

3.1 BACTERIAL VAGINOSIS

ORGANISM

This is a condition caused by a change in vaginal bacterial flora from predominantly *Lactobacilli* species to various bacteria including *Gardnerella vaginalis*, *Mobiluncus spp*, *Bacteroides spp*, other anaerobes, and *Mycoplasma hominis*.

CLINICAL PRESENTATION

This condition is not traditionally considered as an STI, although it is often associated with sexual activity. It presents as a smelly, “fishy” discharge that is grey in colour. It is not an inflammatory condition, so the vagina is not usually red and inflamed. However, it can be associated with other inflammatory conditions such as candidiasis. The smell is often more noticeable after sex or at menstruation. Vulval irritation is usually mild, if present. However, many women with bacterial vaginosis have no symptoms. This condition has been associated with:

- ◆ premature labour
- ◆ chorioamnionitis
- ◆ PID especially after:
 - termination of pregnancy
 - intra-uterine device (IUD) insertion or other instrumentation
- ◆ increased risk of HIV transmission/acquisition
- ◆ non-specific urethritis (NSU) in male partners (possible).



INVESTIGATIONS

Bacterial vaginosis can be diagnosed if three of the following four criteria are met:

- ◆ raised vaginal pH >4.5
- ◆ “fishy” odour
- ◆ characteristic discharge
- ◆ presence of “clue cells”.*

Thus, the diagnosis can be made at the examination and confirmed by a Gram stain smear from a high vaginal swab. Culture for the causative organisms is NOT performed routinely.

TREATMENT

Symptomatic cases should be treated. Treatment is not required for asymptomatic disease, as this condition can often resolve spontaneously, but is recommended before gynaecological procedures and in pregnant women with a history of preterm labour.

Standard/initial therapy

- ◆ Metronidazole 400 mg orally, 12-hourly with food for five days
- ◆ metronidazole 2 g orally, as a single dose (less effective)
- ◆ tinidazole 2 g orally, as a single dose with food
- ◆ clindamycin 2 per cent vaginal cream 5 g, daily for seven days (not on PBS)
- ◆ clindamycin 300 mg orally, 12-hourly for seven days (not on PBS).

Advise avoidance of alcohol with either metronidazole or tinidazole treatment and for 24 hours thereafter.

Clindamycin cream is oil-based and may weaken latex condoms and diaphragms.

* Clue cells are vaginal epithelial cells covered in bacteria and are seen on a Gram stain of a high vaginal swab.



Recurrent disease

Stat dose therapy is not recommended.

Pregnancy

- ◆ Clindamycin 300 mg orally, 12-hourly for seven days (category A)
OR
- ◆ metronidazole 400 mg orally, 12-hourly for five days (category B2). Metronidazole can be used in the first trimester of pregnancy where the benefits outweigh the potential risks.

Systemic treatment is better in pregnancy and as clindamycin cream may not treat the upper genital tract adequately, oral therapy is preferred.

MANAGEMENT OF PARTNERS

There is no evidence that treatment of partners is necessary, unless they have symptoms.

FOLLOW-UP

Review the patient if symptoms persist.

PUBLIC HEALTH ISSUES

This is not a notifiable disease.

Symptomatic partners should be investigated.



3.2 CANDIDIASIS

ORGANISM

Candidiasis is caused predominantly by *Candida albicans*, although other *Candida* species can be found.

CLINICAL PRESENTATION

This condition is not considered to be an STI, although male partners can sometimes be secondarily infected. Signs and symptoms vary. Classically, there is thick, curd-like discharge with adherent plaques on the vaginal wall. However, the discharge can be thin and homogeneous, with extensive irritation leading to excoriation of the vulva and perianal region.

In males, there is often a red rash on the glans and under the foreskin (balanitis), which may be itchy.

INVESTIGATIONS

A high vaginal swab with a Gram stain is very sensitive for the diagnosis, with the smear showing hyphae. It is an easy organism to culture. A swab for culture can be taken from the affected area (i.e. vulva or penis). It should be placed in charcoal medium and stored and transported at 4 °C to 8 °C.

TREATMENT

Asymptomatic disease does not need treatment.

3.2



Standard

Any of the available imidazole preparations are effective, either as cream or pessaries. Various preparations are available for either single dose therapy, or three to seven days of therapy:

- ◆ clotrimazole 1 per cent cream per vagina (one applicator per night) or 100 mg pessaries per vagina (one per night), for six nights
- ◆ clotrimazole 500 mg pessary per vagina, as a single dose
- ◆ miconazole 2 per cent cream per vagina (one applicator per night) or 100 mg pessaries per vagina, for seven nights
- ◆ econazole 100 mg pessaries per vagina, for three nights.

Prolonged use should be avoided as contact dermatitis may result.

Where there is severe vulvitis or balanitis associated with candidiasis, 1 per cent hydrocortisone preparations may be given with antifungal therapy to resolve symptoms. Unopposed steroids may make the condition worse.

Vaginal creams and pessaries may weaken latex condoms and diaphragms.

Oral therapy

Oral therapy should be reserved for resistant or recurrent cases. These are expensive treatments and are no more effective than topical preparations for uncomplicated infections:

- ◆ fluconazole 150 mg orally, as a single dose (not on PBS but available over the counter)
OR
- ◆ ketoconazole* 200 mg orally, 12-hourly with food for five days.

