- ◆ Endocervical evidence of a positive culture of *N. gonorrhoeae* or *C. trachomatis*

MANAGEMENT

Diagnosis

ESR - Raised ESR

WBC/DC - Leucocytosis

CRP - Raised

Pregnancy test

Endo cervical swab for GC culture, Chlamydia ELISA/Culture

Screen for other STDs

Ultrasonography - to detect pelvic masses (if clinically indicated)

Differential diagnosis

Acute PID must be distinguished from:

- ◆ Other causes of pelvic peritonitis (eg. Acute appendicitis)
- ◆ Ectopic pregnancy
- ◆ Spontaneous abortion
- ◆ Other gynaecological conditions (eg. Rupture, torsion, haemorrhage into an ovarian cyst)
- ◆ Pain arising in the urinary tract or bowel
- ◆ Intervention of pregnancy (illegal termination)

Main stay of PID treatment is antibiotic therapy, but this must be associated with general measures such as adequate rest and Endocervical evidence of a positive culture of *N. gonorrhoeae* or *C. trachomatis*

Treatment

Acute PID outpatient treatment

Recommended therapy

Ceftriaxone 250 mg IM single dose
OR
Cefotaxime 1 g IM
AND
Probenecid 1 g orally
AND
Doxycycline 100 mg b.d. for 14 days
AND
Metronidazole 400 mg bd for 14 days

Alternative treatment

If patient is pregnant,

Erythromycin should be given in place of Doxycycline.

If IUCD is in-situ, remove IUCD after commencement of antibiotic therapy.

Other management issues

Screen sexual partners for STDs and epidemiological treatment given for gonococcal and chlamydial infection.
Encourage voluntary, confidential HIV testing
Counselling including education on safer sex methods

Follow up

Close follow up is essential - review in 2-3 days and 1 week
TOC as indicated for GC.

Indications for hospitalization in acute PID

- ◆ uncertain diagnosis
- ◆ surgical emergencies
- ◆ suspected pelvic abscess
- ◆ severe illness
- ◆ pregnancy
- ◆ adolescence
- ◆ patient non-compliance
- ◆ outpatient therapy failure

Recurrent PID

Repeated episodes of PID are common. They may occur because:

- ◆ treatment was inadequate or inappropriate
- ◆ failure in identifying and treating all sexual partners which would have led to re-infection
- ◆ One episode of tubal damage increases the susceptibility of the fallopian tubes to infection with less pathogenic microorganisms, which are often part of the patient's flora

REITER'S DISEASE

REITER'S DISEASE

It is a triad of urethritis, arthritis and conjunctivitis. There may be associated muco-cutaneous lesions. The major component of the syndrome is the arthropathy.

The syndrome may follow either gastrointestinal infection (due to salmonella, shigella, yersinia or campylobacter) or genitourinary infections (due to chlamydia trachomatis, neisseria gonorrhoeae and possibly other agents eg ureaplasma urealyticum). The histocompatible antigen HLA- B 27 is present in up to 80% of patients with Reiter's syndrome and does suggest that the condition is more likely to develop in patients with an inherited predisposition to it.

Clinical manifestations

occur 2-3 weeks post infection and acute in onset.

- ◆ Arthritis is the commonest finding. Several joints are usually affected although sometimes only one joint is affected. The joints of the lower limb are most often involved classically the knees, ankles and metatarsophalangeal joints of the feet.
- ◆ Sacro-ileitis is common.
- ◆ Involvement of small joints of hands is uncommon.
- ◆ Arthritis is usually associated with a fever.
- ◆ Tenosynovitis -especially of the Achilles tendon
- ◆ Urethritis / cervicitis may or may not be present.
- ◆ Conjunctivitis if present is usually bilateral. Uveitis may occur.
- ◆ keratoderma blennorrhagica – pustular and crusted lesions on the soles of the feet ,

