Sexually Transmitted Infections

Urethritis

Organisms

- **Gonococcus**
- **Chlamydia**
- Mycoplasma genitalium*
- Trichomonas vaginalis
- Adenovirus
- Herpes simplex virus
- * not routinely tested for in UK (is done in Australia and Netherlands)

Urethral smear – gram staining (gram-negative diplococci = gonococcus)

Dipstick testing for leucocytes a/w high NPV and low PPV

First voided urine (FVU) for NAAT (nucleic acid amplification testing) for chlamydia

FVU for gram-stain and culture +/- NAAT for gonnococcus

FVU should be after urine holding for at least 2 hours

Management based on organism:

- Chlamydia
  - Azithromycin 1g PO stat dose
  - Doxycycline 100mg PO bd for 7-14 days
  - Alternatively:
    - Erythromycin 500mg PO qds for 14 days
    - Ofloxacin 200mg PO bd for 7 days
- Gonococcus
  - Cefixime 400mg PO stat dose
  - Previously quinolones but high rates of resistance

Current recommendation to cover both organisms – give azithromicin and cefixime as above stat and observe that medication taken. Alternatively 1.5g azithromycin to cover both organisms (however more poorly tolerated and relapse rates higher than combination of meds)

EAU guidelines (2009)

The following guidelines for therapy comply with the recommendations of the Center for Disease Control and Prevention (9-11). The following antimicrobials can be recommended for the treatment of gonorrhoea:

- Cefixime, 400 mg orally as a single dose
- Ceftriaxone, 125 mg intramuscularly (with local anaesthetic) as a single dose
- Ciprofloxacin, 500 mg orally as single dose
- Ofloxacin, 400 mg orally as single dose
- Levofloxacin, 250 mg orally as as single dose.

Please note that fluoroquinolones, such as ciprofloxacin, levofloxacin, and ofloxacin, are contraindicated in adolescents (<18 years) and pregnant women.

As gonorrhoeae is frequently accompanied by chlamydial infection, an antichlamydial active therapy should be added. The following treatments have been successfully applied in *C. trachomatis* infections.

As first choice of treatment:

- Azithromycin, 1 g orally as single dose
- Doxycycline, 100 mg orally twice daily for 7 days.

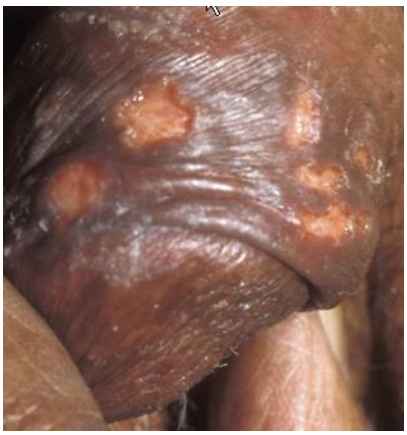
As second choice of treatment:

- Erythromycin base, 500 mg orally four times daily for 7 days
- Erythromycin ethylsuccinate, 800 mg orally four times daily for 7 days
- Ofloxacin, 300 mg orally twice daily for 7 days
- Levofloxacin, 500 mg orally once daily for 7 days.

Genital ulceration

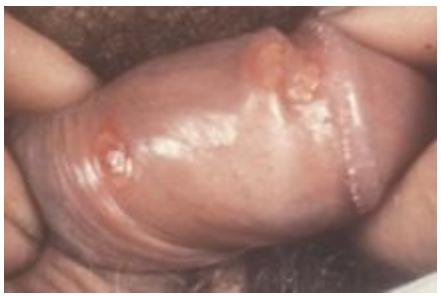
Disease	Lesions	Lymphadenopathy	Systemic Symptoms
Primary syphilis	Painless, indurated, with a clean base, usually singular	Nontender, rubbery, nonsuppurative bilateral lymphadenopathy	None
Genital herpes	Painful vesicles, shallow, usually multiple	Tender, bilateral inguinal adenopathy	Present during primary infection
Chancroid	Tender papule, then painful, undermined purulent ulcer, single or multiple	Tender, regional, painful, suppurative nodes	None
Lymphogranuloma	Small, painless vesicle or papule progresses to an ulcer	Painful, matted, large nodes develop, with fistula tracts	Present after genital lesion heals

