Sexually Transmitted Diseases (STDs)

Sexually transmissible diseases

- Chlamydia
- Genital herpes simplex
- Genital warts
- Gonorrhoea
- Syphilis
- Chancroid
- HIV/AIDS
- Pelvic inflammatory disease (PID)
- Epididymo-orchitis
- Nonspecific urethritis (NSU) including Reiter's disease
- Trichomonas Vaginalis (TV)
- Lymphogranuloma venereum
- HPV & Carcinoma of cervix
- Hepatitis B (Occ A and C)
- (Vaginal candidiasis – mostly not STD)
- Also Tinea cruris, pubic lice, scabies, molluscum contagiosum by contact

Risk factors

- Promiscuity
- Working as or using a sex worker
- Failure to use barrier contraceptives
- Young adult
- Homosexual
- IVDA
- People from sub-Sahara Africa
- Social deprivation

Presentations

Urethritis

- Dysuria, urethral discharge, urinary frequency. Arthritis (Reiter's)
- Chlamydia, gonorrhoea, NSU, TV, mycoplasma/ureaplasma spp, HSV1&2 (uncommon)

Cervicitis

- Asymptomatic, may have vaginal discharge
- Chlamydia, gonorrhoea

Vaginal discharge

- Usually **not** STD cause except TV
- Commonly candida, bacterial vaginosis (changes in normal flora), TV

PID

- Pelvic pain, irregular menses, dyspareunia, infertility, may be asymptomatic
- Chlamydia, gonorrhoea, non-STD enaerobes

Anogenital ulcerations

- HSV1&2, syphilis, chancroid, donovanosis, lymphogranuloma venereum

Epididymo-orchitis

- M<35: Chlamydia, gonorrhoea
- M>35: enterobacter, psuedomonas

Prevention of spread

- Appropriate treatment – completing course
- Treatment of asymptomatic contacts
- Screening for other STDs if one discovered.
- Use of condoms
- Ante-natal testing
- Needle exchange

Human Papilloma Virus and Genital Warts

Synonyms: HPV, condylomata acuminata, condyloma acuminata, genital warts, penile warts, vulval warts, labial warts, anogenital warts, vaginal warts, cervical warts

Virology

- Cutaneous manifestation of infection with HPV.
- There are >100 types of these ds-DNA papova viruses
- HPV is transmitted sexually in most cases but prenatally also possible
- Incubation period of several weeks to months (occasionally years)
- An individual's lifetime risk of HPV infection exceeds 50% but most are asymptomatic
- About 90% of genital warts are caused by infection with HPV types 6 & 11.
- Types 16 and 18 are associated with a high risk of neoplastic transformation (cervical, vulva, vagina, penis, and HIV-anal Ca).

Epidemiology

Commonest STD

Risk factors

- Smoking
- Multiple sexual partners
- Early age of onset of sexual intercourse
- Illicit drug use
- Anoreceptive intercourse
- Manual sexual practices such as fisting and fingering
- Immunosuppression

Presentation

Symptoms: Usually painless and asymptomatic lesions, but may itch, burn, bleed or discharge.
Signs: Condylomata acuminata, pedunculated lesions of genital/perineum/perianal areas. Four types (Small papular, Cauliflower floret, Keratotic, Flat-topped papules or plaques)

Investigation

Diagnosis usually clinical. Biopsy and viral typing if Dx uncertain or atypical or to classify risk.

Management

Supportive – counselling, treat partners, mainly self limiting.
Drugs – Podophyllotoxin paint or Imiquimod cream, trichloracetic acid - 50-70% effective
Physical - Cryotherapy, Electrotherapy, Laser therapy, Surgical excision

Prognosis

- Up to 1/3 may resolve/regress spontaneously others remain the same or increase in size.
- Life-long, subclinical infection may persist.
- Warts may recur with or without immunosuppression, especially condylomata.
- 90% of genital warts are caused by HPV types with low risk for neoplastic change.

Prevention

- Condoms – provide only minimal protection
- Vaccination – only treatment that may prevent genital cancer.
    - **Gardasil®** against HPV types 6, 11, 16, and 18.
    - Ideally given pre-pubertally.
    - Good efficacy for 5+ yrs.
    - Still need PAP smears.

