SEXUALLY TRANSMITTED DISEASES

STD ARE A MAJOR PUBLIC HEALTH PROBLEM. THE PRIMARY E.D. GOAL IS TO DIAGNOSE AND TREAT STD, BUT IMPORTANT SECONDARY GOALS ARE PROTECTION OF THE HEALTH AND FUTURE FERTILITY OF THE PATIENT

DIAGNOSIS OF ANY STD WARRANTS FURTHER TESTING FOR HIV AND HBV

GENERAL PRINCIPLES FOR DIAGNOSIS AND SCREENING

- Most important aspect of STD diagnosis is AWARENESS as signs and symptoms may be obvious (genital lesion, discharge) or more subtle (dyspareunia, lower abdominal pain, dysuria, abnormal periods)
- High risk populations, susceptible to high morbidity:
  - Young women (15-24)
  - Pregnant women
  - Homosexual men
- History focuses on FIVE MAIN AREAS → partners, prevention, protection, practices, history of STD (see below):

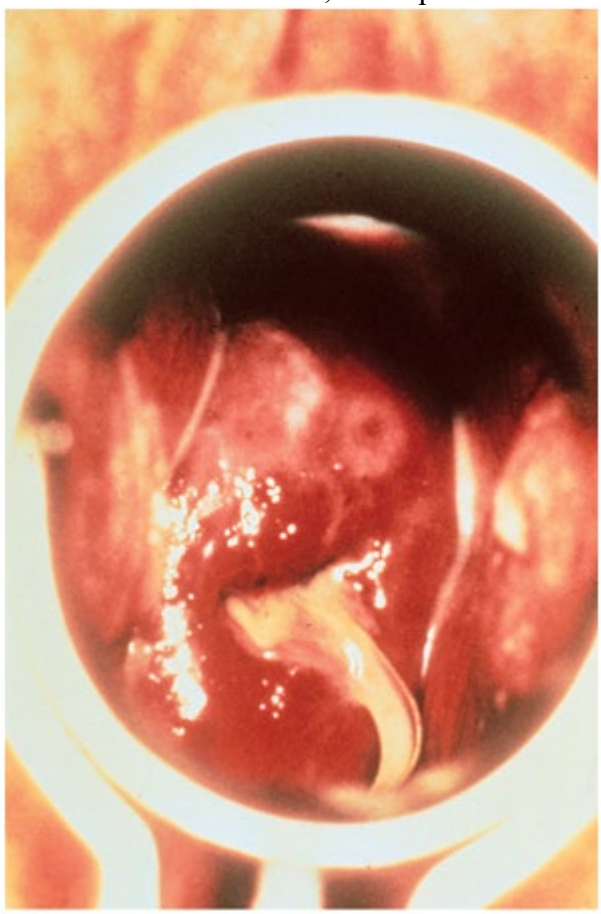
Table 144-1 Centers for Disease Control and Prevention Recommended Questions for the Five PS of Sexually Transmitted Disease (STD) Prevention
1. ***P***artners
"Do you have sex with men, women, or both?"
"In the past 2 months, how many partners have you had sex with?"
"In the past 12 months, how many partners have you had sex with?"
2. ***P***revention of pregnancy
"Are you or is your partner trying to get pregnant?"
If no, "What are you doing to prevent pregnancy?"
3. ***P***rotection from STDs
"What do you do to protect yourself from STDs and human immunodeficiency virus infection?"
4. ***P***ractices
"To understand your risks for STDs, I need to understand the kind of sex you have had recently."
"Have you had vaginal sex, meaning 'penis in vagina sex'?"
If yes, "Do you use condoms never, sometimes, or always?"
"Have you had anal sex, meaning 'penis in rectum or anus sex'?"
If yes, "Do you use condoms never, sometimes, or always?"
"Have you had oral sex, meaning 'mouth on penis or vagina'?"
For condom answers:
If "never": "Why don't you use condoms?"
If "sometimes": "In what situations or with whom do you not use condoms?"
5. ***P***ast history of STDs
"Have you ever had an STD?"
"Has any of your partners had an STD?"
"Have you or has any of your partners ever injected drugs?"
"Has any of your partners exchanged money or drugs for sex?"