<u>Herpes simplex</u>



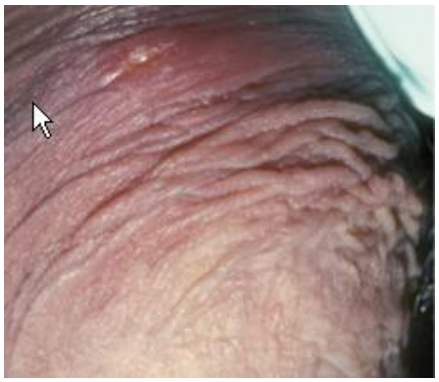
HSV-type 2 in ~90% cases; HSV type 1 in 10%
Incubation period up to 4 weeks
Asymptomatic viral shedding for up to 3 months
HSV-2 a/w higher recurrence rate
Diagnosis clinical and fluid for viral culture or NAAT
Topical Rx ineffective
Oral acyclovir 400mg tds for 10 days (primary infection) and 5 days for recurrences

<u>Chancroid</u>



Haemophilus ducreyi
Incubation period up to 3 weeks
Tender papule which breaks down
Suppurative inguinal nodes
Difficult to culture – NAAT better
Azithromycin 1g orally single dose or cipro for 3 days

<u>Syphillis</u>



Treponema pallidum
Incubation period 10-90 days
Primary
- Single painless ulcer at 3 weeks and lasts 4-6 weeks. Bilateral rubbery nodes. No systemic features
- May result in latent or secondary disease

Secondary
- 10 weeks to 2 yrs after primary syphillis
- Maculopapular rash with condylamata in skin creases

Tertiary
- One third of untreated cases. Systemic disease characterised by gummas

Diagnosis
- Fluid from primary and secondary lesions
  - Dark field microscopy
  - Direct fluorescent antibody testing
- Serology
  - VDRL (non-specific antibody testing)

Sensitivity
86% for primary syphyllis
100% secondary syphyllis
95% tertiary syphyllis
False positive rate ~1-2%. Therefore confirm with treponemal antibody tests
If positive must confirm with T pallidum specific tests (TP-particle agglutination test or TP antibody testing)
NB. T pallidum antibody testing remain positive for life. VDRL correlates with disease activity and becomes negative after ~ one year

Treatment
Primary and secondary syphillis
Benzypenicillin G 2.4MU intramuscularly single dose
(a/w systemic Jerisch-Herxheimer reaction for 24 hours after administration – normal & responds to fluids and NSAIDs)
Alternatively doxycycline 100mg bd for 14 days
Tertiary syphillis
Procaine penicillin G 2.4MU im od and probenecid orally 500mg qds for 10-14 days

<u>Lymphogranuloma venereum</u>
Chlamydia trachomatis subtypes L1,L2, L3
Incubation period 3-30 days
Painless ulcer with painful matted suppurative lymphadenopathy
3 weeks with doxycycline 10mmg po bd or erythromycin 500mg qds

Female vaginal discharge

	Vaginal Discharge	*pH*	*WBC*	*Microscopy*	*Symptoms*
Normal	White, thick, smooth	≤ 4.5	Absent	Lactobacilli	None
Candidiasis	White, thick, curdy	≤ 4.5	Absent	Mycelia	Vulvar pruritus, external or superificial dysuria
Trichomoniasis	Frothy or purulent	≥ 4.5	Present	Mobile trichomonads present	Vulvar erythema and edema, punctate strawberry lesions on cervix
				Amine odor	
Neisseria gonorrhoeae	None or mucopurulent discharge from cervicitis	≥ 4.5	Present	Gram-negative diplococci within or adjacent to polymorphonuclear leukocytes on Gram stain	Vaginal and pelvic discomfort, dysuria, most often asymptomatic
Chlamydia trachomatis	None or mucopurulent discharge from cervicitis	≥ 4.5	Present	Organisms not visualized	Vaginal and pelvic discomfort, dysuria, most often asymptomatic
Bacterial Vaginosis	Thin, white homogeneous	≥ 4.5	Absent	Paucity of lactobacilli (75% of patients)	Fishy odor and increased vaginal discharge
				Amine odor	
				Clue cells	

<u>Trichomonas vaginalis</u>
50% asymptomatic
Green foul smelling vaginal discharge with irritation, dyspareunia and strawberry cervix/vagina
Motile protazoa identifiable on wet mount preparations
Alternatively culture, immunoassay or NAATs

Rx = single dose metronidazole 2g; repeat testing highly recommended. 500mg bd 7 days for non-responders

NB. BV not a sexually transmitted infection. Caused by Bacteriodes spp. Rx with metronidazole

Urological manifestations of HIV/AIDS

Life expectancy in African countries with high population prevalence has fallen due to HIV/AIDS. Some estimate a decrease as much as 15 years by 2000
Incidence in USA has reached plateau ~40,000 new infections/yr in US
Without treatment:

HIV infection	median life expectancy 8 -12 years
AIDS	median life expectancy 2 – 3 years