* Ketoconazole can cause hepatotoxicity and has important interactions with other drugs.



Candidiasis

Pregnancy

Topical treatment must be used for 12 to 14 days in pregnancy because of lower response rates and more frequent relapse. Systemic treatment should be avoided. Both fluconazole and ketoconazole are contraindicated in pregnancy.

Refractory candidiasis

Some strains of candida are more resistant to treatment than others. In cases of refractory candidiasis the fungus should be speciated. *Candida glabrata* which has failed treatment with imidazoles can be treated with boric acid 600 mg pessaries per vagina (one per night) for two weeks.

MANAGEMENT OF PARTNERS

Partners do not require treatment unless they are symptomatic.

FOLLOW-UP

Patients with recurrent candidiasis require investigation for possible underlying causes such as diabetes or immunosuppression (including HIV). Other causes of vulvitis such as herpes or dermatitis should also be excluded.

Candida can be difficult to eradicate, and treatment is not necessary unless there are symptoms. Therefore, regular swabbing is NOT recommended.

Speciation should be performed if the disease is recurrent or persistent, as resistant candida may be present.

PUBLIC HEALTH ISSUES

This is not a notifiable disease.



3.3 CERVICITIS

Cervicitis (inflammation of the cervix) is considered the female equivalent of non-specific urethritis (NSU), although it may be a finding on clinical examination. Cervicitis is defined as >30 WBC/HPF, plus inflammation and/or a discharge. The cervix may be friable.

CLINICAL PRESENTATION

Symptoms

- ◆ Low abdominal pain
- ◆ vaginal discharge
- ◆ pain on sexual intercourse
- ◆ a burning sensation on passing urine
- ◆ contact bleeding from cervix.

Signs

- ◆ Endocervical discharge
- ◆ cervical tenderness on examination
- ◆ friable cervix.



Cervicitis

INVESTIGATIONS

- ◆ Endocervical specimens are essential. Mop ectocervix with cotton wool prior to taking specimens to avoid contamination with vaginal flora.
- ◆ Endocervical microscopy - >30 WBC/HPF in the absence of gonococci.
- ◆ Endocervical culture for gonorrhoea and other organisms.
- ◆ Endocervical NAT for chlamydia.
- ◆ First void urine for NAT for gonorrhoea and chlamydia.
- ◆ Vaginal microscopy, and culture, to exclude other causes of discharge, e.g. candidiasis, bacterial vaginosis, *Trichomonas vaginalis*, anaerobes.
- ◆ Consider HSV as a cause of cervicitis.
- ◆ Consider endocervical ureaplasma/mycoplasma culture or NAT.
- ◆ Added STI screen - treponemal serology, and HIV and HBV antibody.

TREATMENT

Adult

- ◆ Azithromycin 1 g orally, as a single dose followed by:
- ◆ doxycycline 100 mg orally, 12-hourly for 10 days
OR
- ◆ erythromycin ethyl succinate 800 mg orally, 12-hourly for 10 days
OR
- ◆ roxithromycin 300 mg orally, daily for 10 days.

Pregnancy or breast feeding

- ◆ Erythromycin ethyl succinate 800 mg orally, 12-hourly for 10 days.



MANAGEMENT OF PARTNERS

Sexual partners should be tested and treated for presumed NSU.

FOLLOW-UP

Until post-treatment review ask patients to avoid unprotected sexual intercourse. Review at one to two weeks after cessation of treatment and:

- ◆ assess resolution of signs and symptoms
- ◆ review success of contact tracing.

For patients with a positive chlamydia culture, the test of cure should be done three to four weeks after being treated to avoid detection of residual killed organisms on NAT. (No unprotected sexual intercourse should occur in the meantime).

PUBLIC HEALTH ISSUES

This is not a notifiable disease.

Contact tracing and further counselling are important.

Always test for other STIs.

3.4 CYTOLOGICAL ABNORMALITIES

If a woman presents for STI testing or genital examination, a Pap smear should be taken if one has not been carried out within the recommended time period. If there is obvious inflammation, consider delaying the smear until it is resolved. Trichomoniasis is sometimes only diagnosed on cytological smears. Therefore, it is useful to include a posterior pool of vaginal secretion as well as samples from the ectocervix and endocervix on the slide. The slide needs to be sprayed with fixative within 20 seconds of the sample being taken in order to prevent air-drying artefact.

Documentation of the Pap smear results in the patient's notes, and active follow-up of abnormal smears, is very important. Recommendations as to when the smear should be repeated are generally given in the report. If the cervix appears abnormal, or there are two consecutive abnormal smears with atypical cells, or there is evidence of high-grade dysplasia (cervical intra-epithelial neoplasm [CIN] II/III), the patient should be referred for colposcopy. Testing for human papilloma virus (HPV) may be useful in the management of cervical abnormalities.



3.5 EPIDIDYMO-ORCHITIS

CLINICAL PRESENTATION

Epididymo-orchitis is a condition that presents with pain in the scrotum, often accompanied by swelling. It needs to be differentiated from torsion of the testis. It may be associated with a urethral discharge, dysuria and frequency.