- In women, perform a speculum exam, bimanual and rectal examination
- Be aware that multiple STDs occur together, so if you find one, screen for others

STD THAT PRESENT WITH URETHRITIS, CERVICITIS AND/OR DISCHARGE:

- THESE INCLUDE:
  - Chlamydia

    - Gonorrhoea
    - Nongonococcal urethritis
    - Trichomonas
- CHLAMYDIA:
    - CLINICAL FEATURES:
        - C. trachomatis is the most frequently reported STD
        - Commonly co-exists with gonorrhoea
        - Most prevalent in those <25
        - At least 50% of infected men and 70% of infected women are ASYMPTOMATIC
        - In men Chlamydial infections can cause → urethritis, epididymitis, proctitis or Reiter syndrome (urethritis, conjunctivitis, rash)
        - Women generally have asymptomatic cervicitis with vaginal discharge, bleeding between menses, dysuria
        - Consider diagnosis in differential for sterile pyuria
        - Complications → PID, ectopic pregnancy, infertility
    - DIAGNOSIS:
        - Non-culture methods preferred→ ELISA, immunofluorescence, PCR → 90% sensitive, 99% specific



MUCOPURULENT CERVICITIS

- TREATMENT:

Chlamydial or other nongonococcal infection

For treatment of chlamydial or other nongonococcal infection, use:

1 **azithromycin 1 g orally, as a single dose**

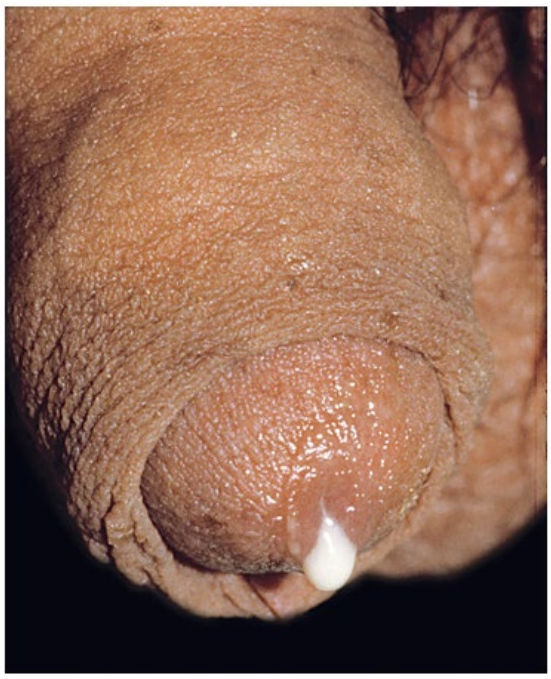
OR

2 **doxycycline 100 mg orally, 12-hourly for 7 days.**

  - TWO REGIMES ABOVE ARE EQUALLY EFFICACIOUS
  - Azithromycin is safe in pregnancy, but amoxil is a safe alternative if azithromycin is not tolerated
  - Refer sexual partners for treatment and screening
  - Counsel avoidance of sexual contact for 7 days after cessation of antibiotics and get women re-tested at three months

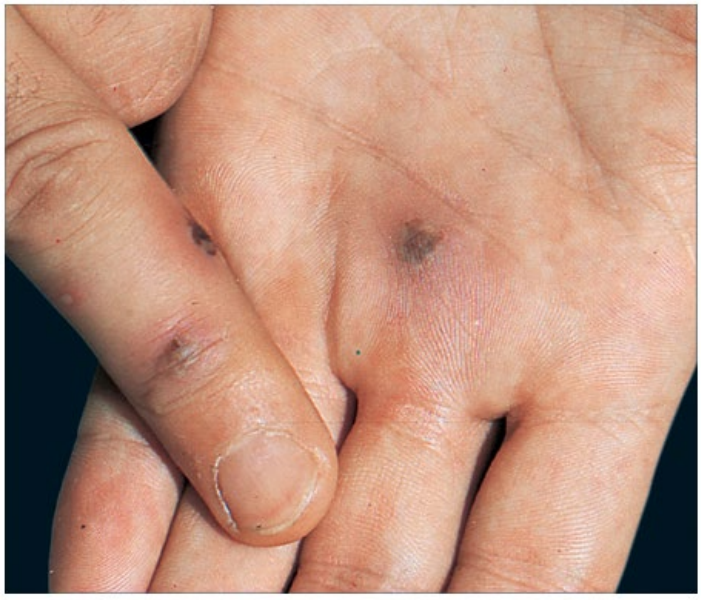
GONOCOCCAL INFECTIONS:

- Second most commonly reported STD
- Infective agent is NEISSERIA GONORRHOEAE, a gram negative diplococcus
- CLINICAL FEATURES:
  - Most women are asymptomatic
  - Subclinical infections can lead to complications such as PID, chronic pelvic pain, ectopic pregnancy
  - Women tend to present with nonspecific lower abdominal pain and mucopurulent cervicitis 7-14 days post exposure
  - 80-90% of men develop symptoms with in 2 weeks of exposure → dysuria and profuse purulent penile discharge



GONOCOCCAL URETHRITIS

- Rectal involvement in 30-50% of women and can be only sit eof involvement in homosexual men.
- Can colonise the pharynx but rarely causes pharyngitis
- DISSEMINATED GONOCOCCAEMIA:
  - Pustular acral skin lesions on erythematous base



  - Asymmetric arthralgias/septic arthritis
  - Fever/malaise
- Infection is associated with increased shedding of HIV

- DIAGNOSIS:
  - Gram staining of discharge is diagnostic when it confirms classic intracellular gram-negative diplococci
  - Current recommendations are for nucleic acid amplification testing on vaginal, urethral, cervical or urinary speciments

- Diagnosis of disseminated gonococcaemia more difficult as only 20-50% of blood, lesion and joint specimens yield positive results

- TREATMENT:

Gonococcal infection

If penicillin and fluoroquinolone resistance of *N. gonorrhoeae* are common (as in most urban centres in Australia), use:

ceftriaxone 500 mg in 2 mL of 1% lignocaine IM, or 500 mg IV, as a single dose [Note 2]

PLUS EITHER (if chlamydial infection has not been ruled out on NAT)

1 **azithromycin 1 g orally, as a single dose**

OR

2 **doxycycline 100 mg orally, 12-hourly for 7 days.**

Ciprofloxacin 500 mg orally, as a single dose (as an alternative to ceftriaxone) is no longer recommended unless a susceptible strain has been identified.

Where penicillin resistance of *N. gonorrhoeae* is less common (eg in remote areas of Australia), use:

amoxycillin 3 g orally, as a single dose

PLUS

probenecid 1 g orally, as a single dose

PLUS (if chlamydial infection has not been ruled out)

azithromycin 1 g orally, as a single dose.

  - **FLUOROQUINOLONES NO LONGER RECOMMENDED DUE TO EMERGING RESISTANCE**
  - Gonococcaemia requires hospitalisation and IV ceftriaxone or IV cefotaxime

NONGONOCOCCAL URETHRITIS:

- Diagnosed when GONORRHOEA IS EXCLUDED AS CAUSE OF URETHRITIS, usually by C. trachomatis but other causes include:
  - Ureaplasma urealyticum
  - Mycoplasma genitalium
  - Trichomonas vaginalis
- TRICHOMONAL INFECTIONS:
  - T. vaginalis is a flagellated protozoan that causes urogenital infections, mostly in women. High prevalence with other STD
  - CLINICAL FEATURES:
    - Incubation ranges from 3-28 days and can either be asymptomatic carrier to severe, inflammatory disease
    - Most often characterised by vulvar irritation and malodorous, thin watery discharge → dyspareunia, burning, dysuria/frequency also common
  - DIAGNOSIS:
    - Requires wet specimen to detect motile protozoans, but even these are only 60-70% sensitive and it can take 7 days
  - TREATMENT:

1 **metronidazole 2 g orally, as a single dose**

OR

1 **tinidazole 2 g orally, as a single dose.**

For cases that relapse after this treatment, a longer course of metronidazole may be necessary. Use:

metronidazole 400 mg orally, 12-hourly for 5 days.

- Above regimens have cure rates of ~82-88%

- Advise avoidance of alcohol due to disulfiram-like reactions
- Metronidazole is category B pregnancy drug → single dose sufficient

STD PRESENTING WITH GENITAL ULCERS:

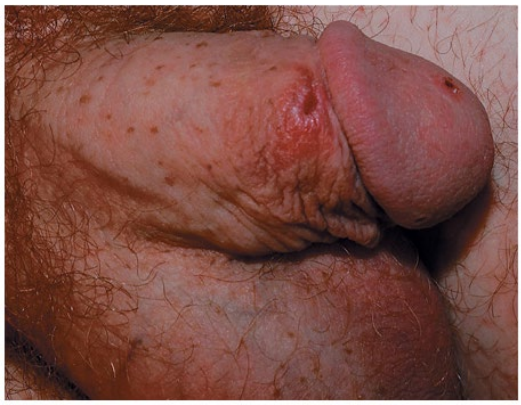
- THESE INCLUDE:
  - Syphilis
  - Herpes simplex
  - Chancroid
  - Lymphogranuloma venereum
  - Granuloma inguinale (donovanosis)

