Sexually Transmitted Infections

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Sexually Transmitted Infections

1. Syphilis
2. Gonorrhoea
3. Chancroid
4. Lymphogranuloma Venereum
5. Donovanosis "Granuloma inguinale"
6. Genital Herpes (HSV-2)
7. Genital Warts (Condyloma accuminata).
8. Hepatitis B.
9. Molluscum contagiosum.
10. HIV and AIDS
11. Pubic Lice
12. Scabies
13. Trichomoniasis
14. Candidiasis
15. Non-gonococcal urethritis

Bacterial Sexually Transmitted Diseases		
1	Syphilis	Treponema pallidum
2	Gonorrhoea	Neisseria gonorrhoea
3	Chancroid	Haemophilus ducreyi
4	Lymphogranuloma venerum	Chlamydia trachomatis
5	Granuloma inguinale	Klebsiella granulomatis
Viral Sexually Transmitted Diseases		
1	Condyloma accuminata	HPV
2	Molluscum contagiosum	MCV
3	Herpes genitalis	HSV type II
4	AIDS	HIV
5	Viral Hepatitis	Hepatitis C & B virus
Parasitic Sexually Transmitted Diseases		
1	Scabies	Sarcoptes scabiei
2	Pediculosis pubis	Phthirus pubis
Protozoal Sexually Transmitted Diseases		
1	Trichomoniasis (NGU)	Trichomonis vaginalis
2	Giardiasis	Giardia lambelia
Fungal sexually Transmitted Diseases		
1	Vulvovaginal candidiasis	Candida albicans

Definition of Syphilis

- **Syphilis** is a sexually transmitted infectious disease caused by the *spirochete* bacteria called ***Treponema pallidum*** .
- The great immitator(many of the signs and symptoms of syphilis are indistinguishable from those of many other diseases).
- **Has a highly variable clinical course**

Syphilis is transmitted by:

1. ***Sexual contact*** (Commonest mode)
2. ***Vertical:*** from mother to fetus in utero or birth lead to congenital syphilis
3. ***Accidental transmission*** : ► ***Blood products transfusion*****.**

   ►**Through breaks in the skin that come into contact with infectious lesions by examining doctors or nurses**

- If untreated, it progresses through ***4 stages: primary, secondary, latent, and tertiary.***
- Since the discovery of *penicillin* in the mid-20th century, the spread has been largely controlled, but efforts to eradicate the disease entirely have been unsuccessful.

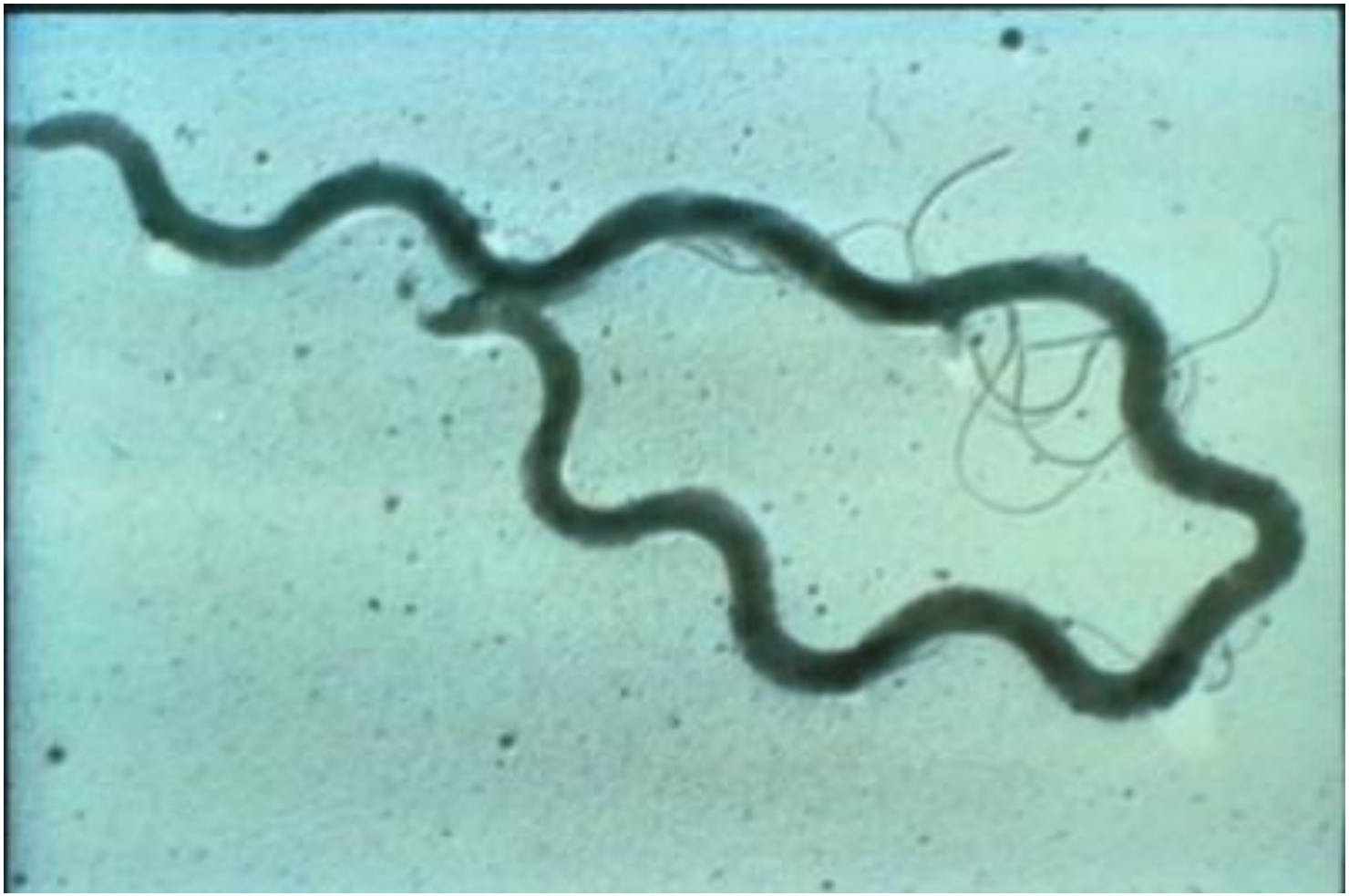
Microbiology

- Etiologic agent: **Treponema pallidum**
- Fragile spiral bacterium 6-15 micrometers long by 0.25 micrometers in diameter.
- Number of spirals varies from 4 to 14, Corkscrew-shaped, motile microaerophilic bacterium .
- Replication time 33 hours.
- ***Motility has three movements:***

1. Corkscrew rotation in the direction of the long axis
2. Forward and backward
3. Bending

- Its small size makes it *invisible on light microscopy*; therefore, it must be identified by its distinctive undulating movements on ***darkfield microscopy(darkground illumination)(DGI).***
- ***Cannot be cultured in vitro***
- It can survive only briefly outside of the body; thus, transmission almost always requires direct contact with the infectious lesion.
- T pallidum is a labile organism that cannot survive drying or exposure to disinfectants,soaps thus, fomite transmission (e.g. from toilet seats) is virtually impossible.

Treponema pallidum



Electron photomicrograph, 36,000 x.

STAGES OF SYPHILIS

A.Acquired:

- **Early**

1. **Primary**
2. **Secondary** **(Primary and secondary syphilis are the most infectious stages)**
3. **Latent**

- **Late** :- **latent**

Tertiary

May involve any organ, but main parts are:

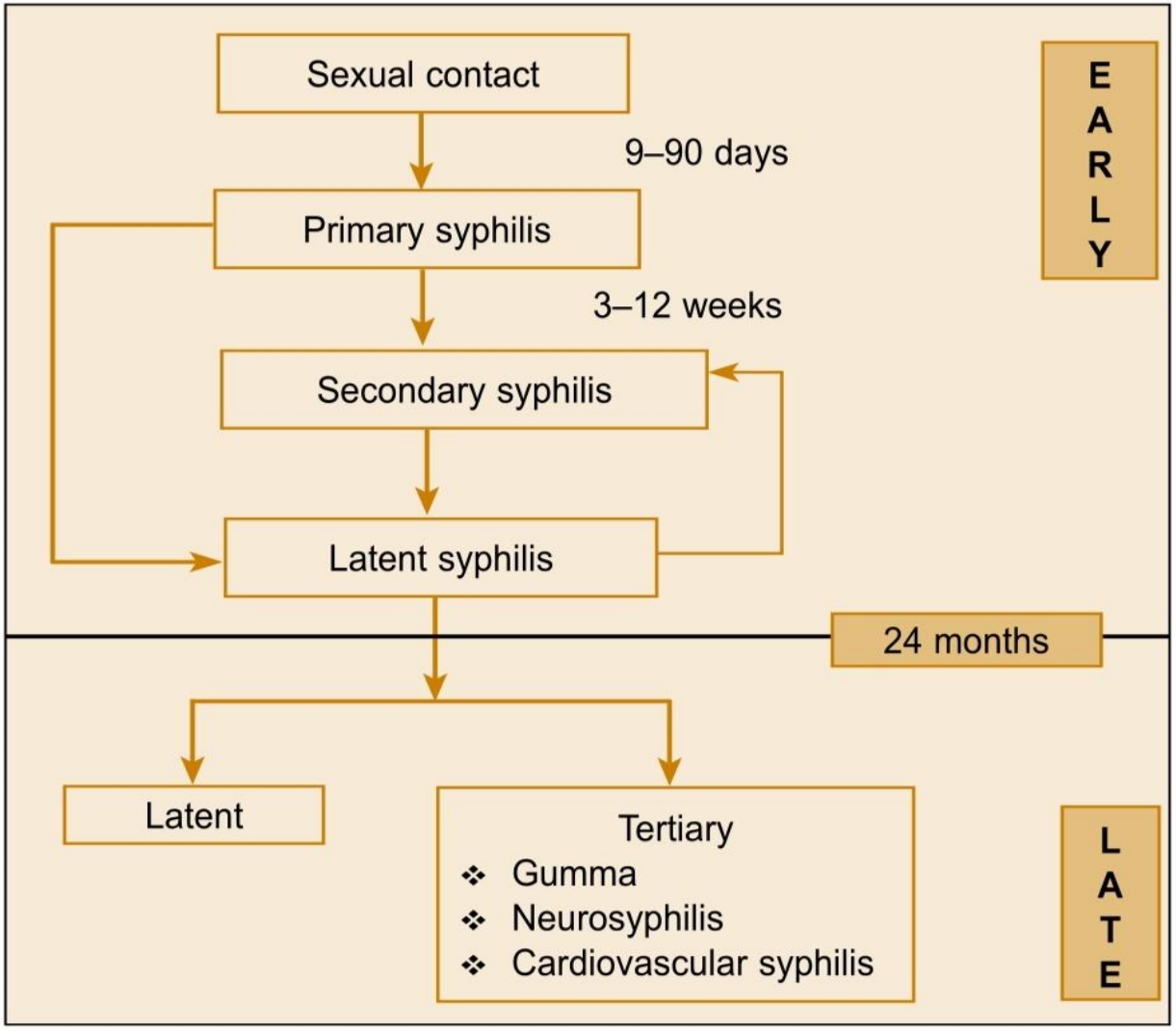
- Neurosyphilis
- Cardiovascular syphilis
- Late benign (gumma)

B.Congenital:

1.Early

2.Late.