Causative organisms are either from the urinary tract or are sexually transmitted. For patients aged under 35 years, consider treatment for STIs. For patients over 35 years, consider examining for urine pathogens.

INVESTIGATIONS

A first void urine should be collected for chlamydia and gonorrhoea NAT, and a mid-stream urine should be sent for routine bacterial culture.

TREATMENT

Treatment for a sexually transmitted cause should be for at least two weeks.

- ◆ Ceftriaxone 250 mg, intramuscularly, as a single dose AND azithromycin 1g orally as a single dose PLUS
- ◆ amoxicillin/clavulanate 500 mg orally, eight-hourly (will also cover many urinary tract infection [UTI] organisms) for 14 days PLUS
- ◆ doxycycline 100 mg orally, 12-hourly for 14 days.



Epididymo-orchitis

This regime can be amended once the causative organisms have been identified. The patient may require admission for pain relief, and scrotal support is often useful.

MANAGEMENT OF PARTNERS

Partners should be assessed and offered STI screening.

FOLLOW-UP

Consider other STIs.

PUBLIC HEALTH ISSUES

This is not a notifiable disease.

Contact tracing is important to prevent reinfection.

Always test for other STIs.



3.6 GENITAL HERPES

ORGANISM

Genital herpes can be caused by either *Herpes simplex* virus type 1 (HSV-1) which is the usual cause of oro-labial herpes, or by *H. simplex* virus type 2 (HSV-2). HSV infection may be acquired from either symptomatic or asymptomatic partners, and from either genital or oral sexual contact. The majority of genital infections are caused by HSV-2.

CLINICAL PRESENTATION

Most HSV infections are asymptomatic. Clinical manifestations depend on the site of viral entry, and immunity from previous oral or genital HSV exposure. Manifestations of newly acquired infection may be severe in non-immune persons who have had no previous exposure. Primary infection is a systemic disease, and flu-like illness can occur. Initial infections are less severe in persons with prior exposure to HSV-1. Sexually acquired manifestations include genital ulceration, urethritis, cervicitis, proctitis and gingivostomatitis.

First noticed lesions can be multiple, widespread, bilateral, at different stages of development and resolution, and at sites of direct mucosal infection. Recurrent lesions are typically grouped and localised, unilateral, at identical stages of development and at cutaneous sites along sacral dermatomes.



INVESTIGATIONS

- ◆ Swab for NAT.
OR
- ◆ Swab for viral culture. This should be placed in viral transport medium, refrigerated, and sent to the laboratory as soon as possible. Viral culture is most likely to be successful if the swab is taken within 36 hours of the appearance of lesions.
OR
- ◆ Direct immunofluorescence for HSV antigen. This is a useful test when viral culture or NAT tests are not available. Ulcers are swabbed firmly with a cotton wool spatula, and the cells obtained wiped onto a glass slide.

Special considerations

A negative test result does not exclude HSV infection. The tests above are the preferred tests because they are cost efficient and identify the anatomical site of infection. Currently, a positive test is required to meet PBS requirements for suppressive therapy.

- ◆ Type specific herpes serology is available and may be useful in the following circumstances:
 - to aid diagnosis in lesions which are consistently virus negative
 - to assist in counselling in couples where one is known to be positive and the other is unknown
 - in patients who are HIV-positive.

Serology is **not** a substitute for NAT or culture.



TREATMENT

First episode

- ◆ Valaciclovir 500 mg orally, 12-hourly for five to 10 days
OR
- ◆ aciclovir 200 mg orally, five times daily for five to 10 days.

Recurrent herpes

Episodic

Episodic treatment is indicated for infrequent recurrences (i.e. intervals of more than six to eight weeks). Episodic therapy should be initiated early on by the patient at the first sign of prodrome or very early lesions.

- ◆ Valaciclovir 500 mg orally, 12-hourly for five days
OR
- ◆ famciclovir 125 mg orally, 12-hourly for five days
OR
- ◆ aciclovir 200 mg orally, five times daily for five days.

Suppressive therapy

Suppressive therapy is indicated in significant, frequent disease.

- ◆ Valaciclovir 500 mg orally, daily
OR
- ◆ famciclovir 250 mg orally, 12-hourly
OR
- ◆ aciclovir 200 mg orally, eight-hourly.

For immunocompetent individuals having at least 10 outbreaks per year, or immunosuppressed individuals:

- ◆ Valaciclovir 1 g orally, per day
OR
- ◆ famciclovir 250 mg orally, 12-hourly
OR
- ◆ aciclovir 400mg orally, 12-hourly.



Genital herpes

There is no evidence that vitamins, zinc, lysine or other complementary remedies are any more effective than placebo in the prevention of recurrences.

Pregnancy

Aciclovir (category B3) is not recommended for routine use during pregnancy. However, it may be used in individual cases when the patient's condition requires it.

Perinatal transmission, with disseminated HSV infection, is most likely to occur with vaginal delivery at the time of primary maternal infection. The risk is much lower with recurrent HSV lesions or asymptomatic infection at the time of delivery. A woman with a history of genital herpes, or who has had a partner with herpes, should alert her obstetrical team to this situation. The decision whether to proceed to vaginal delivery depends on the presence of lesions at term, availability and results of virological tests, and the outcome of discussion between the obstetrician and the mother.