Chlamydia

Bacteriology

- Small, obligate-intracellular bacteria similar to Gram-negative bacteria.
- *Chlamydia trachomatis* serovars are responsible for:
  - A-C: Trachoma
  - D-K: Neonatal conjunctivitis/pneumonitis, genitourinary infections
  - L1-L3: Lymphogranuloma venereum (a rare, sexually transmitted tropical infection causing genital ulcers (M) and inguinal lymphadenopathy (M&F))
- Incubation period 1-3wks

Epidemiology

Probably commonest STD after warts, may be as high as ~10-20% prevalence in young adults.

Risk factors

- Age<25
- New sexual partner in the last year
- Non-barrier contraception
- Infection with another STI
- Poor socioeconomic status

Presentation

Symptoms: Asymptomatic in M:50% & F:80%. If symptomatic – F: vaginal d/c, dysuria, vague lower abdominal pain, intermenstrual or postcoital bleed, dyspareunia, infertility. M: urethritis or epididymo-orchitis. M or F: fever, reactive arthritis, Fitz-Hugh-Curtis syndrome, proctitis.
Signs: F: friable, inflamed cervix with contact bleeding, mucopurulent endocervical d/c, abdo tenderness, pelvic adnexal tenderness, cervical excitation. M: epididymal tenderness, mucoid or mucopurulent d/c, perineal fullness/tender prostate

Investigations

- PCR (F: endocervical swab or urine held in bladder for >1hr. M: urine, urethral swab).
- Cell culture or Antigen detection/enzyme immunoassays (EIAs) if PCR not available.
- Investigate for other STDs, check partners (<4wks sympotomatic, <6mo asymptomatic)
- Laboratory notifiable disease.

Management

- **Doxycycline** 100mg bd PO x 7d OR stat dose **azithromycin** 1g PO (improves compliance)
- Alternatively: **erythromycin** 500mg bd x 10-14d if pregnant.
- Longer combination course if PID, epididymo-orchitis, Lymphogranuloma venereum
- Need to abstain from sexual intercourse (including oral sex) even with a condom for a week after single-dose therapy or until finishing a longer regimen.
- Give advice on STDs, safer sexual practices and condom use.

Complications

- PID & infertility - female and possibly male
- Urethral stricture and scarring in men
- Increased risk of cervical carcinoma
- Perihepatitis as part of Fitz-Hugh-Curtis syndrome
- Neonatal ophthalmic infection/pneumonia
- Reiter's syndrome

Gonorrhoea

Bacteriology

- *Neisseria gonorrhoeae* is an intracellular Gram negative diplococcus
- Infects mucous membranes of the urethra, endocervix, rectum, pharynx and conjunctiva.
- Direct contact transmission usually sexually and less commonly perinatally.
- Variable resistance to antibiotics by plasmid.
- Incubation period 3-7d

Epidemiology

Probably 2nd commonest bacterial STD, may be as high as ~2% prevalence in young adults.

Risk factors

- Young age
- History of STI
- New or multiple sexual partners
- Homosexual activity
- Inconsistent condom use
- Indigenous Australians in remote areas
- Traveller sex
- Hx of drug use or commercial sex work

Presentation

M: Urethritis, epididymo-orchitis, proctitis, asymptomatic pharyngitis.
F: Endocervicitis (often asymptomatic), PID, vaginal discharge, abdominal pain. Rarely changes in menstruation, dysuria, rectal & pharyngeal infection normally asymptomatic.
Neonate: conjunctivitis, pneumonitis
Disseminated disease (uncommon <3%): skin lesions (papules, bullae, petechiae and necrotic skin lesions), arthralgia, arthritis and tenosynovitis of the ankles, wrists, hands and feet (Reiter's syndrome). Extremely rarely, meningitis, endo- or myocarditis.

Investigations

Culture – Microscopy (Gram stain). Swabs: urethral (M), endocervical (F), ± anal/oropharynx
PCR: swab or urine.
Also MSU, FBC & blood cultures (if unwell), invs for other STDs.
Laboratory notifiable disease.