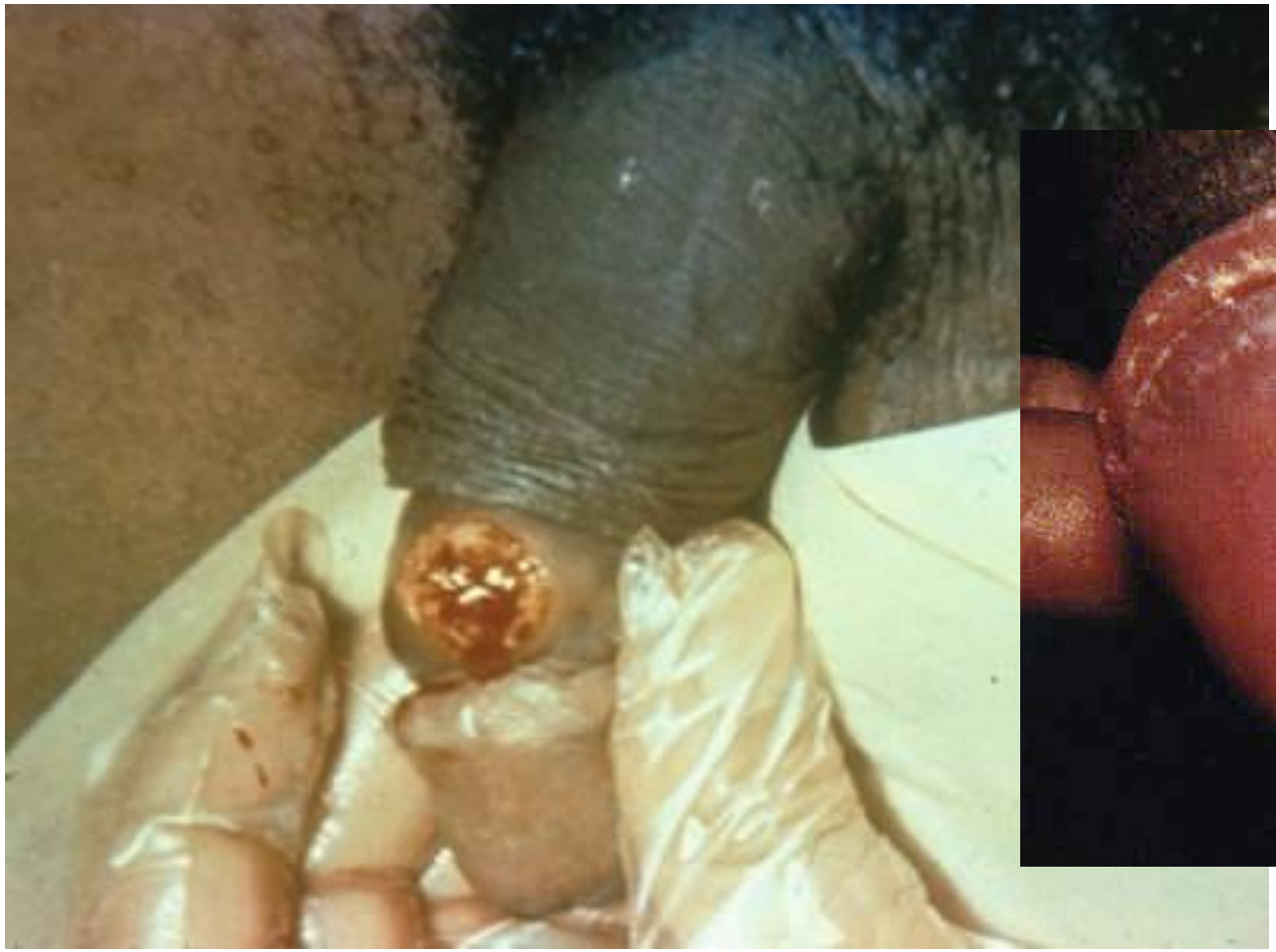
STAGES OF ACQUIRED SYPHILIS

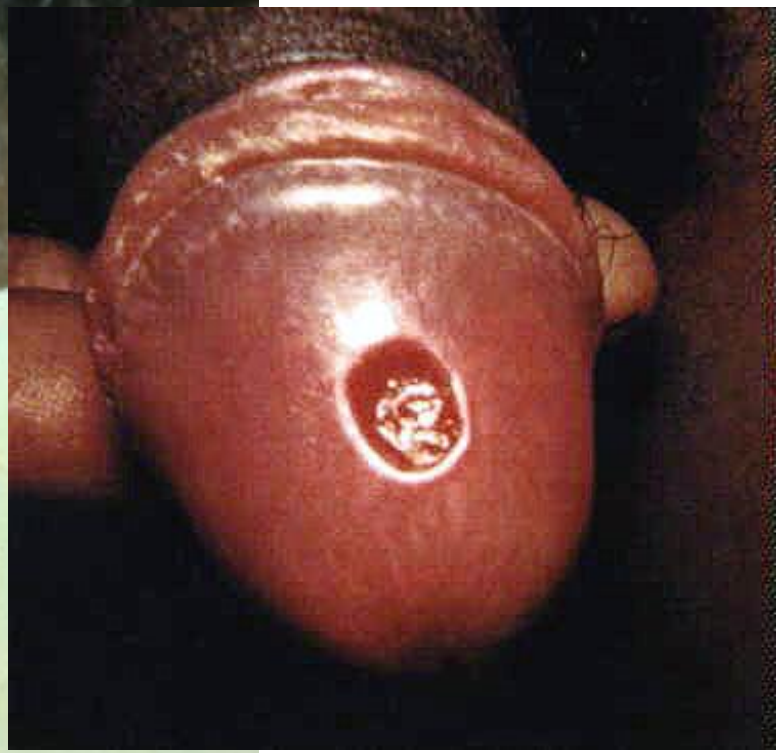


PRIMARY SYPHILIS
(The Chancre)

- **Incubation period: 9-90 days**, usually 21 days.(3 weeks)
- Develops at site of contact/inoculation.
- Dull red macule which becomes papule & its surface erode forming **ulcer**
- **HIGHLY INFECTIOUS**
- Atypical presentations may occur.
- **Darkfield positive but Serologically negative**
- Heals spontaneously within 2 to 6 weeks.

Primary Syphilis- Penile Chancre





Characterstic features of chancre

1. **Single**
2. **Rounded or oval**, well defined :0.5-2 cm diameter
3. **Edge** : Slopping (raised at periphery and slopping towards centre (Saucer-like)
4. **Floor**: red,clean granulation tissue which may be covered by yellow grey scab
5. **Base**: Indurated like button in tissue
6. **It oozes serum** on manipulation.
7. **Painless**
8. **Site: A. Genital : 95% in male** : coronal sulcus,glans penis or prepuce or inside urethra (intra meatal chancre) scanty serous urethral discharge and button like on palpation.

   In female : Labia, clitoris or cervix(may be painful). In pregnancy it increases in size with more induration due to increase vascularity

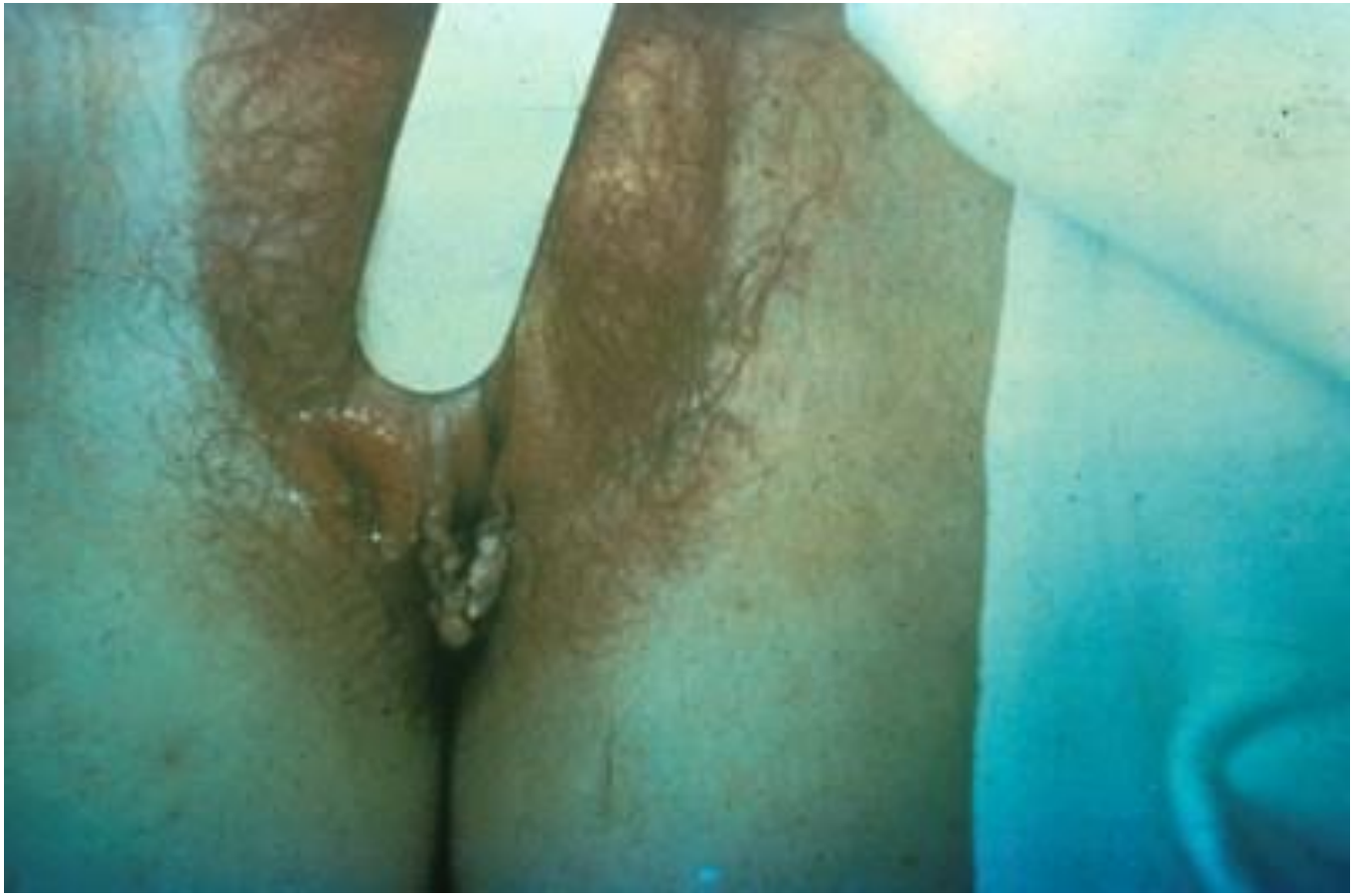
   B.Extra genital: 5% usually painful : lips , tongue ,nipples , anus ,tonsil, breast, fingers

9. **Regional LN**: Enlarged within one week after chancre,discrete, painless unless infected ,firm,rubbery, moblie with normal overlying skin,

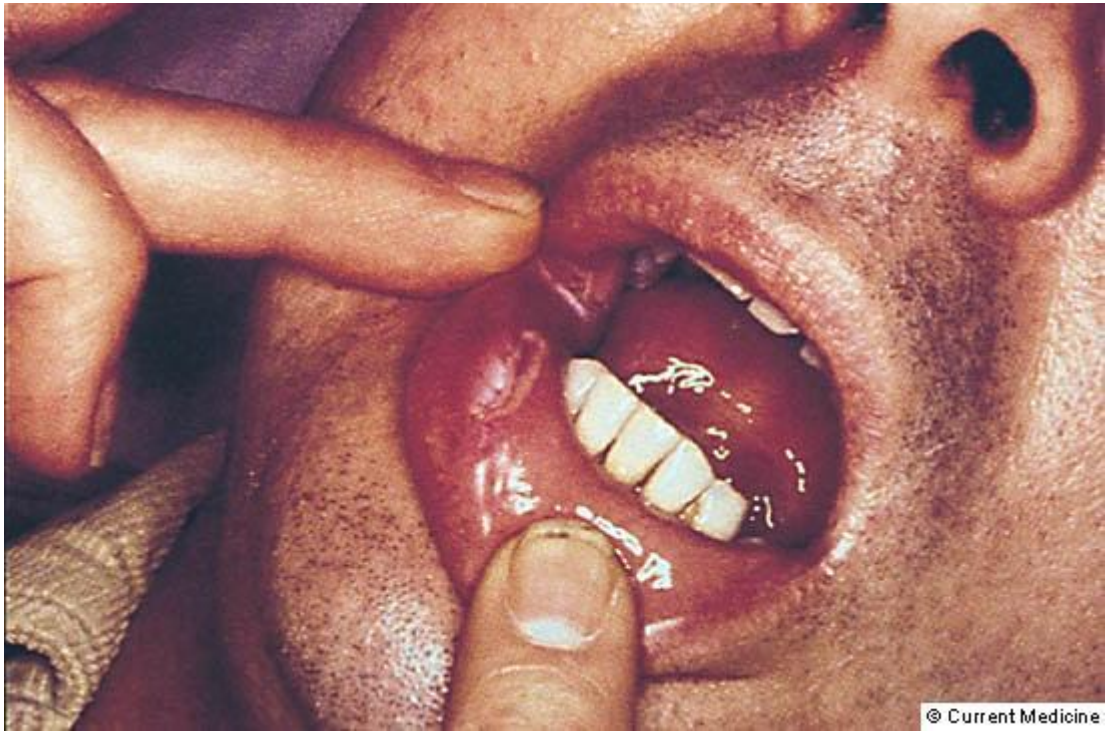
   Bilateral in genital chancre but unilateral in extragenital