MANAGEMENT OF PARTNERS

Partners should be provided with information about viral shedding and transmission. Viral shedding occurs maximally during the first few days of clinical lesions. However, viral shedding and possible transmission can occur at times when there are no clinical signs.

In many cases it is helpful to establish the partner's serostatus.

Provide advice on appropriate safe sex practices.

There is evidence that suppressive therapy does reduce transmission. However, this is not a PBS indication for suppressive therapy.

3.6



FOLLOW-UP

Check for other STIs.

PUBLIC HEALTH ISSUES

This is not a notifiable disease.

Always test for other STIs.

If a child is diagnosed with an STI, issues of sexual abuse and/or sexual assault should be considered. For further information, see page 10.



3.7 GENITAL WARTS/HPV

ORGANISM

Genital warts are caused by the human papilloma virus (HPV). There are over 200 subtypes of the virus of which over 25 cause genital infection.

HPV infections of the genital epithelium are thought to be sexually transmitted and are classified as oncogenic (cancer forming or high-risk) (commonly caused by types 16 and 18) and non-oncogenic (low-risk) (commonly caused by types 6 and 11). Infection with the low-risk types is associated with the formation of genital warts.

Cervical cancer is now known to be caused by oncogenic strains of HPV. It is thought that cervical cancer is preceded by the development of high-grade cervical dysplasia, and that cervical cancer can be prevented by removal of the lesion. People who develop genital warts may acquire an oncogenic strain of HPV at the same time.

Low-grade dysplasia may be caused by either an oncogenic or non-oncogenic strain, or both.

CLINICAL PRESENTATION

The majority of newly acquired HPV infections appear to be subclinical and asymptomatic. Clinically visible manifestations of HPV include warts that may be condylomatous, papular, flat or keratotic in appearance.

INVESTIGATIONS

- ◆ Essentially, diagnosis of warts is clinical.
- ◆ Tests to detect the high-risk viruses are now available but not yet for routine use.
- ◆ Adjunctive HPV DNA testing of the cervix, performed at the time the Pap smear is taken, may facilitate patient management in the future.
- ◆ Acetic acid testing is not reliable.



TREATMENT

Treatment of genital warts is encouraged as they are highly infectious. In addition, if left untreated, the warts may enlarge and become super-infected. However, recurrence is common. Up to 50 per cent of cases have recurrence within the first six months following treatment. First line therapy is usually with patient self-applied podophyllotoxin or provider-applied cryotherapy. Advise patients not to shave the pubic area as this spreads the infection.

- ◆ Apply podophyllotoxin paint (0.5 per cent, 3.5 ml) (not on PBS) twice daily for three days, and then do not treat for four days. Continue the seven-day cycle for up to four weeks. Some patients may not be able to tolerate this intensity of treatment and reduced frequency is required.
- ◆ Apply podophyllotoxin cream (0.15 per cent) topically twice daily for three days, and then do not treat for four days. Continue the seven-day cycle for up to four weeks.
- ◆ Cryotherapy: apply liquid nitrogen to visible warts weekly until resolution occurs.
- ◆ Surgical ablative therapy may be indicated for extensive lesions. It is useful for single large warts and requires local anaesthesia. Care should be taken to ensure the warts are not condylomata lata of secondary syphilis or donovanosis where, in both cases, antibiotic therapy is the appropriate treatment.
- ◆ Imiquimod 5 per cent cream topically, three times a week for up to 16 weeks (not on PBS).
- ◆ Biopsy of atypical or longstanding lesions is recommended to exclude dysplasia, especially in HIV-infected individuals.
- ◆ Cervical warts should always be referred to sexual health physicians or gynaecologists for further investigation.



Genital warts

Pregnancy

- ◆ Surgical ablative therapy
- ◆ liquid nitrogen.

Precaution

Podophyllotoxin and imiquimod should not be used in pregnancy or breastfeeding.

MANAGEMENT OF PARTNERS

Current sexual partners may benefit from assessment as they may have undetected genital warts or other STIs, or they may need an explanation and advice about the disease process in their partner.

Patients should be advised to use condoms until treatment is completed, or with new sex partners.

FOLLOW-UP

The patient should be assessed clinically at one week to assess response to therapy, and retreated as required.

Always test for other STIs.

PUBLIC HEALTH ISSUES

This is not a notifiable disease.

If a child is diagnosed with an STI, issues of sexual abuse and/or sexual assault should be considered. However, warts in the genital area in a child can be spread from other sites through autoinoculation. For further information, see page 10.

Women with genital warts, or female partners of patients with genital warts, should be encouraged to have regular Pap smears.



3.8 LYMPHOGRANULOMA VENEREUM

ORGANISM

Lymphogranuloma venereum (LGV) is caused by *Chlamydia trachomatis* serotypes which differ from those that cause urethritis or cervicitis. LGV is always an imported disease.

CLINICAL PRESENTATION

The initial lesion is a transient ulcer that usually appears three to 10 days after infection. This may go unnoticed, and most patients present some weeks later with inguinal lymphadenopathy, which may progress to form a fluctuant bubo by the time the patient is seen.