Management

General

- Avoid unprotected sexual intercourse until patient & partner completed treatment.
- Partner notification (symptomatic – 2wks, asymptomatic 3mo)
- **Ceftriaxone** 250mg IM stat OR (**amoxycillin** 3g PO plus **probenecid** 1g PO) stat if in area of low resistance
- Disseminated disease **ceftriaxone** 1g IV od OR **cefotaxime** 1g IV q8h x 2d then oral Rx.
- Ophthalmia neonatorum: **cefotaxime** 50mg/kg IV q8h x 7d
- Treat all also for chlamydia unless ruled out.

Complications

- Urethral stricture and bladder-outflow obstruction.
- Local spread→ M: epididymis, prostate (1% or less), F: Bartholin's gland abscess, PID 10-(20%)
- Increased risk of acquiring and transmitting HIV infection.
- Corneal scarring and blindness from neonatal ophthalmic infection.

Syphilis

Bacteriology

- Spirochete *Treponema pallidum* enters via abraded skin or intact mucous membrane
- Syphilis may be congenital (may appear late >2yo) as well as acquired.

Natural History of Acquired Syphilis

- **Primary syphilis:** incubation 2-3 weeks (range 9-90 days): local infection
- **Secondary syphilis:** incubation 6-12 weeks (range 1-6 months): generalised infection
- **Early latent syphilis:** asymptomatic syphilis of <2yrs duration
- **Late latent syphilis:** asymptomatic syphilis of ≥2yrs duration
- **Tertiary syphilis (late symptomatic syphilis):** usually>10-20yrs, neurosyphilis, cardiovascular syphilis, or gummatous syphilis

Epidemiology

- Very uncommon and mostly detected as latent infection. Tertiary form v. rare.
- Early syphilis causes significant morbidity and is an important facilitator of HIV transmission so all diagnosed must be tested for HIV.

Presentation

Primary syphilis

- Typically single painless papule → ulcer (the chancre) with bright red margin.
- Extra-genital sites are the lips, mouth, buttocks and fingers.
- Regional painless lymphadenopathy.

Secondary syphilis

- Mild systemic symptoms e.g. night time headaches, malaise, slight fever and aches.
- There may also be mucocutaneous lesions and lymphadenopathy.
- Rash: macular rash of palms, soles and face. Becomes papular & spreads trunk→limbs.
- Condylomata lata (pink or grey discs) in moist warm areas. Painless & highly infectious.
- Less common presentations include patchy alopecia, anterior uveitis, meningitis, cranial nerve palsies, hepatitis, splenomegaly, periosteitis and glomerulonephritis.
- 80% go on to latent asymptomatic stage in 50% of which persists for life.

Early/Late latent syphilis

- Positive syphilis serology without other clinical evidence of active disease.

Tertiary syphilis

- Neurological syphilis:
    - Asymptomatic neurosyphilis: abnormal CSF but with no symptoms or signs.
    - Symptomatic neurosyphilis: most commonly - dorsal column loss (tabes dorsalis), dementia (general paralysis of the insane) and meningovascular involvement.
- Cardiovascular syphilis:
    - Aortitis (usually involves root ± distal extension)
    - Aortic regurgitation, aortic aneurysm and angina.
- Gummata:
    - Inflammatory fibrous nodules or plaques in skin, bone and liver.

Investigations

- Demonstration of T. pallidum from lesions or infected lymph nodes in early syphilis:
    - Dark field microscopy
    - Direct fluorescent antibody (DFA) test

    - Polymerase chain reaction (PCR)
- Non-treponemal tests (incubation period is 4wks).
    - Used for screening or as measure of disease activity in known case
    - Many false positives
    - Rapid plasma reagin (RPR) or Venereal Disease Reference Laboratory (VDRL).
- Treponemal tests:
    - Screening: T. pallidum particle agglutination or haemagglutination assays (TPPA, TPHA) ater incubation period 4-6wks
    - Enzyme immunosorbant assay (EIA) IgG: incubation 3wks. Remains +ve after Rx.
    - Fluorescent treponemal antibody absorption (FTA-ABS) test; is reactive in 85% of primary cases, in 99-100% of secondary cases, and in 95% of latent or late cases. It should be used as a confirmatory test for positive VDRL or RPR test findings.
- LP if neurological or ophthalmic signs of symptoms