- ◆ Erosions of the mucous membranes - erythema and desquamation of the hard and soft palate, erosions on the penis -circinate balanitis, erosions on the vulva – (erosive vulvitis).
- ◆ Thrombophlebitis, carditis are less common

Differential diagnosis:

- ◆ Gonococcal arthritis
- ◆ Rheumatoid arthritis
- ◆ Ankylosing spondylitis

Management

Investigations

- ◆ WBC /DC
- ◆ Hb %
- ◆ ESR
- ◆ ASOT
- ◆ Rheumatoid factor
- ◆ LE cells
- ◆ Anti Nuclear Factor
- ◆ Swabs for chlamydia- urethra, cervix, rectum,
- ◆ Screen for other STDs

Diagnosis depends on the

- ◆ Clinical findings
- ◆ Mild anaemia and leucocytosis
- ◆ Raised ESR
- ◆ Radiology
- ◆ Positive chlamydia test
- ◆ Synovial fluid analysis
- ◆ Certain negative findings eg LE cells, rheumatoid factor

Treatment

Recommended therapy

The urethritis / cervicitis is managed conventionally with tetracycline.

Tetracycline 500 mg orally 6 hourly for 3 weeks
OR
Doxycycline 100 mg orally twice a day for 3 weeks.

Alternative therapy (esp: in pregnancy)

Erythromycin 500 mg orally 6 hourly for 3 weeks

Acute inflammatory Joints

- ◆ Bed rest
- ◆ Physiotherapy to prevent muscle wasting
- ◆ Aspirin may be sufficient to control joint inflammation or Indomethacin / ibuprofen
- ◆ If the effusion is large aspirate and may need aspiration, therefore refer for in- ward care

Conjunctivitis

- ◆ Saline lavage or beta- methasone eye drops
- ◆ Uveitis should be referred to the eye clinic

Circinate balanitis

Treat with 1% hydrocortisone cream

If the lesions are severe refer to a Dermatologist

Prognosis

The majority resolve within 3-6 months. Recurrences are however common.

Other management issues

- ◆ Encourage voluntary, confidential HIV testing (The prevalence of Reiter's disease is higher among HIV positives)
- ◆ Look for other STDs
- ◆ Investigate partner - if chlamydia or GC is the likely aetiology treat the partner epidemiologically)
- ◆ Discuss safer sex practices
- ◆ Monthly STS up to 3 months.

SCABIES

SCABIES

Cutaneous infestation by the mite *Sarcoptes scabiei*, is characterised by pruritic skin lesions. The infection is transmitted by sexual and other close personal contact.

Incubation Period

In persons without previous exposure onset of itching occurs 2 - 6 weeks after the exposure. Persons who have been previously infested develop symptoms 1-4 days after re-exposure.

Clinical manifestations

Signs and symptoms

- ◆ Itching - most intense at night
- ◆ Rash - due to sensitization to mite.

Pruritic lesions typically distributed on:

- ◆ hands/ flexor surface of wrists
- ◆ extensor aspects of elbows
- ◆ anterior axillary folds
- ◆ periumbilical region
- ◆ buttocks and genital area

Several types of lesions occur

Pathognomonic lesion - burrow, short, wavy, dirty looking line, usually located in the finger webs, wrists, elbows or penis small erythematous often excoriated papules. Firm reddish nodular lesions may occur on glans penis, penile shaft, scrotal skin, elbows, axillary folds.

Excoriated lesions are common. Eczematisation and secondary infection alter the appearance of the lesions.

Management

Diagnosis

Clinical

Pruritic rash involving the hands, trunk and male genital area is very suggestive of scabies.

Definitive

Requires identification of the mite, eggs, faeccs of larvae either microscopically or macroscopically

Treatment

useful topical agents are:

Benzyl benzoate (BB Cream)

Adults - 5% emulsion

Small children - dilute with 3 parts

Older children - dilute with equal quantity of water. Avoid applying close to the eyes, mucous membranes and in ones showing symptoms of eczema and/or secondary infection.