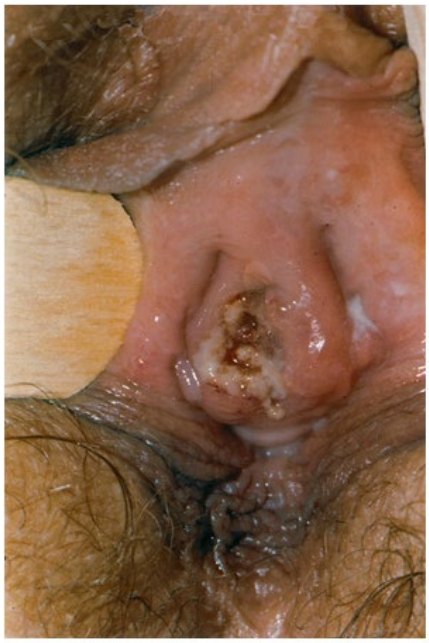
Table 144-3 Clinical Features of Genital Ulcerative Diseases

Disease	Clinical Diagnosis	Presence of Pain	Inguinal Adenopathy	Comment
Syphilis	Indurated, relatively clean base; heals spontaneously	No	Firm, rubbery, discrete nodes; not tender	Primary: chancre
				Secondary: rash, mucocutaneous lesions, lymphadenopathy
				Tertiary: cardiac, ophthalmic, auditory, central nervous system lesions
Herpes simplex virus infection	Multiple small, grouped vesicles coalescing and forming shallow ulcers; vulvovaginitis	Yes	Tender bilateral adenopathy	Cytologic detection insensitive; false negative culture results common; type-specific serologic test
Chancroid (*Haemophilus ducreyi*)	Multiple painful, irregular, purulent ulcers with potential exudative base	Yes	50% painful, suppurative, inguinal lymph nodes potentially requiring drainage	Cofactor for human immunodeficiency virus transmission; 10% have coinfections with herpes simplex virus infection or syphilis
Lymphogranuloma venereum	Small and shallow ulcer, associated proctocolitis with fistulas and strictures	No	Tender lymph nodes	Caused by *Chlamydia trachomatis* L1, L2, L3
Granuloma inguinale (donovanosis)	Painless, beefy red, bleeding ulcers	No	No	Endemic in Africa, Australia, India, New Guinea; rare in U.S.

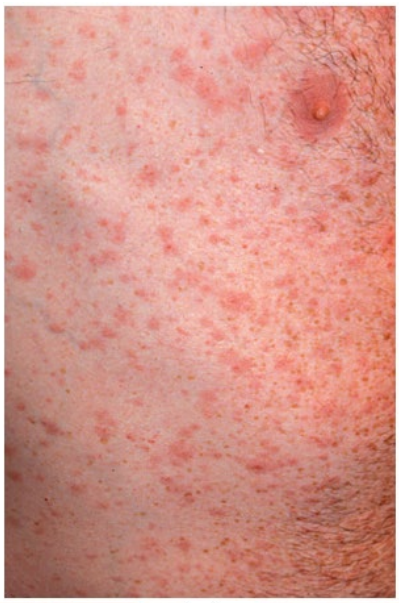
SYPHILIS:

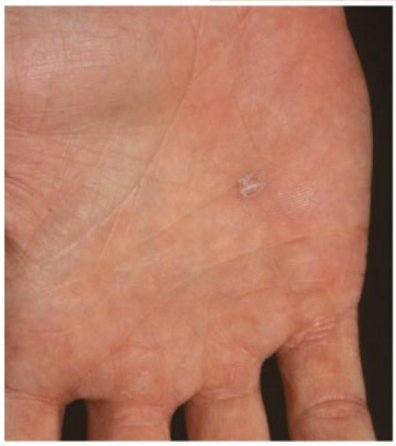
- Caused by TREPONEMA PALLIDUM, a spirochete
  - This remains very sensitive to penicillin
- CLINICAL FEATURES:
  - Three stages → primary, secondary and tertiary
  - PRIMARY SYPHILIS:
    - The CHANCRE → painless chancre with indurated borders on the penis or other areas of sexual contact
    - Incubation period ~21 days with lesions disappearing in 3-6 weeks
    - No constitutional symptoms and the lesion may even be absent