Death rates in developed countries falling rapidly due to highly-active antiretroviral combination therapy (HAART)
Despite HAART HIV cannot currently be eradicated (areas of poor drug penetration allow reservoirs of evasion
Diagnosis of HIV

HIV RNA detectable from day 12	Sensitivity 100%; specificity 97%
HIV antibody testing (ELISA, W Blot)	100% patients positive at 6 weeks

Staging of disease

Stage 1	Asymptomatic HIV infection
	Persistent generalised lymphadenopathy
Stage 2	Weight loss > 10%
	Skin infections or URTI
Stage 3/4	See appendix for index conditions

Monitoring disease
- Plasma HIV RNA levels correlate with clinical stage
  - Rapid fall with HAART a/w good prognosis; rising levels indicate treatment relapse
- CD4 count

<u>Urological considerations</u>

(i) STIs - especially HSV - common underlying presentation of HIV

(ii) Urolithiasis
- Typically calcium stones
- Occasionally 2' protease inhibitors – most common indinavir
- Indinavir stones form at pH 7 and dissolve at pH 4
- Not seen on plain KUB or CT
- Conservative therapy initially recommended
- Failed conservative Mx mandates ureteroscopy

(iii) HIVAN
- HIV associated nephropathy
- Glomerular disease with proteinuria and renal impairment
- Blacks >> whites (12:1)
- Third commonest cause of ESRF in blacks in certain parts of US
- Bx – focal segmental glomerulosclerosis
- Rx – HAART +/- dialysis

(iv) Neoplasms
- Kaposi's sarcoma (HHSV 8)
- Non-Hodgkin's lymphoma (EBV)
- SCC cervix, anus, penis (HPV mediated)
- Testicular tumours more common (lymphoma)

Appendix

TABLE 1. REVISED WHO CLINICAL STAGING OF HIV/AIDS FOR ADULTS AND ADOLESCENTS

Primary HIV infection

- Asymptomatic
- Acute retroviral syndrome

Clinical stage 1

- Asymptomatic
- Persistent generalized lymphadenopathy (PGL)

Clinical stage 2

- Moderate unexplained weight loss (<10% of presumed or measured body weight)
- Recurrent respiratory tract infections (RTIs, sinusitis, bronchitis, otitis media, pharyngitis)
- Herpes zoster
- Angular cheilitis
- Recurrent oral ulcerations
- Papular pruritic eruptions
- Seborrhoeic dermatitis
- Fungal nail infections of fingers

Clinical stage 3

Conditions where a presumptive diagnosis can be made on the basis of clinical signs or simple investigations

- Severe weight loss (>10% of presumed or measured body weight)
- Unexplained chronic diarrhoea for longer than one month
- Unexplained persistent fever (intermittent or constant for longer than one month)
- Oral candidiasis
- Oral hairy leukoplakia
- Pulmonary tuberculosis (TB) diagnosed in last two years
- Severe presumed bacterial infections (e.g. pneumonia, empyema, pyomyositis, bone or joint infection, meningitis, bacteraemia)
- Acute necrotizing ulcerative stomatitis, gingivitis or periodontitis

Conditions where confirmatory diagnostic testing is necessary

- Unexplained anaemia (<8 g/dl), and or neutropenia (<500/mm³) and or thrombocytopenia (<50 000/ mm³) for more than one month

Clinical stage 4

Conditions where a presumptive diagnosis can be made on the basis of clinical signs or simple investigations

- HIV wasting syndrome
- Pneumocystis pneumonia
- Recurrent severe or radiological bacterial pneumonia
- Chronic herpes simplex infection (orolabial, genital or anorectal of more than one month's duration)
- Oesophageal candidiasis
- Extrapulmonary TB
- Kaposi's sarcoma
- Central nervous system (CNS) toxoplasmosis
- HIV encephalopathy

Conditions where confirmatory diagnostic testing is necessary:

- Extrapulmonary cryptococcosis including meningitis
- Disseminated non-tuberculous mycobacteria infection
- Progressive multifocal leukoencephalopathy (PML)
- Candida of trachea, bronchi or lungs
- Cryptosporidiosis
- Isosporiasis
- Visceral herpes simplex infection
- Cytomegalovirus (CMV) infection (retinitis or of an organ other than liver, spleen or lymph nodes)
- Any disseminated mycosis (e.g. histoplasmosis, coccidiomycosis, penicilliosis)
- Recurrent non-typhoidal salmonella septicaemia
- Lymphoma (cerebral or B cell non-Hodgkin)
- Invasive cervical carcinoma
- Visceral leishmaniasis