10. **Healing**: in 2-6weeks if untreated with thin atrophic non contractile scar

Primary Syphilis – Labial Chancre



Oral chancre in primary syphilis



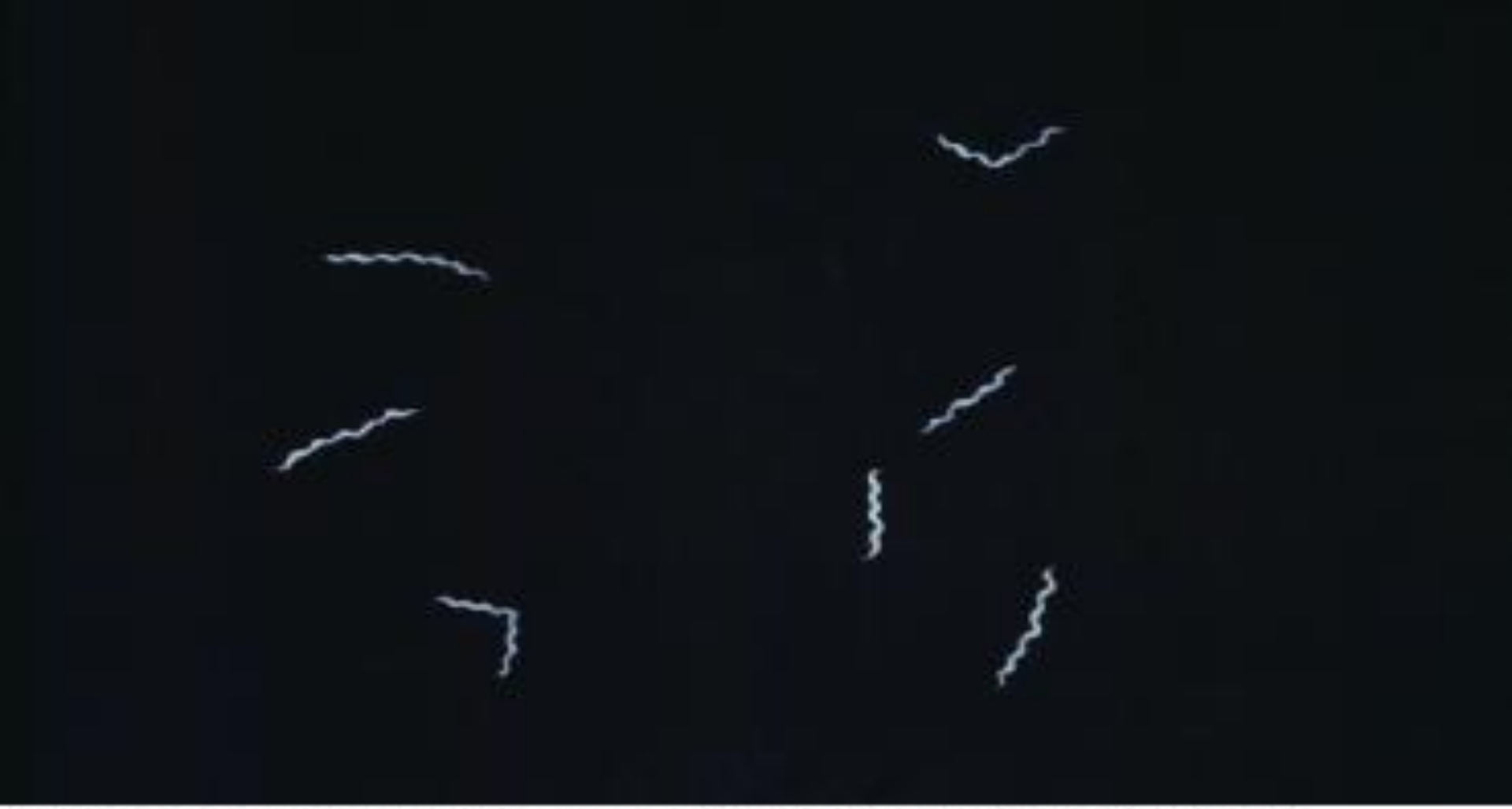
DD of Chancre

- **Chancroid**; multiple lesions, may coexist with chancre, must rule out syphilis
- **Granuloma Inguinale**; indurated nodule that erodes, soft red granulation tissue, Donovan's bodies in macrophages with Wright's or Giemsa's stain
- **Lymphogranuloma Venereum**; small, painless, superficial non indurated ulcer, primary lesions followed in 7 to 30 days by lymphadenopathy
- **Herpes Simplex Virus ;** grouped vesicles, burning pain
- **Behcets disease ulcers**
- **Tuberculosis ulcers**
- **Traumatic ulcer**
- **Malignant ulcer**

	Chancre	Chancroid(Soft sore)
Organism	Treponema pallidum	Haemophilus ducreyi
Incubation Peroid	9-90 days	3-5 days
Number	Single	Multiple
Pain	Painless	Painful
Borders	Clear	Ragged(unorganized)
Edges	Slopping	undermined
Floor	Red,clean	Purulent(Dirty)
Base	Firm,indurated	Soft(not indurated)
Bleeding	Does not bleed easily	Bleeds easily
Ooze	Serum	Seropus
LN	Bilateral,Painless,discrete, firm,never suppurate	Unilateral,tender,matted, suppurate form sinuses
DGI(dark field)	+ve	–ve
Treatment	Penicillin	Ceftriaxone ,Azithromycin

Diagnosis at Primary stage

1. *Clinical* findings
2. ***Dark ground examination of exudate***
3. *Direct flourescent Antibody to TP*: **of dry secretion**
4. *Serological tests*: **negative in chancre stage**
5. *Biopsy*



Treponema pallidum Dark field examination of exudate from a penile ulcer (x1000) in a patient with syphilis. The spirochete Treponema pallidum, which is too small to be seen using ordinary microscopy, appears as a delicate spiral rod when dark field illumination is employed. Courtesy of Harriet Provine.

SECONDARY SYPHILIS

- Represents haematogenous dissemination of spirochetes
- Appear 6-8 weeks after Primary stage
- Serologic tests are usually highest in titer during this stage
- Secondary stage includes:

1.General symptoms: (Flu-like syndrome):

Fever,malaise,chills,headach,

arthralgia,myalgia,epigastric pain

2.Generalized LN: firm, discrete,

non-tender,mobile(cervical,axillary,occipital,**epitrochlear**,inguinal)

3.Cutaneous manifestations:A.skin rash(*syphilids)*

B.Condyloma lata

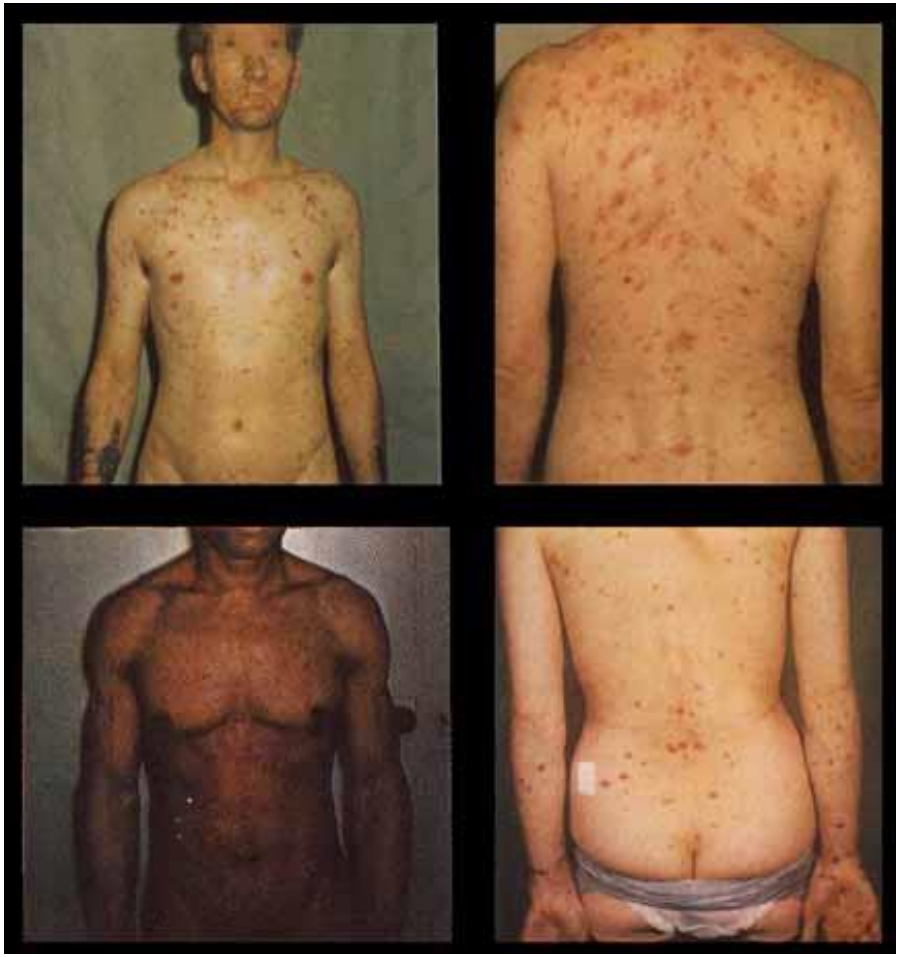
4.Mucous membrane lesions

5.Hair changes .

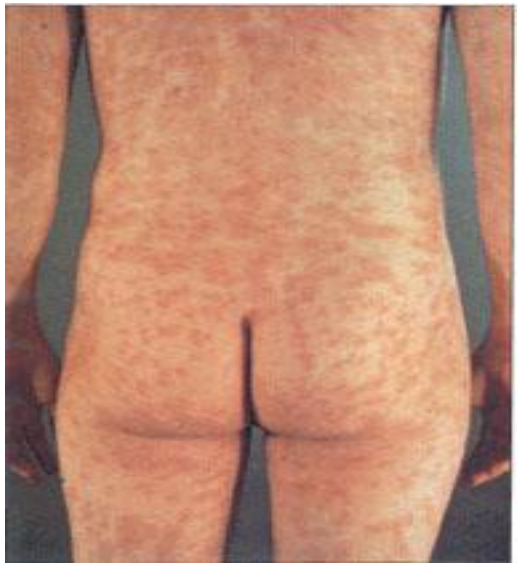
Skin rash

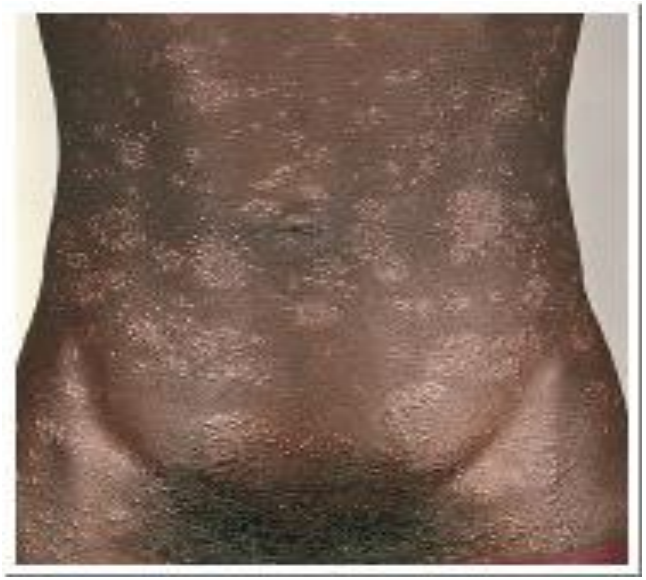
- Generalized
- Bilateral
- Symmetrical ,more on flexures.
- **Non-itchy**
- Polymorphic(**all types of primary lesions except vesicular)**
- Macular,Papular(commonest),Maculopapular,Papulosquamous (psoriasiform), Pityriasis rosea like(Roseolar),lichenoid,follicular,annular,pustular.
- **Palms and soles involvement** is **characteristic**
- Healed without scarring