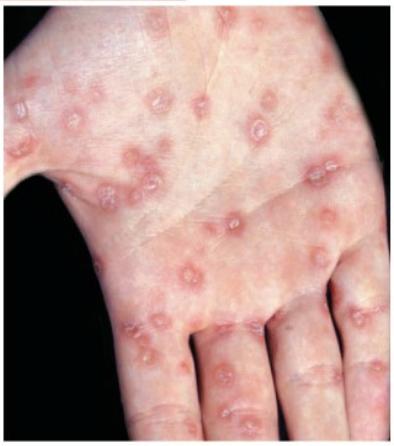




- SECONDARY SYPHILIS:
  - Occurs 3-6 weeks after end of primary stage and is characterised by RASH AND LYMPHADENOPATHY
  - Nonspecific symptoms include sore throat, malaise, fever and headaches
  - Rash starts on trunk and flexor surface of extremities and spreads to palms and soles







    - Rash takes on red-pink/popular appearance and RESOLVES SPONTANEOUSLY
- TERTIARY (LATENT) SYPHILIS:
    - Seen in about 1/3 of patients who have had secondary syphilis and occurs 3-20 years after initial infection
    - INVOLVEMENT OF CVS AND CNS IS CHARACTERISTIC:
        - Meningitis
        - Dementia
        - Neuropathy (tabes dorsalis)
        - Thoracic aneurysm
    - Gummata (widespread granulomatous disease) also occurs
- DIAGNOSIS OF SYPHILIS:
    - T. pallidum cannot be cultured
    - Use VDRL or RPR (rapid plasma regain) → generally correlate with disease activity
    - Darkfield microscopy of skin lesions or exudates are definitive for early diagnosis but failure to identify organism does not rule out syphilis
    - A presumptive diagnosis is made if RPR or VDRL are positive and is supported by a positive treponemal antibody test
- TREATMENT:

For treatment, use:

1 **benzathine penicillin 1.8 g (= 2.4 million units) IM, as a single dose**

OR

2 **procaine penicillin 1.5 g IM, daily for 10 days.**

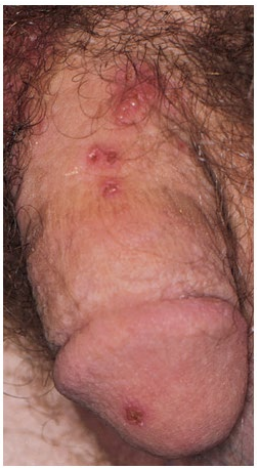
For nonpregnant patients who are hypersensitive to penicillin (see Table 2.2), in whom desensitisation is not feasible, use:

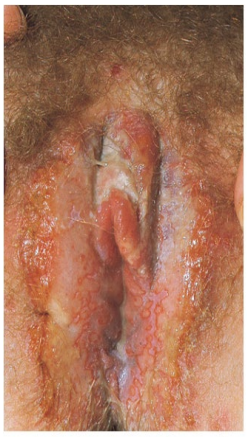
doxycycline 100 mg orally, 12-hourly for 14 days.

- **For pregnant patients, use only parenteral penicillin as doxycycline is contraindicated. If pregnant women have a penicillin allergy, THEY MUST BE DESENSITISED**

HERPES SIMPLEX INFECTIONS:

- HSV-1 AND HSV-2 are lifelong infections that can cause genital herpes
- Most genital infections are caused by HSV-2, but only 10-25% of people who are seropositive report a history of genital herpes.
- Most infected people have unrecognised symptomatic or asymptomatic infections
- CLINICAL FEATURES:
    - CLASSIC OUTBREAKS:
        - Begin with a prodrome lasting 2-24 hours, characterised by localised or regional pain, tingling/burning
        - ~80% of primary infections are accompanied by constitutional symptoms
        - As the disease progresses, papules and vesicles on an erythematous base become apparent → vesicles erode in hours to days
            - In women they occur on the introitus, urethral meatus, labia
            - In men on glans or shaft of penis
            - EXQUISITELY PAINFUL
        - Dysuria is common in women and can progress to urinary retention
        - Viral shedding persists for 10-12 days and the disease can be transmitted despite the absence of ulcers