INVESTIGATIONS

- ◆ Demonstration of *C. trachomatis* in fluid aspirated from a fluctuant bubo.
- ◆ Serology - the LGV complement fixation test (LGV-CFT) is the most widely available serological test. Titres > 1:64 are diagnostic of LGV in a patient with a compatible clinical picture.
- ◆ Specific testing for rectal LGV is available on request from specialised laboratories.

TREATMENT

Standard

- ◆ Doxycycline 100 mg orally, 12-hourly for 21 days or longer
OR



LGV

- ◆ roxithromycin 300 mg once daily for 21 days or longer
OR
- ◆ erythromycin ethyl succinate 800 mg orally, 12-hourly for 21 days or longer.

Special consideration

Azithromycin 1 g orally weekly for three weeks (for men who have sex with men and HIV-positive patients). Data on the efficacy of weekly azithromycin is scanty.

Pregnancy

- ◆ Erythromycin ethyl succinate 800 mg orally, 12-hourly for 21 days or longer (category A).

Precaution

Doxycycline is contraindicated in pregnancy.

MANAGEMENT OF PARTNERS

Partners should be assessed and offered STI screening.

FOLLOW-UP

Consider other STIs.

PUBLIC HEALTH ISSUES

This is not a notifiable disease.

Contact tracing is important to prevent reinfection.

Always test for other STIs.



3.9 MOLLUSCUM CONTAGIOSUM

ORGANISM

Molluscum contagiosum is caused by a poxvirus. Transmission is by direct contact, and can be sexual or non-sexual, the latter including spread by fomites.

CLINICAL PRESENTATION

The lesions occur most often around the pubic area, thighs and lower abdomen in adults.

Lesions have a pearly edge with an umbilicated centre. They are highly infectious, and molluscum can be spread by skin contact. Lesions may be misdiagnosed as genital warts.

HIV-infected individuals may develop quite large lesions that may appear as several lesions grouped together.

INVESTIGATIONS

Diagnosis is usually made by observation. Nucleic acid testing (NAT) is available for difficult diagnoses. Use a fine swab to collect material from the centre of the lesion. The incubation period can vary from days to months.

TREATMENT

These lesions can resolve spontaneously in immunocompetent patients but treatment is offered to reduce transmission and to speed up lesion resolution.



Molluscum contagiosum

Trauma to the lesion is required by:

- ◆ cryotherapy using liquid nitrogen, CO₂ snow or N₂O cryoprobe (preferred treatment)
OR
- ◆ de-roofing the lesions with a sharp stick or needle, and expressing the contents
OR
- ◆ diathermy and curettage.

MANAGEMENT OF PARTNERS

Partners should be offered assessment if they have noticed lesions.

FOLLOW-UP

The patient should be advised to return for further treatment if any lesions remain after first treatment. New lesions may occur.

PUBLIC HEALTH ISSUES

This is not a notifiable disease.

Advise patients not to shave the pubic area as this spreads the infection.

Always offer tests for other STIs.

Lesions are probably communicable for as long as they persist.



3.10 NON-SPECIFIC URETHRITIS

Non-specific urethritis (NSU) has a very broad meaning. It is used to apply to any urethritis, which is not gonococcal in origin (also referred to as non-gonococcal urethritis [NGU]). However, since chlamydia can now be diagnosed specifically, NSU, in these guidelines, refers to causes of urethritis where gonorrhoea and chlamydia have been excluded, and where there are signs of >5 WBC/HPF on microscopy.

It is assumed that the patient presenting with a discharge has already had treatment for gonorrhoea and/or chlamydia as per the management of discharge (see page 48). If the patient is no longer symptomatic following treatment no further treatment is required at follow-up.

For the management of men with a discharge at first presentation, see page 47.

It is important that the partner is also treated.

PERSISTENT OR RECURRENT NSU

CLINICAL PRESENTATION

- ◆ A clear or muco-purulent scanty to copious discharge from the penis, which can range from persistent to intermittent
- ◆ Pain on passing urine
- ◆ Discomfort or irritation at the meatus.

Causes

- ◆ Non-compliance with treatment
- ◆ reinfection - partners not investigated and/or treated
- ◆ squeezing
- ◆ prostatitis
- ◆ undetected trichomoniasis
- ◆ resistant strain of *Ureaplasma* or *Mycoplasma*



- ◆ other infective causes, e.g. HSV, adenovirus, meatal *Candida*
- ◆ unknown.

INVESTIGATIONS

- ◆ Urethral culture or NAT for *Ureaplasma urealyticum* and *Mycoplasma genitalium*
- ◆ *Trichomonas vaginalis* endourethral culture or NAT where available
- ◆ herpes endourethral culture or NAT.

TREATMENT

Treatment depends upon what treatment has been given previously.

- ◆ Doxycycline 100 mg orally, 12-hourly for two weeks
OR
- ◆ roxithromycin 300 mg orally, daily for two weeks
PLUS
- ◆ metronidazole 2 g orally, as a single dose
OR
- ◆ tinidazole 2 g orally, as a single dose.

Provide herpes treatment if appropriate (see page 153).

Patients may require longer therapy.

Advise avoidance of alcohol with either metronidazole or tinidazole treatment.



FOLLOW-UP

- ◆ Patients need to be reviewed to ensure symptoms have resolved.
- ◆ Review after treatment for clinical evidence of treatment success and test of cure culture of any causative organism.
- ◆ If possible, also review partners' management if the index case remains symptomatic with no cause evident. Consider investigation and treatment for prostatitis, or review by a sexual health physician.
- ◆ A rectal examination is important at this stage to exclude prostatitis.