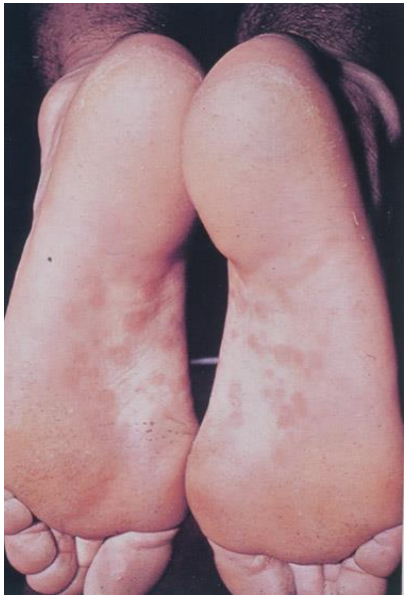
Syphilis:- The disseminated rash observed in secondary syphilis

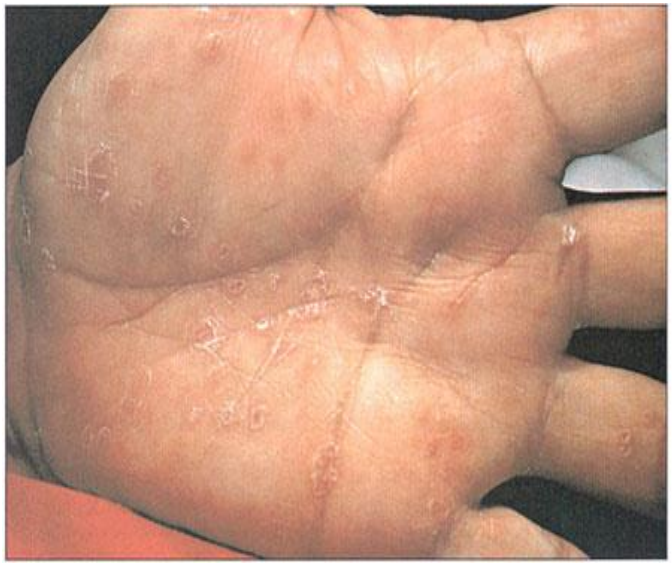


Syphilis: - The disseminated rash in secondary syphilis

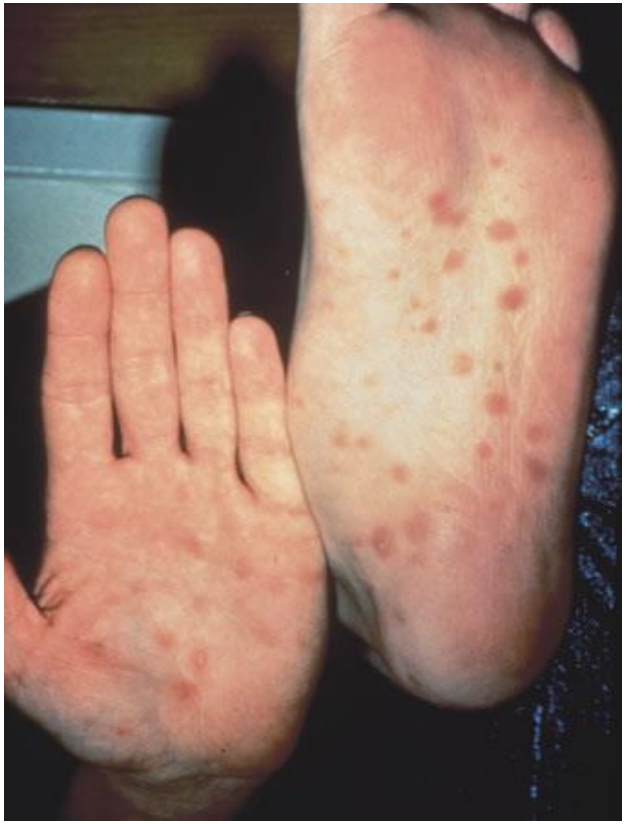


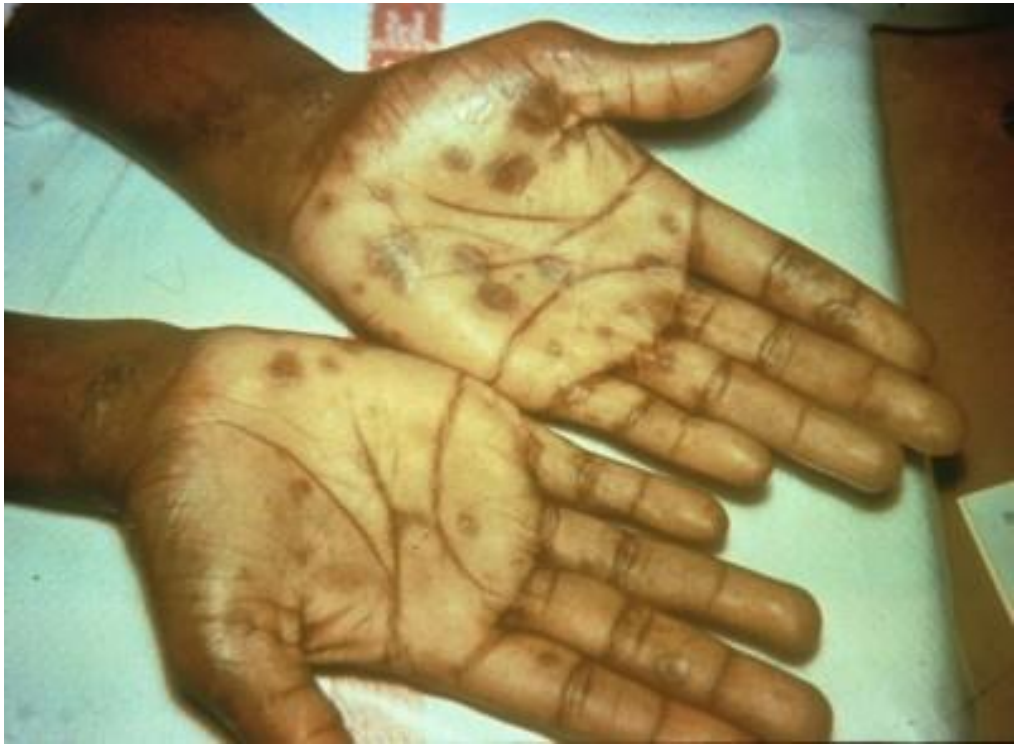






Secondary Syphilis: Palmar/Plantar Rash

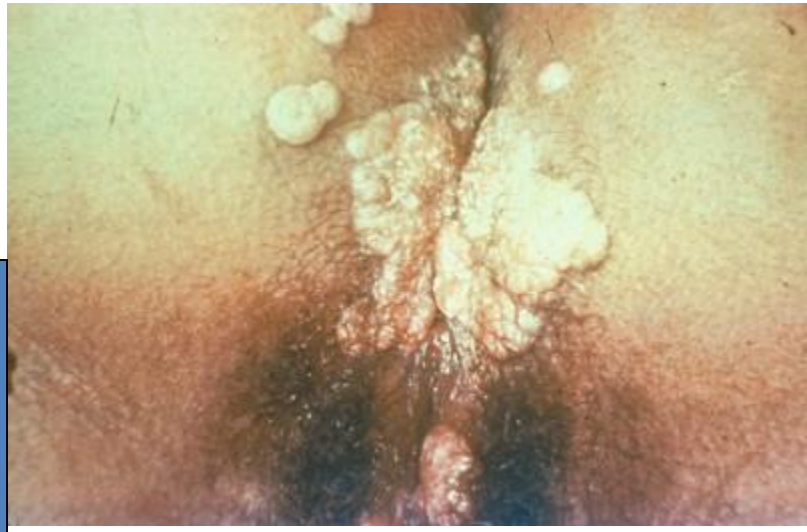




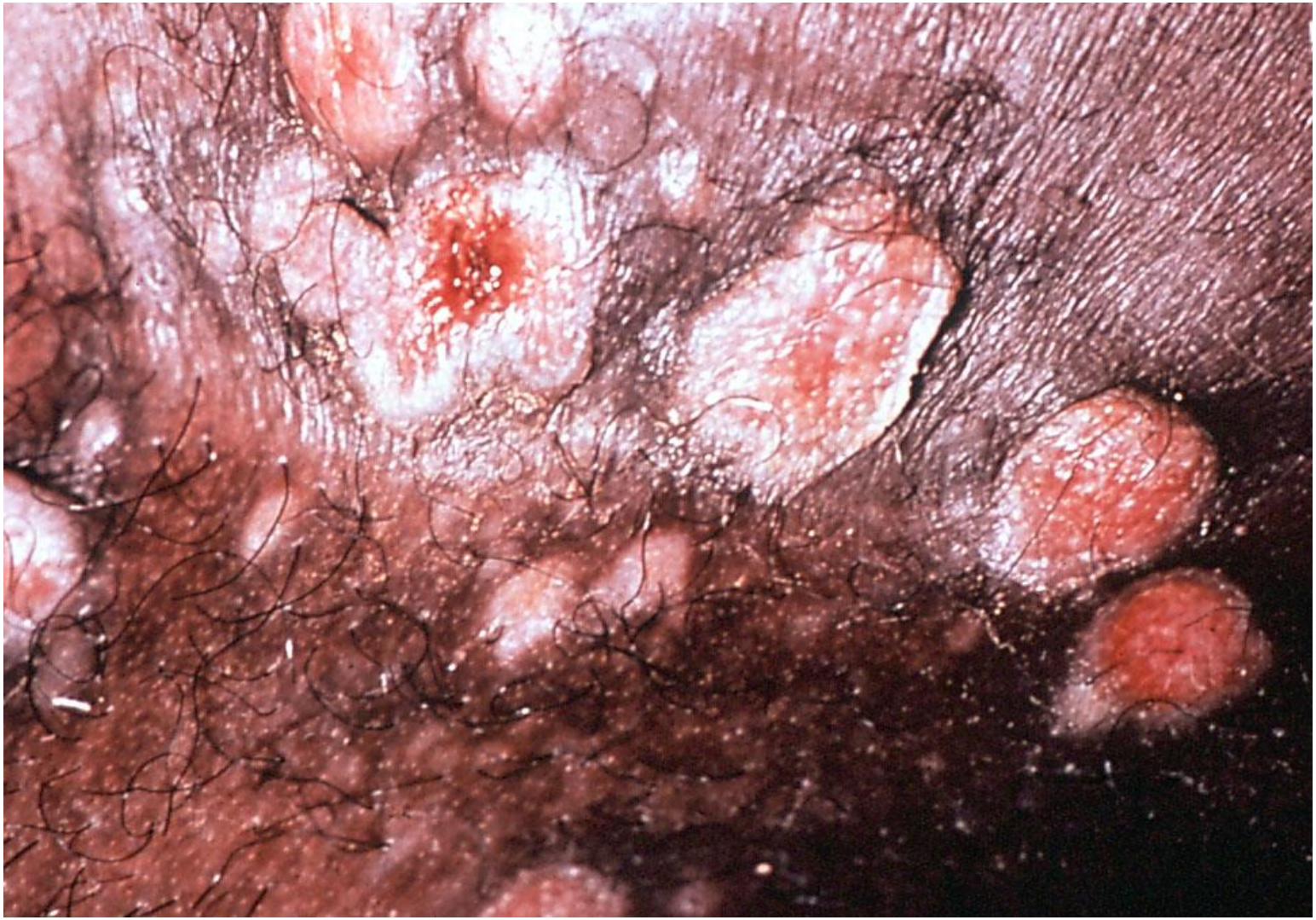
Condyloma lata

- **Most infectious**
- **Characteristic of secondary syphilis**
- Indurated painless grayish white bad odour ,Fleshy, moist papules and nodules
- Occur in warm, moist areas(**Inter-triginous**) such as genitalia, perineum, axilla , underbreast.