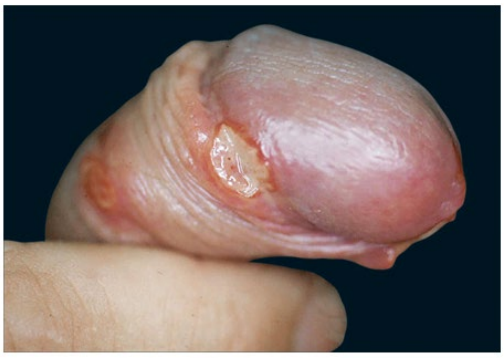


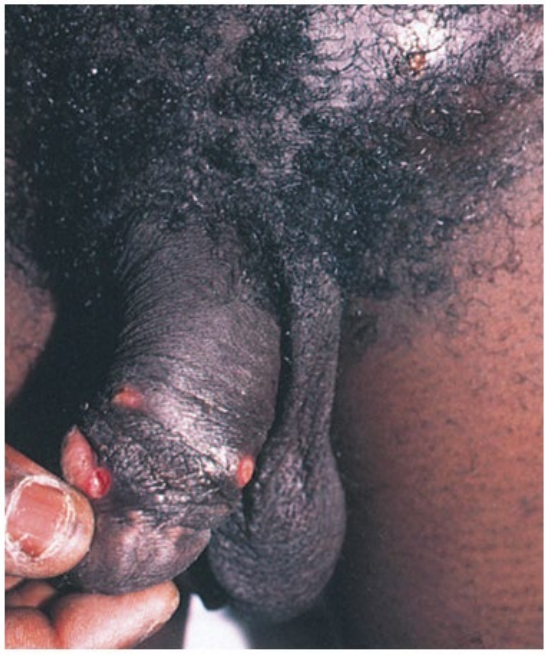
- DIAGNOSIS:
    - Usually clinical

    - Can puncture the vesicle and swab the fluid, but lack of HSV detection does not rule out infection, because shedding is intermittent
- TREATMENT:
    - Treatment hastens recovery and decreases period of shedding but DOES NOT CURE
    - FIRST EPISODE:
        - For first episodes, treat with acyclovir, famciclovir or valaciclovir (fam/val have high oral bioavailability, hence no advantage with IV preparations).
    - RECURRENT EPISODES:
        - Treat recurrence with same agents, but at reduced doses
        - Begin treatment within one day of symptoms
        - Suppressive treatment for people with greater than 6 episodes per year

CHANCROID:

- Caused by Haemophilus ducreyi
- Characterised by painful genital ulcers and lymphadenitis
- If found, search for other STD (including HIV as it is a cofactor, more so than other ulcerative diseases)
- CLINICAL FEATURES:
    - Painful, erythematous papule appears → followed by erosion, ulceration and often pustular lesion (NOT VESICULAR)

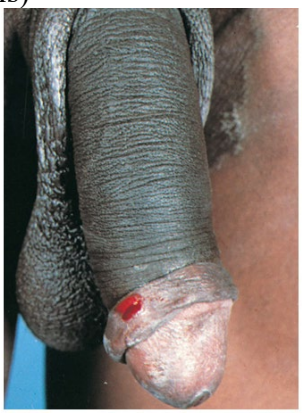




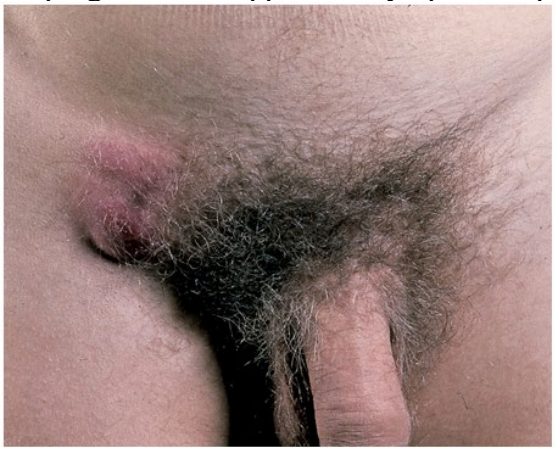
- DIAGNOSIS:
    - Generally on clinical grounds, but exclude HSV, syphilis first
    - Swab of a lesion or pus from a suppurative lymph node → requires special medium and sensitivity is only 80%
- TREATMENT:
    - Incision and drainage followed by azithromycin PO (single dose) or ceftriaxone IM (single dose) → if unable, three days of ciprofloxacin