Until post-treatment review, ask patients to avoid:

- ◆ sexual intercourse (even with a condom)
- ◆ squeezing and self-examination.

Review one to two weeks after cessation of treatment:

- ◆ assess resolution of signs and symptoms
- ◆ take a urethral swab for microscopy
- ◆ examine first void urine for threads
- ◆ review success of contact tracing.

MANAGEMENT OF PARTNERS

Female sexual partners should be tested and treated for presumed cervicitis - the female equivalent of NSU (see page 145). The term non-specific genital infection, which applies to both these conditions, is rarely used.

PUBLIC HEALTH ISSUES

This is not a notifiable disease.

Contact tracing and further counselling are important.

Always test for other STIs.



3.11 PELVIC INFLAMMATORY DISEASE (PID)

DEFINITION

Acute PID

- ◆ An acute clinical syndrome due to ascending spread of micro-organisms from the vagina and endocervix to the endometrium, fallopian tubes and associated structures, ovaries, and peritoneum of the pelvis. The majority of acute symptomatic PID (STI in origin) is caused by gonorrhoea. PID caused by chlamydia may be associated with low-grade symptoms.
- ◆ **Similar terms: Acute salpingitis, adnexitis, pelvic peritonitis.**

ORGANISMS

- ◆ Community acquired. In women aged under 25 years, 60 to 80 per cent is caused by gonorrhoea or chlamydia, mixed with facultative and anaerobic flora.
- ◆ Ascending spread of normal commensals, which become pathogenic, often following trauma, pregnancy, intra-uterine device (IUD), in long-standing PID or recurrences, or abscess formation.

Causative organisms include *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, *Mycoplasma hominis/Ureaplasma urealyticum*, *Mycoplasma genitalium* and other bacterial vaginosis organisms; Coliforms: *E. coli* and *Klebsiella*, *Bacteroides* species; *Actinomyces*; *M. tuberculosis* (rare).



CLINICAL PRESENTATION

The following symptoms may be present:

- ◆ lower genital tract infection - discharge
- ◆ lower abdominal pain that worsens with movement
- ◆ pain with intercourse
- ◆ fever
- ◆ dysuria (pain on passing urine)
- ◆ pain with periods
- ◆ intermenstrual bleeding
- ◆ heavy periods
- ◆ feeling unwell
- ◆ nausea, vomiting.

The following signs may be present:

- ◆ abdominal tenderness - guarding or rigidity, rebound
- ◆ tenderness in adnexa - may be unilateral, or a mass may be felt
- ◆ cervical excitation - pain on rocking the cervix
- ◆ temperature may be raised.

INVESTIGATIONS

- ◆ High vaginal swab for MC&S and endocervical swab for MC&S
- ◆ endocervical swab for NAT
- ◆ first void urine for NAT
- ◆ full blood picture – ESR as well as C reactive protein
- ◆ pregnancy test to exclude ectopic pregnancy
- ◆ pelvic ultrasound may be indicated
- ◆ consider referral for laparoscopy.



TREATMENT

- ◆ Begin treatment early. Delayed treatment is associated with a significantly increased risk of tubal infertility or ectopic pregnancy.
- ◆ Rest.
- ◆ Use non-steroidal anti-inflammatory for pain relief.
- ◆ Prevent any *Candida* infection with pessaries during the treatment period.
- ◆ Admit if:
 - diagnosis uncertain
 - surgical emergency - appendicitis or ectopic pregnancy
 - pelvic abscess
 - severe illness or no response to outpatient medicine
 - no clinical follow-up
 - cannot take therapy.
- ◆ Patient to avoid sexual intercourse until they are non-infectious and symptomatically better.

Sexually acquired

Immediate treatment

- ◆ Azithromycin 1 g orally, as a single dose
PLUS
- ◆ ceftriaxone 250 mg intramuscularly, as a single dose.

For mild to moderate infection (outpatient treatment)

After the immediate treatment above, continue with:

- ◆ doxycycline 100 mg orally, 12-hourly for two weeks
PLUS either
- ◆ metronidazole 400 mg orally, 12-hourly for two weeks
OR
- ◆ tinidazole 500 mg orally, daily for two weeks.



If pregnant or breastfeeding, substitute for doxycycline

- ◆ Roxithromycin 300 mg orally, daily for two weeks (category B1).

Advise avoidance of consuming alcohol during treatment with either metronidazole or tinidazole, and for 24 hours thereafter.

For severe infection (inpatient treatment)

- ◆ Metronidazole 500 mg intravenously, 12-hourly PLUS
- ◆ doxycycline 100 mg orally, 12-hourly PLUS either
- ◆ cefotaxime 1 g intravenously, eight-hourly OR
- ◆ ceftriaxone 1 g intravenously, daily.

Intravenous treatment should continue until there is substantial clinical improvement. After that the above oral regimen (for mild to moderate infection) can be used to complete two weeks of treatment.

If pregnant or breastfeeding, substitute for doxycycline

- ◆ Roxithromycin 300 mg orally, daily for two weeks (category B1).