Secondary Syphilis - Condylomata lata

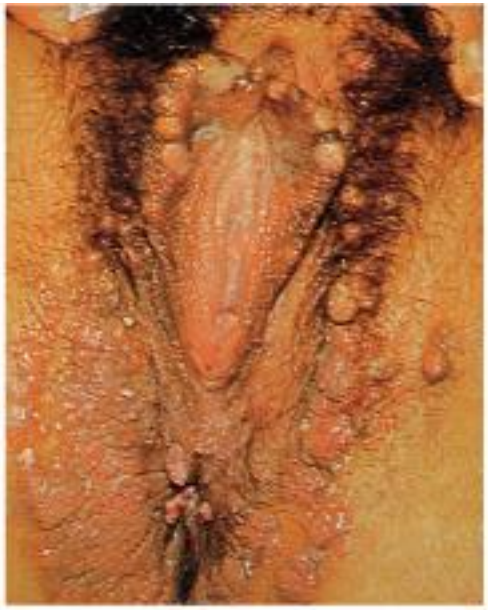


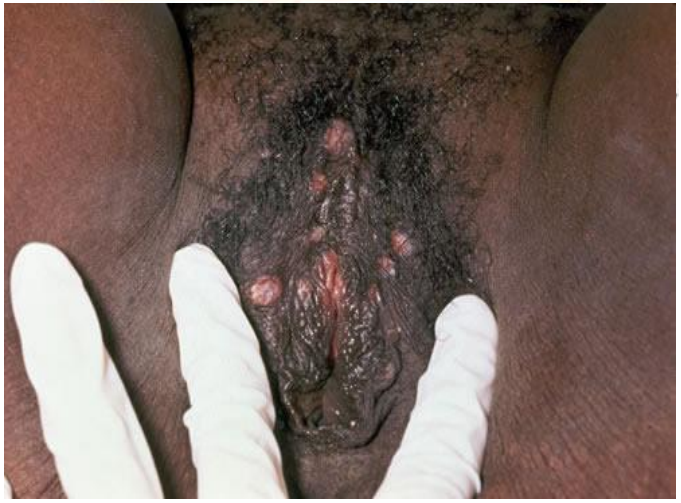
Condylomata lata consist of flesh-colored or hypopigmented, moist, oozing papules that become flattened and macerated or cauliflower-like vegetations. They are highly infectious.

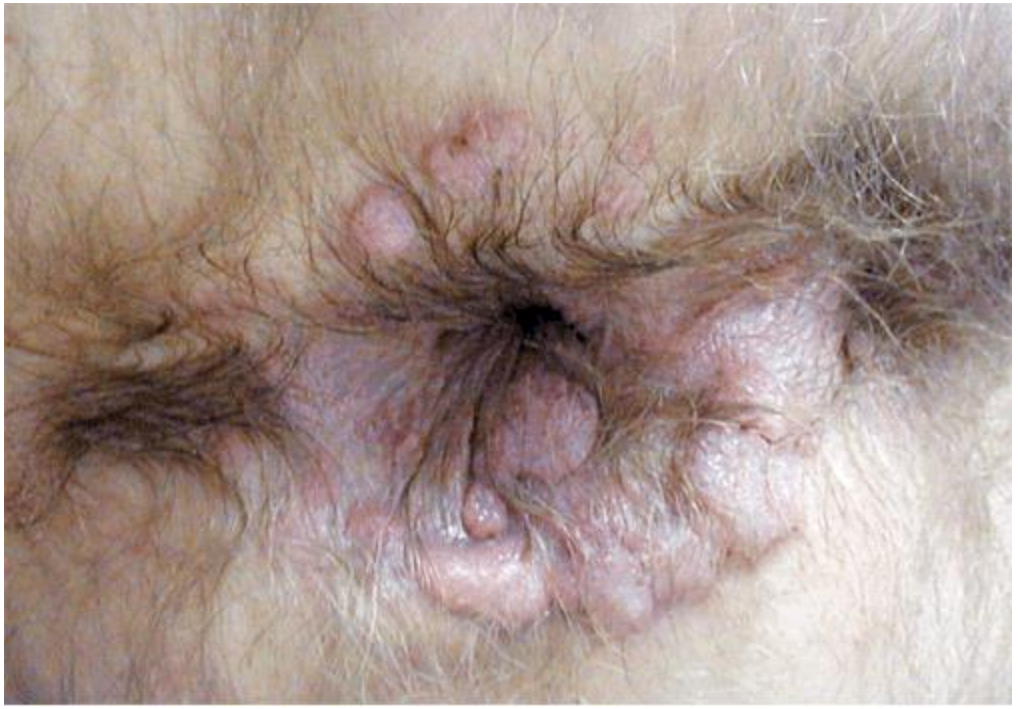


Condyloma Lata in Secondary Syphilis

Condylomata lata







Difference between Condyloma Lata and Condyloma Accuminata

Name	Condyloma Lata	Condyloma Accuminata
Disease	Secondary stage of syphilis	Genital wart
Organism	Treponema pallidum	HPV
Colour	Pink Flesh or White	Skin coloured
Surface	Flat ,Smooth and moist	Verrucous ,Rough and dry
Induration	Indurated	Non -indurated
Base	Broad (Sessile)	Pedunculated
Bleeding	Does not bleed easily	Bleeds easily
STS	Positive	Negative
Malignancy	Not Pre-malignant	Pre-malignant
Treatment	Penicillin	Podophylotoxin,Podophyllin Cryotherapy,Imiquimod

Mucous Membranes

- Present in 1/3 of secondary syphilis
- Most common is “syphilitic sore throat”
- Highly infectious

Of different types:

1.Ordinary Mucous patches:

- Indurated papules in cheek or inner lip

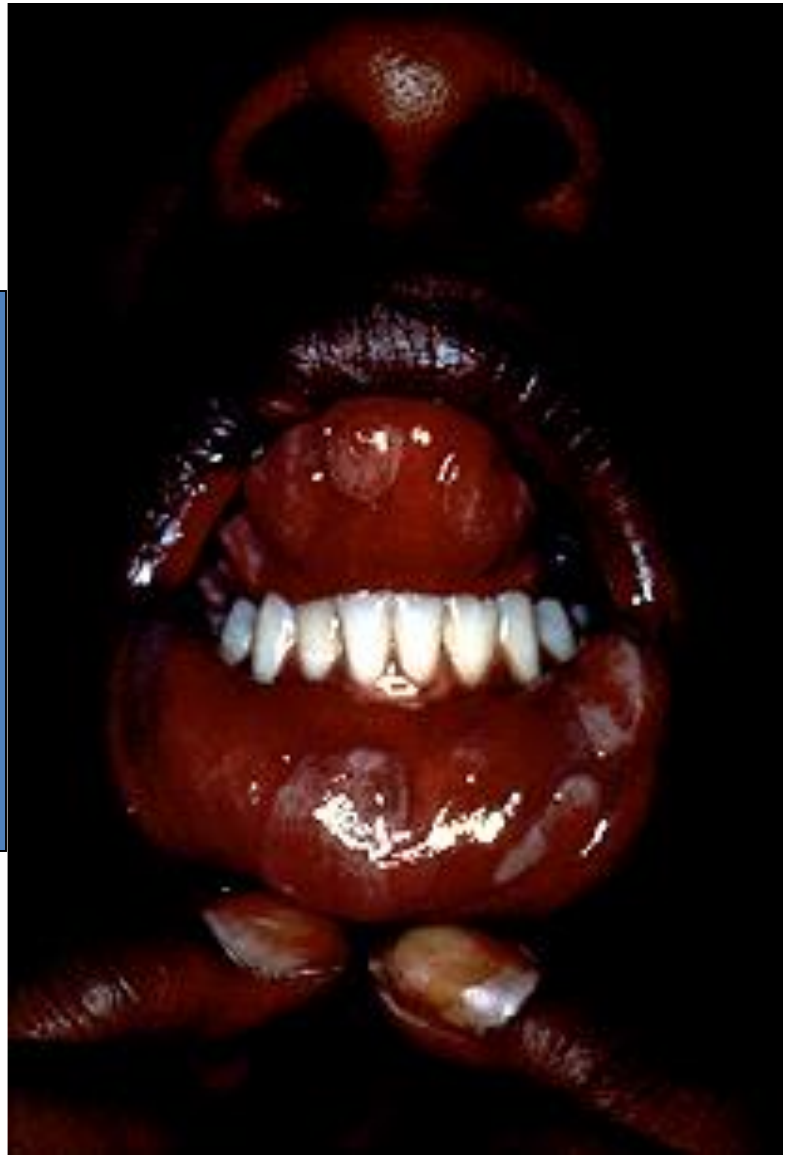
2.Bald Patch : On dorsum of tongue due to Painless, macerated, flat,grayish, rounded or oval erosions covered by a delicate, soggy membrane.

3.Snail track ulcers:

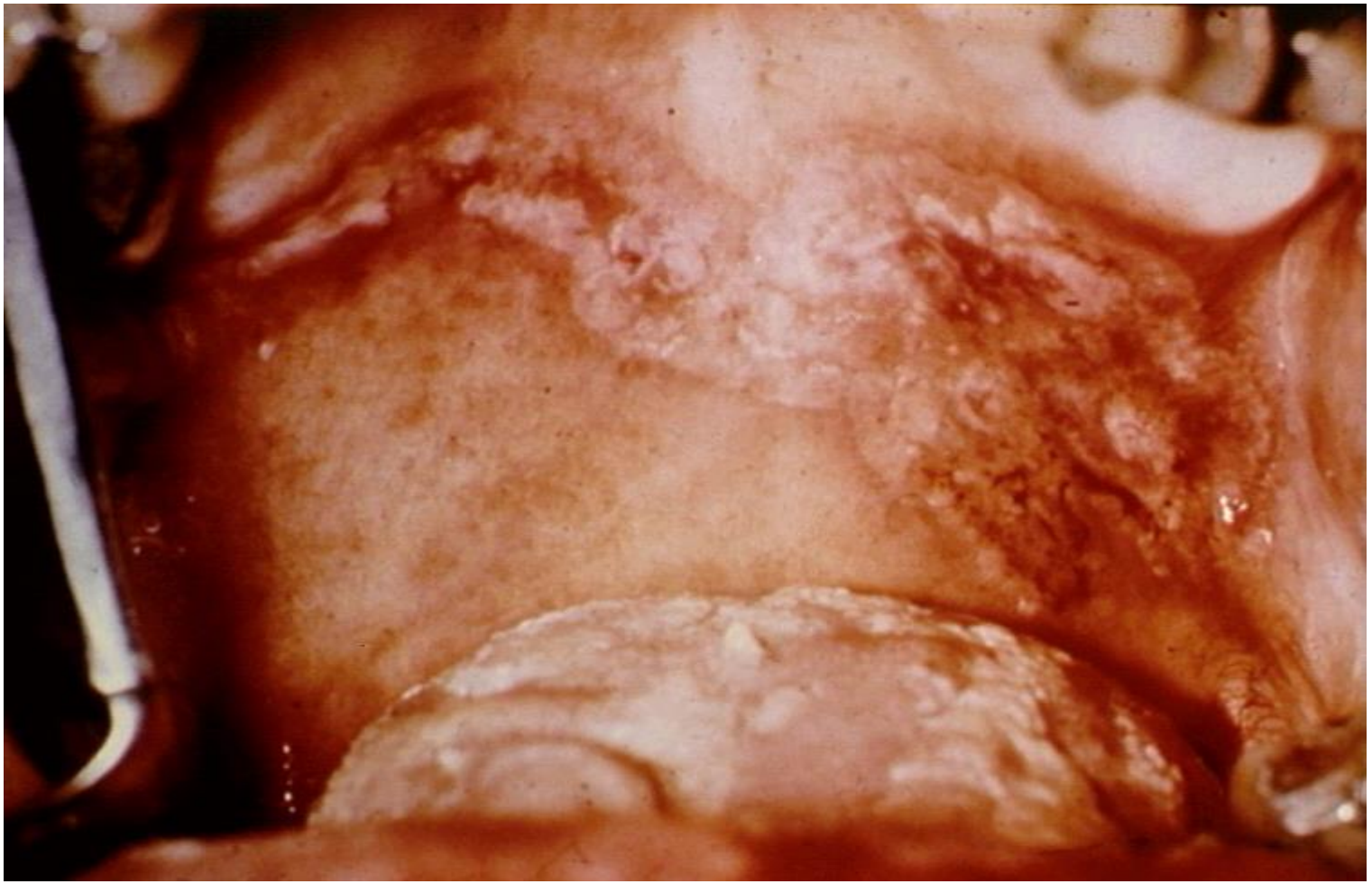
On soft palate and peri-tonsillar area the necrotic membrane sloughs leaving behind ulceration as painful superficial serpiginous irregular lesions (looks like snail track)