Apply enough BB cream to cover entire skin surface except the head and face, i.e., from neck down including soles of feet rubbing in well. Leave for 12 hrs. and reapply at 12 hourly intervals for a total of 3 applications. Remove BB cream by thoroughly washing with soap and water 12 hrs. after the last application.

Itching due to circulating antigens from scabies may persist for up to two weeks after successful treatment.

Further treatment with BB cream is not advisable.

Use of Crotamiton with or without Hydrocortisone is recommended for post scabies itch. Use oral anti allergic drugs (chlorpheniramine promethazine) for cases of intense itching.

Prescribing limits of BB cream - No more than 3 applications within 5 days.

Clothing, linen and towels should be changed daily, washed and sun dried during the treatment period.

Sulfur ointment

Is indicated for infants under 2 months of age and in pregnant and lactating mothers

- Infants - 3% sulfur in emulsifying ointment
- Children - 6% sulfur in emulsifying ointment
- Adults - 10% sulfur in emulsifying ointment

Other Management Issues

Investigate for other STDs

Treat sexual and household contacts

(Treat family and close contacts even if free of symptoms since these can take several weeks to develop.)

TRICHOMONIASIS

TRICHOMONIASIS (TV)

Trichomoniasis a common cause of vaginitis. The causative organism is *Trichomonas vaginalis*, a flagellated protozoan that infects the genital tract specifically and is predominantly transmitted sexually. Transmission by fomites has been reported.

Incubation period

3-28 days.

Clinical manifestations

Signs and symptoms.

Females

- ◆ Offensive, frothy, light yellow or greenish gray coloured discharge.
- ◆ Vulval itching.
- ◆ Occasional dysuria.

- ◆ Erythematous vaginal mucosa.
In a few cases cervix is inflamed and has punctate haemorrhages and is called the "strawberry cervix".
- ◆ Occasionally in severe infections ulceration may occur.
- ◆ As many as 50% are asymptomatic

Males

Most men infected with trichomonas are asymptomatic. It may cause a mild urethritis, prostatitis and epididymitis.

Management

Diagnosis

Detections of trichomonads in a wet mount of vaginal secretions collected from the posterior fornix, or urethral smear or centrifuged sediment of urine in men.

Culture is the most sensitive means of diagnosis which is not readily available in most laboratories

The papanicolaou stain of exfoliated cervical cells may identify trichomonds in background of large number of neutrophils

Cells with a perinuclear halo are the first indicators of a possible trichomonas infection

Treatment

Non pregnant patients

Recommended therapy

Metronidazole 400 mg orally twice a day for 7 days OR Metronidazole 2g orally single dose

Warn the patient of the possible side effects - metallic taste in the mouth, nausea, interaction with alcohol - advice to avoid alcohol during therapy and for 24 hours after as a disulfiram reaction may occur.

Alternative therapy

Tinidazole 2g orally as a single dose or 150 mg orally three times a day for 3 days

In pregnancy and lactation

oral Metronidazole is best avoided in the first trimester.
Metronidazole vaginal pessary 1g nocte for 2 days could be used.
Azole pessaries may be used although the efficacy is reported to be low.

Other Management issues

- ◆ investigate for other STDs
- ◆ Encourage voluntary, confidential HIV testing
- ◆ Discuss safer sex practices
- ◆ Epidemiological treatment of the partner
- ◆ Should abstain from sexual intercourse until therapy is completed for both the patient and partner

Management of sex partners

- ◆ Investigat treat epidemiologically
- ◆ Screen for other STDs

Follow up

After completion of therapy
Evaluate signs and symptoms
Test of cure (TOC) - wet smear

Treatments failure

If treatment failure occurs with either regimens of Metronidazole, retreat with Metronidazole 400mg orally twice daily for 7 days. If treatment is failing repeatedly commence on Metronidazole 2g orally in a single dose for 3-5 days.