EDUCATION, COUNSELLING AND PREVENTION

Women who have had an episode of PID are at increased risk of further episodes. PID is known to be associated with the sequelae of infertility and ectopic pregnancy. Counselling should be undertaken to encourage risk reduction and early presentation if symptoms of STIs and ectopic pregnancy occur.

See also General considerations in “STI/HIV COUNSELLING” on page 16.



MANAGEMENT OF PARTNERS

It is essential to investigate and treat the partners, who are mostly asymptomatic in cases of PID.

It is important to treat partners, as reinfection increases the risk of tubal infertility.

FOLLOW-UP

Follow up weekly until the condition has improved or resolved. It is important to monitor patients closely to ensure compliance with medication and resolution of signs and symptoms. Perform a test of cure at four weeks if a gonococcal or chlamydial infection was found.

IUDs should be used with caution in those at high-risk of further STIs.

Barrier contraception is protective.

PUBLIC HEALTH ISSUES

This is not a notifiable disease.



3.12 PROSTATITIS

CLINICAL PRESENTATION

Prostatitis may present either as an acute or chronic condition. Acute prostatitis is rarely caused by STI organisms, but appropriate STI investigations should still be undertaken. Treatment is similar to epididymo-orchitis if gonorrhoea or chlamydia is identified as the cause (see page 149). If no STI is identified, treatment is usually directed at the typical urinary tract pathogens and is not within the scope of these guidelines.

TREATMENT

Chronic prostatitis is a difficult condition to treat. It usually presents as pain and discomfort in the pelvis, perineum, penis or inguinal region. Again, urinary tract organisms need to be excluded.

There is some evidence that persistent chlamydia, ureaplasma and mycoplasma infections can present as chronic prostatitis.

The management of this condition is beyond the scope of these guidelines, and management should be discussed with a sexual health physician, infectious diseases physician or urologist.

3.13 PUBIC LICE

ORGANISM

The crab louse *Phthirus pubis* is transmitted by close body contact. The incubation period is usually between five days and six weeks, although some people have a prolonged period of infestation before symptoms appear.

Adult lice infest pubic hairs, body hair in men, and rarely, eyebrows, eyelashes, beards and moustaches. They are not found on head hair. The lice lay eggs (nits) which adhere firmly to the hair shaft. The louse is most commonly found below the waist.

CLINICAL PRESENTATION

Symptoms

There may be no early symptoms, or there may be an itch due to hypersensitivity, producing a macular rash in the hairy areas.

Sometimes fine gritty debris from the lice is seen on the underwear.

Signs

There are signs of pale brown lice and pale small, oval nits adherent to the hairs.

Blue macules (maculae caeruleae) may be visible at the feeding sites.



INVESTIGATIONS

This is based on finding lice and/or nits in the hair.

Examination of the nits or lice confirms the diagnosis. Often it is impossible to remove the louse without crushing it, so it is better to cut the hair for examination under the microscope.

A full screen for other STIs should be conducted, as often, other concurrent diseases are present.

TREATMENT

- ◆ Lotions: The patient should be advised to wash all over with soap and water in the evening and dry well. Apply the lotion and leave on overnight, and wash off in the morning.
- ◆ Shampoos: These are usually applied to the hairy areas in the shower and left on for 10 minutes before being washed off.
- ◆ The application should be reapplied again in a week to kill any newly hatched lice.
- ◆ Patients should be advised to avoid close body contact until they and their partners have completed treatment and follow-up.
- ◆ Patients should be advised that dead nits may remain adherent to the hairs and do not imply treatment failure. These may be removed with a fine-toothed comb.
- ◆ Usually advice is also given to wash all currently used underwear and night clothes.



Standard

Treatment should be repeated after one week.

- ◆ Permethrin 5 per cent cream – apply and leave on overnight, and wash off in the morning.
- ◆ Pyrethrin or Permethrin shampoo – apply and wash out after 10 minutes.
- ◆ Maldason 0.5 per cent lotion – apply and leave on overnight, and wash off in the morning.
- ◆ Petroleum jelly can be used for eyelash infestation twice daily for seven days. The lice can subsequently be removed from eyelashes and eyebrows with tweezers or forceps.

Allergic

- ◆ Avoid treatments to which there is a known sensitivity.

Pregnancy

- ◆ Permethrin (category B2) is safe during pregnancy or breastfeeding.
- ◆ Avoid maldason in pregnancy.

MANAGEMENT OF PARTNERS

Partners should also be examined and treated.

Partners from the previous three months should be seen.

FOLLOW-UP

Patients should be re-examined after two weeks.

Treatment failures should be given an alternative from the above list.

PUBLIC HEALTH ISSUES

This is not a notifiable disease.

Always test for other STIs.



3.14 SCABIES

ORGANISM

Scabies infestation is caused by the mite *Sarcoptes scabiei*. Transmission is by skin-to-skin contact. Mites burrow into the skin where they lay eggs. The offspring crawl out onto the skin, and make new burrows.

CLINICAL PRESENTATION

Any part of the body can be affected.

Symptoms

- ◆ The main symptom, which may take four to six weeks to develop, is a generalised itch, usually worse at night or when the body is warm (e.g. after a shower).
- ◆ The itching is due to a hypersensitivity reaction to the absorption of mite excrement into skin.