Mucous patches

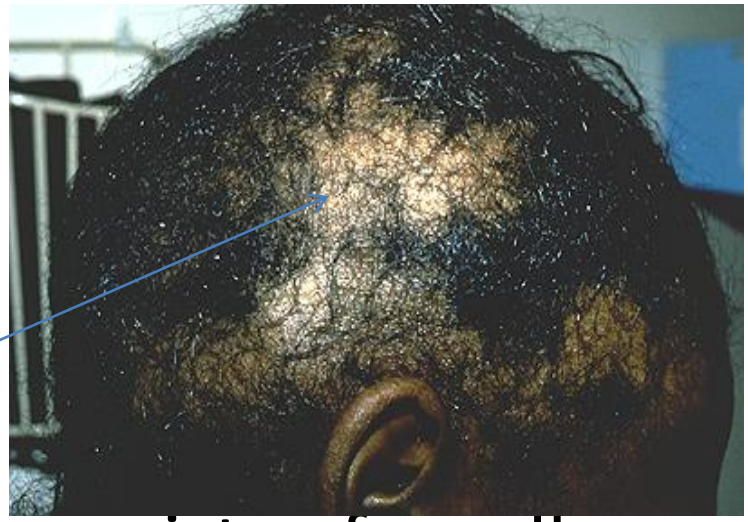
Mucous patches : Painless, shallow, rounded erosions covered with gray macerated scaling.



Snail Track ulcers



Hair findings



Of two types:

1. **Diffuse alopecia**
2. **Moth eaten alopecia**:

The more characteristic type consists of small irregular patches of nonscarring alopecia throughout the scalp but predominantly on the occipital and parietal regions.

Secondary Syphilis – Moth eaten Alopecia

Circumscribed small non-scarring patches commonly affecting the sides and back of head

Serological Tests of Syphilis

1.Non-treponemal tests(Non-specific):

- **Very high sensitive but not specific**
- For screening
- Titer correlate with disease activity and fall in response of treatment
- Used for monitoring efficacy of treatment

2.Treponemal tests(specific):

- **Very high specific**
- To confirm nonspecific tests
- Once positive ,they remain positive life long and titer decrease with treatment.

Blood serum for antibodies detection(STS)

A. **Non-specific tests :**

   I. **Rapid Plasma Reagin** RPR

   II. **Venereal Disease Research Laboratory** VDRL

B. **Specific: Treponemal tests: (They remain positive life long)**

   I. **Treponema pallidum HemAgglutination assay** TPHA

   II. **Fluorescent Treponemal Antibody Absorbed FTA- ABS(first positive in primary syphilis,** CSF FTA-ABS highly sensitive for neurosyphilis (i.e. if negative it excludes neurosyphilis**),first to become +ve in primary syphilis.**

   III. **Treponema pallidum Particle Agglutination assay TPPA**

   IV. **Treponema pallidum Immobilization test TPI(most specific)**

   V. **Microhemagglutination Assay for Antibody to T. pallidum (MHA-TP)**

Biological False Positive(VDRL) Test

1. Vaccinations
2. Pregnancy
3. Infections(Pneumonia,mumps,measles,yellow fever,malaria,Leprosy,Tuberculosis)
4. Connective tissue disease (SLE)
5. Liver disease
6. Blood transfusions
7. Hemolytic anemia
8. Sarcoidosis
9. Intravenous Drug adduct
10. Malignancy

LATENT SYPHILIS

*Positive syphilis serology **without** clinical signs of syphilis (& has normal CSF).*

- May occur between primary and secondary stages, between secondary relapses, and after secondary stage

- **Is divided into early and late latent**
  - **Early latent**: <2 years duration-**Infectious**.
  - **Late latent**: ≥2 years duration- **Usually not infectious.**

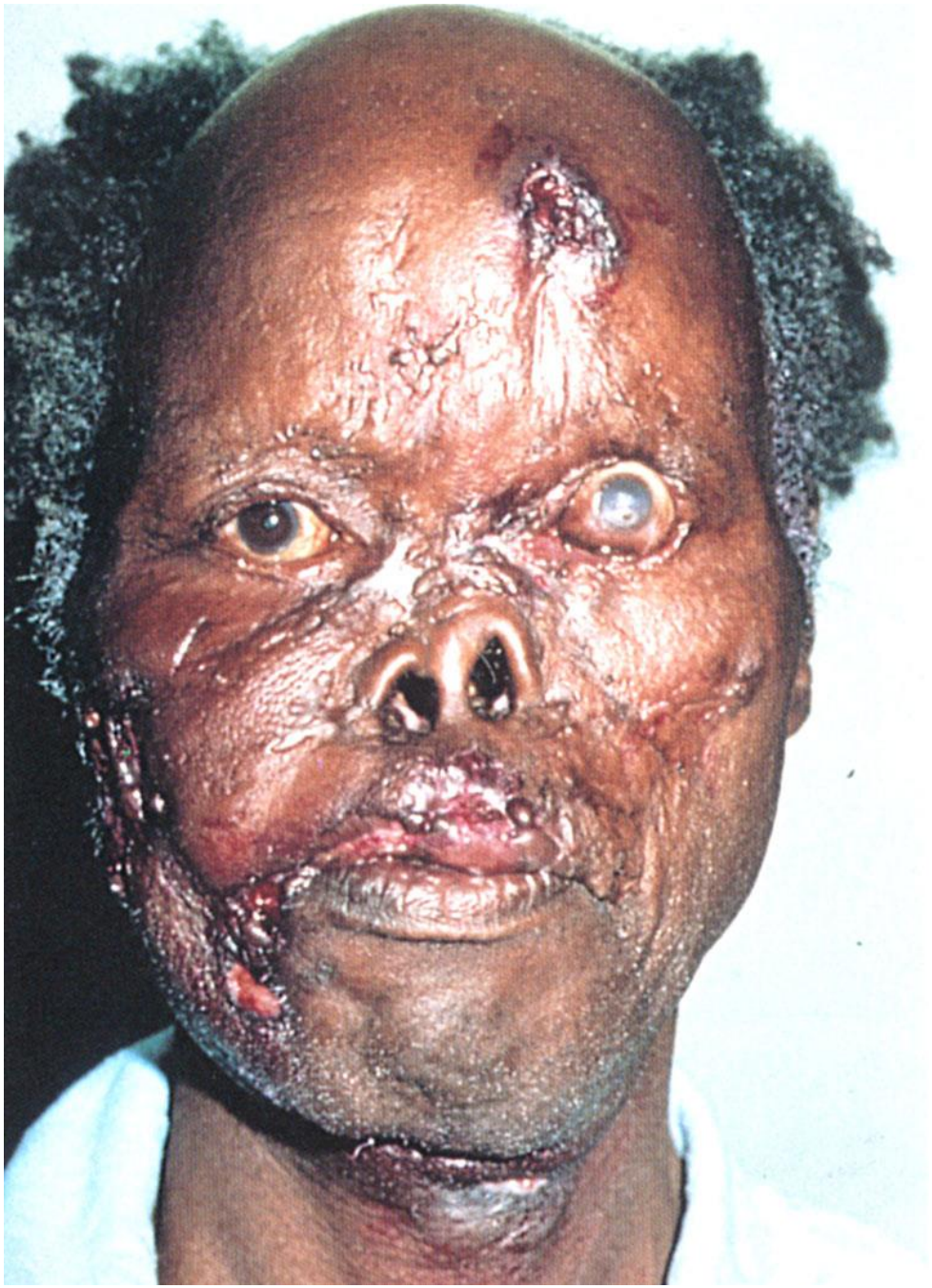
Tertiary Syphilis

- Approximately 30% of untreated patients progress to the tertiary stage within 1 to 20 years
- Rare because of the widespread availability and use of antibiotics
- Manifestations occur much later in life and cause significant morbidity
  1. **Gummatous syphilis**
  2. **Cardiovascular syphilis**
  3. **Neurosyphilis**
- **Twenty percent** of untreated patients die of the disease

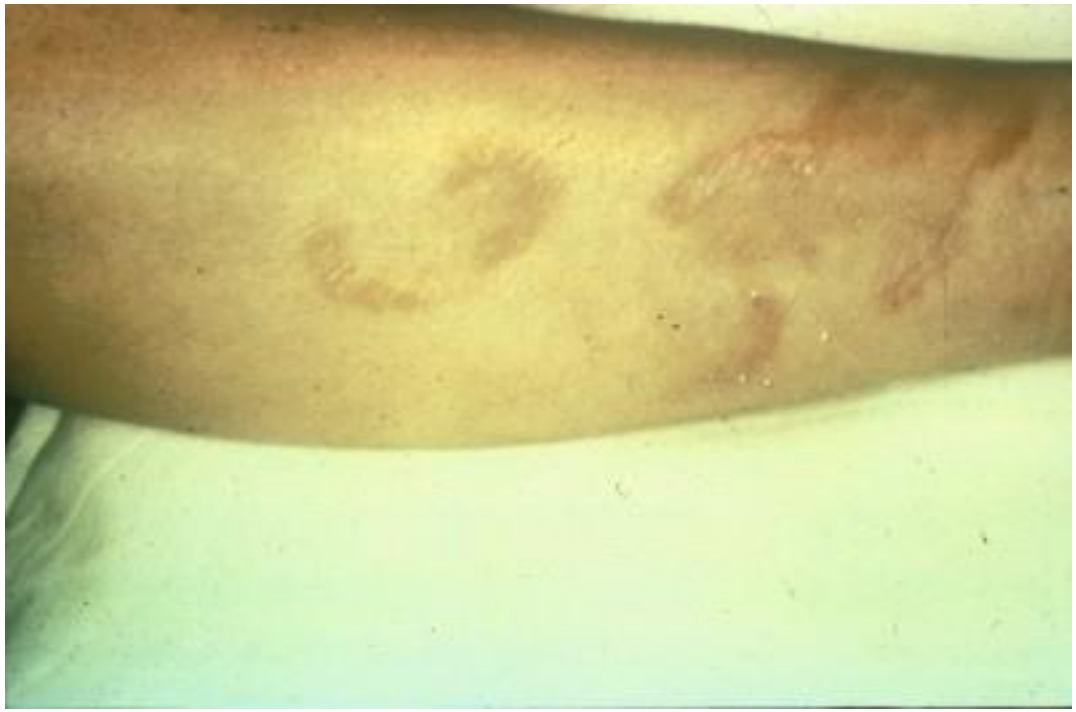
THE GUMMA

- The gumma was the most common complication of late syphilis
- Usually develop 1-10 years after infection and may involve any part of the body.
- Gummas may be single or multiple. Start as asymptomatic **superficial nodule** or **plaques** with polycyclic arrangement or as a deeper lesion that breaks down to form **punched-out ulcers**. They are ordinarily indolent, slowly progressive, and indurated granulomata, with central healing with an atrophic scar surrounded by hyperpigmented borders.
- **Non- infectious**
- **Commonly sites:** Scalp,presternum,around big joints
- Other sites: Subcutan.tissues,muscles,viscera(brain,liver,stomach,testes, respiratory system)
- *T. pallidum* is ordinarily not demonstrable by silver stain.
- May be destructive, but **responds rapidly to treatment**, thus, is relatively benign.