Management

- Treatment should be within an STD clinic with enquiries about sexual contacts.
- Regular surveillance offered incl testing for HIV & other STDs.
- Notifiable disease.
- 1°/2°/early latent syphilis: **benzathine penicillin** 1.8g IM stat, or **procaine penicillin** 1g IM od x 10d. Alternatively **doxycycline** 100mg bd PO x14d.
- Late latent syphilis: **benzathine penicillin** 1.8g IM weekly x 3 doses or **procaine penicillin** 1g IM od x 15d. Alternatively **doxycycline** 200mg bd x 28d.
- Tertiary syphilis: **benzylpenicillin** 1.8g IV q4h x 15d
- Congenital syphilis: **benzylpenicillin** 50mg/kg IV/IM bd x 10d

Jarisch-Herxheimer reaction

- Is a 24h reaction to Rx: acute 24h fever with headache, myalgia, chills and rigors.
- It is uncommon in late syphilis but may be life threatening.
- Treatment is with prednisolone and antipyretics.

Prevention of syphilis

- Treatment of asymptomatic contacts
- Use of condoms

Congenital (intrauterine) syphilis

- 70-100% transmission if untreated maternal early syphilis with 33% stillbirths
- Early (<2yo): rash including condylomata lata, perioral fissures, vesiculobullous lesions, snuffles, haemorrhagic rhinitis, osteochondritis, periostitis, pseudoparalysis, mucous patches, hepatosplenomegaly, generalised lymphadenopathy, glomerulonephritis, neurological or ocular involvement, haemolysis, thrombocytopenia.
- Late (≥2yo): interstitial keratitis, Clutton's joints (arthritis of knees), Hutchinson's incisors, mulberry molars, high palatal arch, rhagades, deafness, frontal bossing, short maxilla, protuberance of mandible, saddle nose deformity, sterno-clavicular thickening, paroxysmal cold haemoglobinuria, neurological or gummatous involvement.

Investigations:

- Serological tests that detect IgG may be positive from maternal antibodies.
- A positive anti-treponemal EIA IgM is indicative of congenital infection.
- Serological tests may be negative if infected in late pregnancy and should be repeated.

Other STDs

Herpes genitalis

See Human Herpes Viruses document.

HIV/AIDS

See HIV document.

Viral hepatitis

See Hepatitis document.

Chancroid

- This is the 3rd of the classical "venereal diseases" (gonorrhoea & syphilis are the others)
- Caused by the Gram-negative bacillus *Haemophilus ducreyi*.
- Endemic in Africa, Asia and South America, and is more common in uncircumcised men,
- Common co-existing infections are HIV, syphilis and HSV-2.
- Difficult to isolate in culture, but short Gram-negative rods on microscopy.
- Presents as a soft, painful chancre that resembles the lesions of genital herpes.
- Painful lymphadenopathy in the groin occurs in 50%.
- Rx: **azithromycin** 1g PO OR **ciprofloxacin** 500mg PO stat.

Trichomonas vaginalis

- Flagellated protozoan found in the urethra and genital tract of both men and women.
- Asymptomatic in up to 50% of both sexes
- In women vaginal discharge common (but classical frothy yellow d/c only 10-30%), vulval itching, dysuria, or an offensive odour.
- In men it may cause urethral discharge and dysuria but discharge is rarely profuse.
- Rx: **metronidazole**, 400mg PO bd x 5-7d OR 2g PO stat.

Epididymo-orchitis

- Usually sexually transmitted in men of less than 35 years old.
- *Chlamydia trachomatis* and *Neisseria gonorrhoeae* are the common organisms.
- Unilateral testicular pain and swelling ± urethral discharge.
- Mx: Scrotal support and NSAIDs. Antibiotics: **ceftriaxone** 250mg IM OR **ciprofloxacin** 500mg PO stat then **doxycycline** 100mg PO bd x 10-14d.

Donovanosis (granuloma inguinale)

- Tropically acquired STD caused by *Klebsiella granulomatis*.
- Painless red papules → granulomatous ulcers on the genitals and inguinal creases.
- Diagnosis is by histology of biopsy for typical Donovan bodies.
- Treatment is with 3wks of **tetracycline** or **erythromycin**.