Signs

- ◆ An itching rash on the body and limbs. Classic sites of infection are flexures, which are warmer - interdigital folds, the wrists, elbows, knees, buttocks, genital region, and under the breasts.
- ◆ Characteristic silvery lines may be seen where the mite has burrowed, with the mite sometimes visible at the end of the burrow. However, scratching often obliterates the burrow.
- ◆ In the genital region, particularly on the glans penis, the rash becomes papular or nodular.
- ◆ In HIV infection or others with suppressed immune function, or in the elderly, the rash is severe and crusted. These lesions team with mites, and are a significant risk to others.



INVESTIGATIONS

- ◆ Scrapings, taken from the burrows with a fine needle to reveal the mite, may be examined under light microscopy.
- ◆ Usually the rash is characteristic but can be confused with dermatitis or eczema.

TREATMENT

- ◆ Patients should be advised to avoid contact with their partners or other skin-to-skin contact until they have completed treatment, and their partner and any affected household contacts have completed treatment.
- ◆ Patients should be given topical antipruritic creams or tablets. They should be advised that, despite successful treatment, they will continue to itch for a further four weeks due to the debris from the scabies mite in the skin. This advice prevents patients over-treating themselves and, as a result, causing eczema.
- ◆ At night, adults should:
 - wash the entire body with soap and water, then dry
 - apply one of the treatments below, from the neck down.
- ◆ The cream should be rubbed in well and left on for 24 hours, then washed off. The patient may require a second dose of treatment a week later.
- ◆ Usually, advice is also given to wash all currently used underwear, nightclothes, bed linen and bath towels in hot water, and dry them well.

Standard

- ◆ Permethrin 5 per cent cream. Leave on for 24 hours. Repeat in seven days if necessary
OR
- ◆ benzyl benzoate 25 per cent lotion. Leave on for 24 hours. Repeat in seven days if necessary.



Most patients will continue to itch for several weeks, so symptomatic treatment for the itch can be given in the meantime:

- ◆ crotamiton 1 per cent lotion or cream (Eurax)
OR
- ◆ 1 per cent hydrocortisone in calamine cream twice daily.

Scabies in HIV-infected individuals may be resistant to repeated attempts at topical therapy. In these cases use ivermectin 200 mg/kg orally, weekly until scrapings are negative. This is not on the PBS and should be restricted to specialists.

Pregnancy

Permethrin (category B2) is safe during pregnancy.

MANAGEMENT OF PARTNERS

An arbitrary period of two months is quoted for contacts to be notified and treated if symptomatic. All sexual, household and institutional contacts should be treated.

FOLLOW-UP

No follow-up is usually required. If new burrows appear after treatment, then the treatment should be repeated.

Always test for other STIs when sexual transmission is suspected.

PUBLIC HEALTH ISSUES

This is not a notifiable disease.

3.15 TRICHOMONIASIS

ORGANISM

Trichomoniasis is caused by a motile, flagellated protozoan *Trichomonas vaginalis*, which infects the vagina, urethra and paraurethral glands.

CLINICAL PRESENTATION

The condition causes an irritating discharge with associated vulvitis and vaginitis. The discharge is usually profuse, and often frothy. Vaginal pH is >4.5 . Microscopic ulceration is often present on the cervix. Females may be asymptomatic, and males are usually asymptomatic. Unlike other STIs, there is also a higher prevalence in older women in areas where trichomonas infection is prevalent and women can remain infected for some years if not treated.

It is now documented that trichomoniasis is associated with premature rupture of membranes and premature labour, as well as increased risk of HIV transmission. It can also be associated with other inflammatory conditions such as candidiasis.

INVESTIGATIONS

Trichomoniasis can be difficult to demonstrate.

- ◆ Vaginal pH >4.5
- ◆ Gram stain can pick up about 50 per cent of infected females
- ◆ immediate microscopic examination of a wet prep – if facilities are available.



Additional cases can be picked up by Pap smears. More sensitive technologies such as culture and NAT may be useful where available.

TREATMENT

Standard

- ◆ Metronidazole 2 g orally, as a single dose
OR
- ◆ tinidazole 2 g orally, as a single dose with food
OR
- ◆ metronidazole 400 mg orally, 12-hourly for five days.

Advise avoidance of alcohol with either metronidazole or tinidazole treatment and for 24 hours thereafter. If there is relapse, the longer course of metronidazole may be required.

Pregnancy

- ◆ Metronidazole 2 g orally, as a single dose
- ◆ metronidazole 400 mg orally, 12-hourly for five days (category B2). Metronidazole can be used in the first trimester of pregnancy where the benefits outweigh the potential risks.
- ◆ clotrimazole 1 per cent vaginal cream can be used for six days (category A).

MANAGEMENT OF PARTNERS

Trichomoniasis is always an STI and the partner should also be treated. Always check for other STIs. Consider when infection may have occurred.



Trichomoniasis

FOLLOW-UP

Repeat testing after a week is useful. Occasionally, trichomoniasis may inhibit gonococcal detection by culture. Consider retesting for gonorrhoea after treatment.

PUBLIC HEALTH ISSUES

This is not a notifiable disease.

Always test for other STIs.

If a child is diagnosed with an STI, issues of sexual abuse and/or sexual assault should be considered. For further information, see page 10.