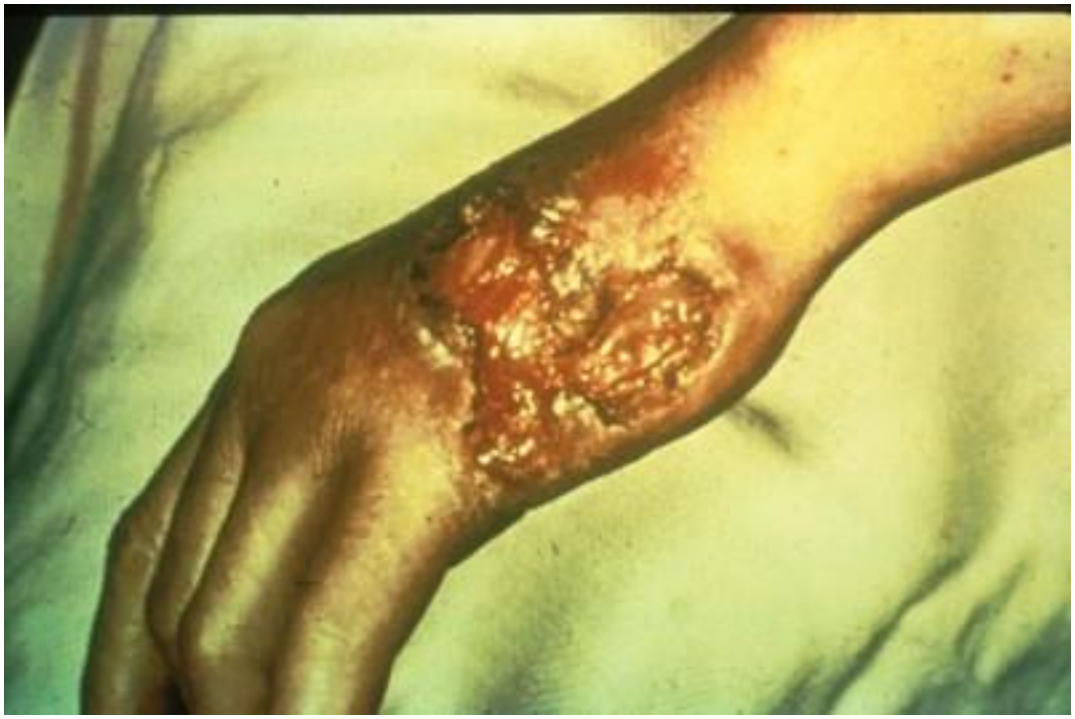
Gummas in Tertiary Syphilis



Late syphilis - serpiginous gummata of forearm



Late syphilis - ulcerating gumma

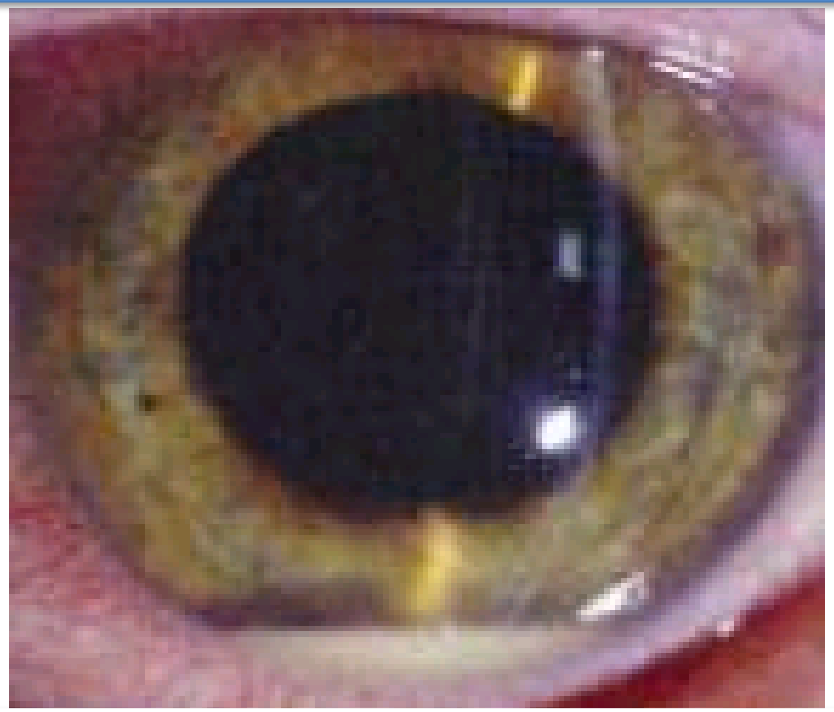


Neurosyphilis

- Occurs when *T. pallidum* invades the CNS.
- Brain or Spinal cord .
- May occur at any stage of syphilis.
- **CSF abnormalities**: pleocytosis, elevated protein, decreased glucose, positive CSF serology
- Can be asymptomatic.

- **Different types which may overlap:**
  1. ***Asymptomatic neurosyphilis***
  2. ***Syphilitic meningitis***
  3. ***Meningovascular syphilis***
  4. ***Parenchymatous neurosyphilis may be;***
     - ***A. Cerebral : General Paresis of Insane(GPI)***
     - ***B .Spinal : Tabes Dorsalis***

“Argyll Robertson Pupil” accommodates, but doesn’t react



bilateral
small pupils that reduce in size on a near object (i.e.,
they accommodate), but do *not* constrict when exposed to bright light (i.e., they do not react to light).

“Prostitute's pupils") : They are a highly specific sign of neurosyphilis; however, Argyll Robertson pupils may also be a sign of diabetic neuropathy

Cardiovascular

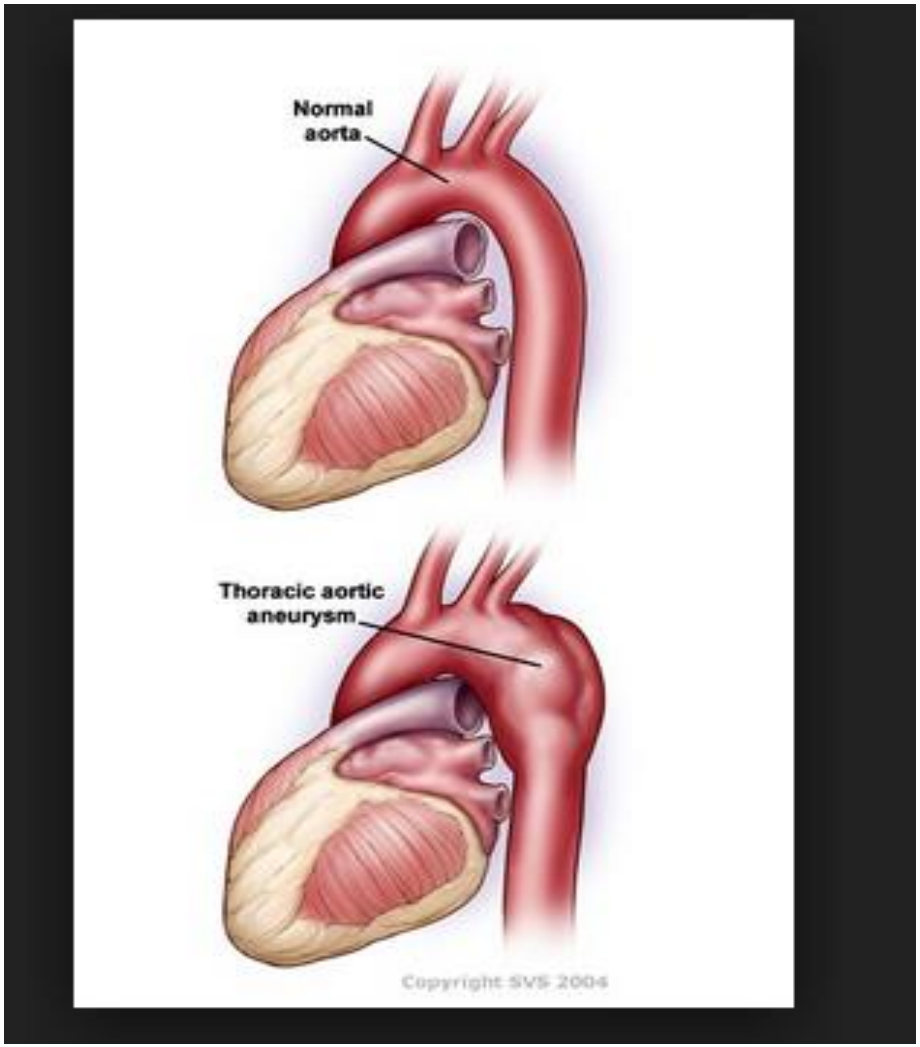
In 10% of tertiary syphilis after 10-20 years

Affecting **Heart** or **medium sized vessels** or **Great vessels**.

Manifestations may be :

1. *Myocardial ischemia* due to Coronary stenosis
2. *Aortic aneurysm* due to fibrosis and weakness of aortic wall
3. *Aortic valve incompetence* due to widening of aortic valve commissures.
4. *Heart block* if Gumma occurred in septum

Aortic aneurysm



Primary, Secondary, Early Latent Syphilis

Recommended regimen

-**Benzathine Penicillin** G, 2.4 million units IM single dose

Penicillin Allergy

-Doxycycline 100 mg twice daily x 14 days

-Erythromycin 500mg 6hourly for 15 days

- Azithromycin 2gram oral single dose

Syphilis
Latent Syphilis

Recommended regimen

Benzathine penicillin G 2.4 million units IM at **one week intervals x 3 doses**

Penicillin allergy

Doxycycline 100 mg orally twice daily x 30 days

or

Tetracycline 500 mg orally four times daily x 30d

or

Erythromycin 500mg 6hourly for 30 days

Neurosyphilis

Recommended regimen

Aqueous crystalline penicillin G, 18-24 million units administered 3-4 million units IV every 4 hours for 10-14 days

Alternative regimen

Procaine penicillin 2.4 million units IM daily plus probenecid 500 mg orally four times daily for 10-14 days

Chancroid
(Soft sore or Soft chancre)

Definition

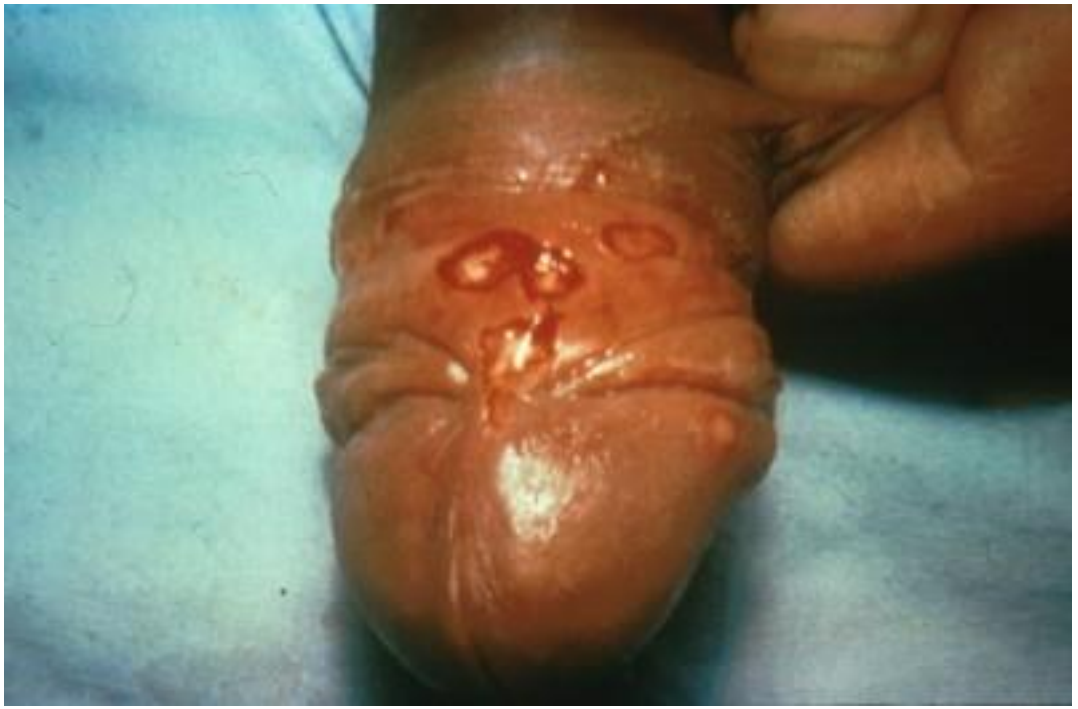
- Chancroid is a sexually transmitted genital ulcer disease (GUD) caused by the **gram-negative bacillus** ***Haemophilus ducreyi.*** Chancroid is characterized by the presence of painful ulcers and inflammatory inguinal adenopathy.
- ***Incubation period of 2-5 days***
- Chancroid usually starts as a small papule that rapidly becomes pustular and eventually ulcerates.
- The ulcer enlarges, develops ragged undermined borders, and is surrounded by a rim of erythema.
- lesions are tender and the border of the ulcer is not indurated.
- Chancroid is often referred to as a ***soft chancre*** because the lesions are usually ***not indurated***.
- ***lymphadenopathy :***As many as 50% of chancroid patients have tender, ***fixed, inguinal***, usually ***unilaterally,*** that when ***fluctuant*** is called a ***bubo*** and is ***highly specific for chancroid***