LYMPHOGRANULOMA VENEREUM:

- Caused by three serotypes of Chlamydia trachomatis
- Endemic worldwide
- CLINICAL FEATURES:
    - Painless primary chancre is almost never noticed and lasts only 2-3 days (c/w syphilis)



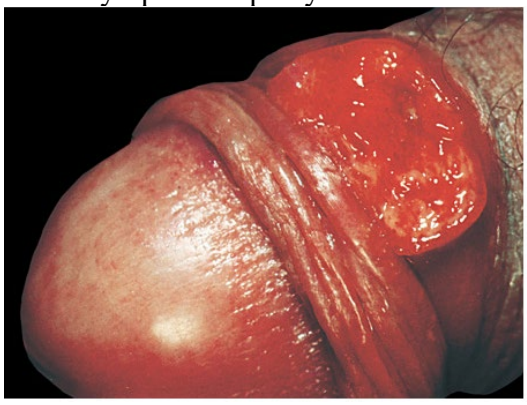
    - Appearance of unilateral inguinal lymphadenopathy 1-3 weeks later that often progresses to suppurative lymphadenopathy



    - Can easily be confused with other ulcerative diseases
    - Facilitates acquisition and transmission of HIV
- TREATMENT → doxycycline for 21 days. Buboes may require I&D

GRANULOMA INGUINALE (DONOVANOSIS):

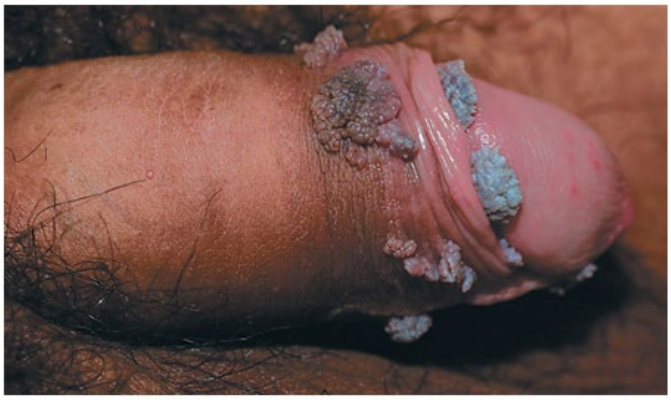
- Caused by Klebsiella granulomatis
- Subcutaneous nodules that are highly vascular and become BEEFY RED. Often associated with lymphadenopathy.

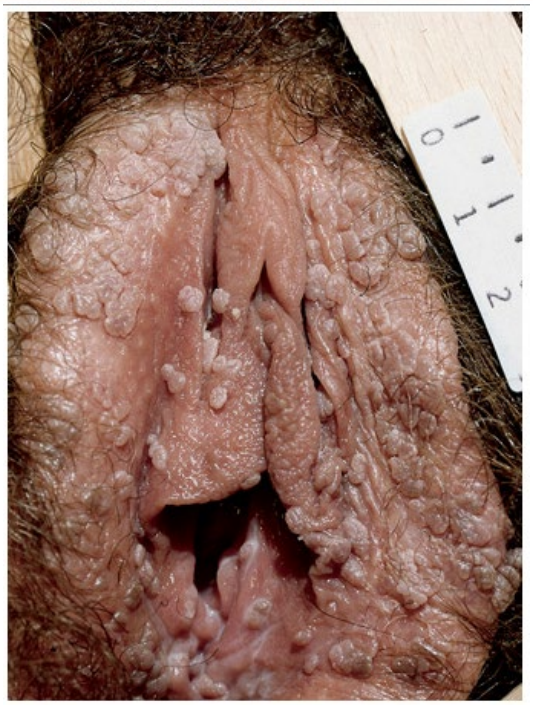


- Diagnosis requires visualisation of DONOVAN BODIES ON TISSUE BIOPSY
- Doxycycline for three weeks halts progression, but longer treatment duration for complete healing

GENITAL WARTS:

- There are over 40 different genotypes of HPV → clinically important as they cause warts and some strains cause cancer (cervical, anal, typically genotypes 16 and 18)





- Treatment is based on size and number
- Treatment decreases viral load but is not a cure → imiquimod, podofilox or cryotherapy