	Chancre	Chancroid(Soft sore)
Organism	Treponema pallidum	Haemophilus ducreyi
Incubation Peroid	9-90 days	3-5 days
Number	Single	Multiple
Pain	Painless	Painful
Borders	Clear	Ragged(unorganized)
Edges	Slopping	undermined
Floor	Red,clean	Purulent(Dirty)
Base	Firm,indurated	Soft(not indurated)
Bleeding	Does not bleed easily	Bleeds easily
Ooze	Serum	Seropus
LN	Bilateral,Painless,discrete, firm,never suppurate	Unilateral,tender,matted, suppurate form sinuses
DGI(dark field)	+ve	–ve
Treatment	Penicillin	Ceftriaxone ,Azithromycin

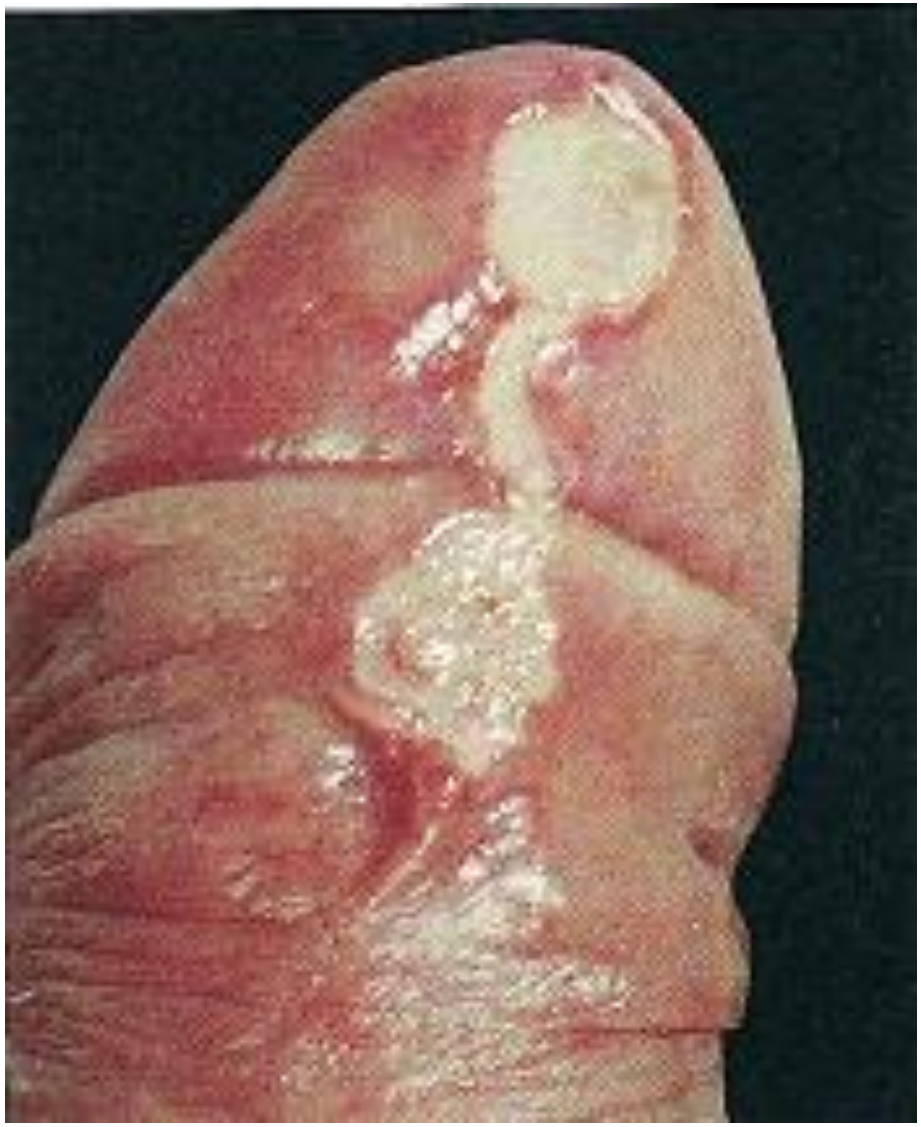
Difference between Chancre lymph node and Chancroid Lymph node

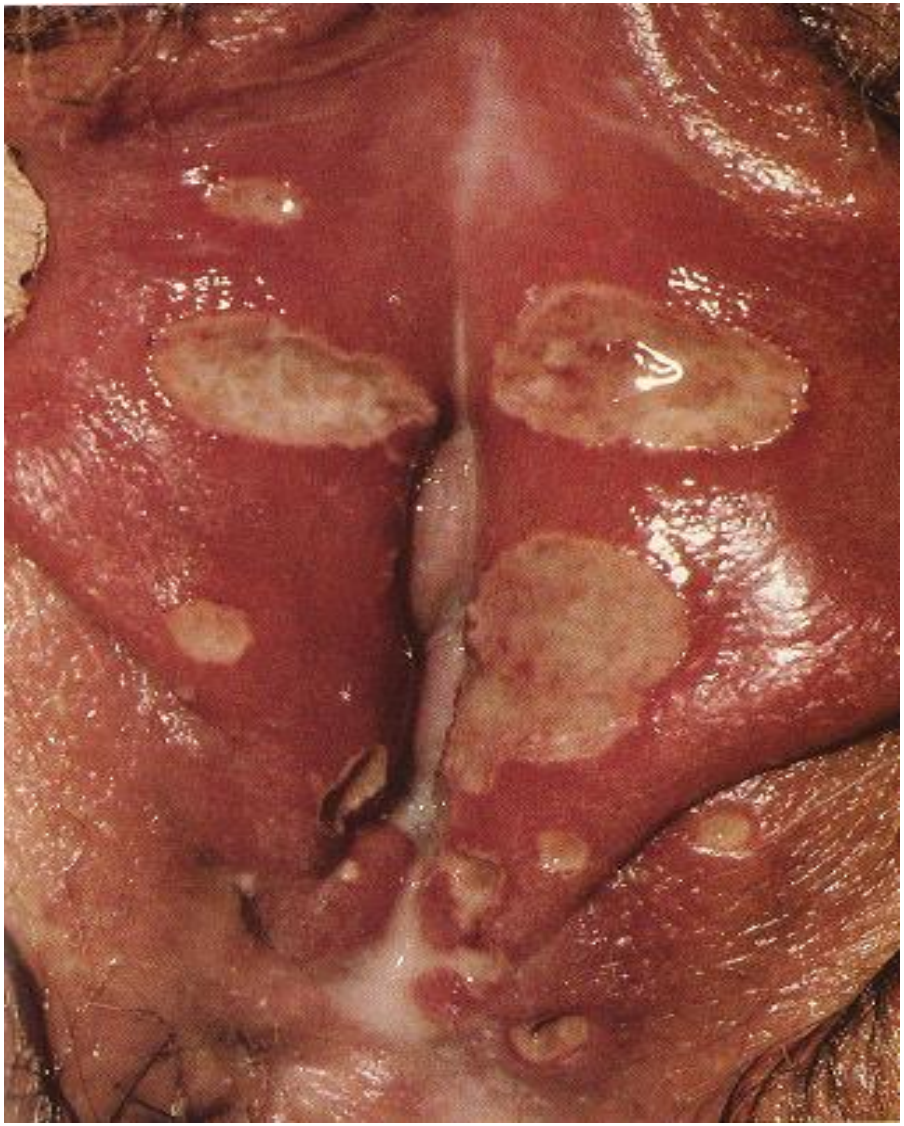
Chancre LN	Chancroid LN
Painless	Painful,Tender
Bilateral	Unilateral
Firm to rubbery	Soft
Discrete	Matted
Mobile	Fixed
Normal overlying skin	Erythematous overlying skin
Never ulcerate	Ulcerate spontaneously & form sinus

Chancroid usually starts as a small papule that rapidly becomes pustular and eventually ulcerates. The ulcer enlarges, develops ragged undermined borders, and is surrounded by a rim of erythema. Unlike syphilis, lesions are tender and the border of the ulcer is not indurated

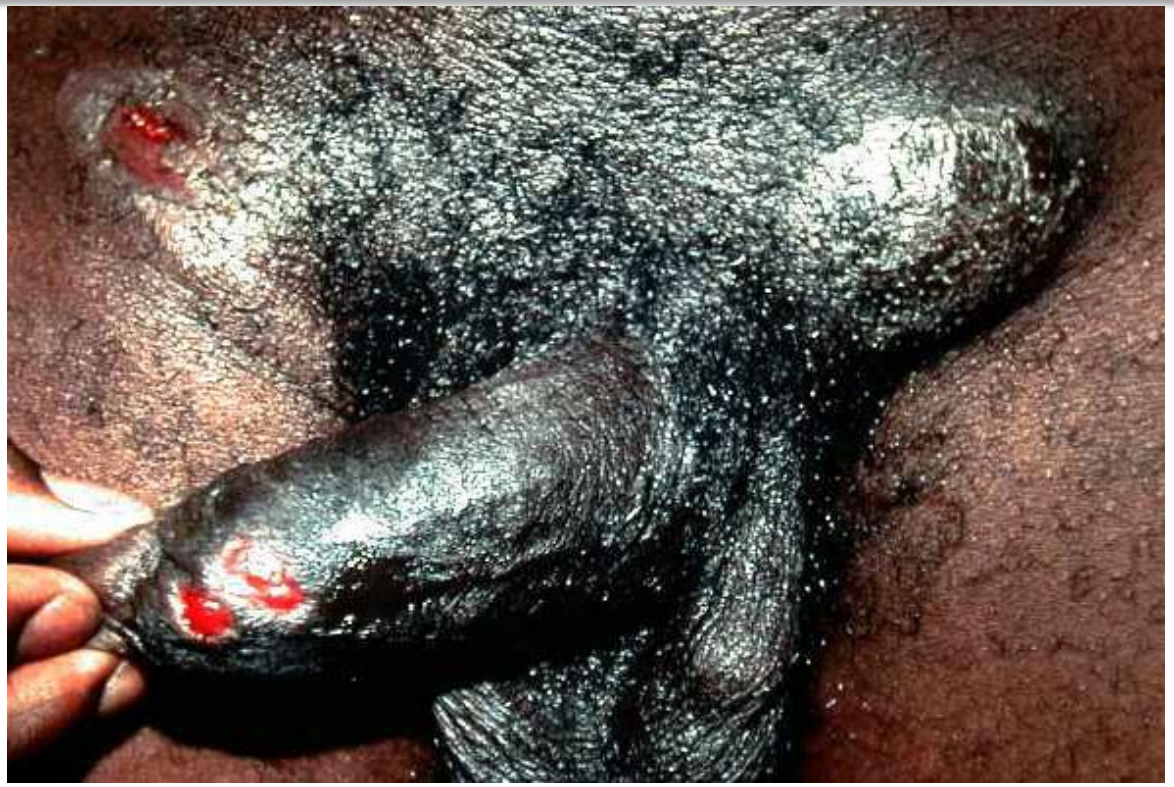


Chancaroid (soft chancre)





This patient shows the characteristic lesions of chancroid. The bubo on the right side drained spontaneously. The bubo in the left inguinal canal required needle aspiration.

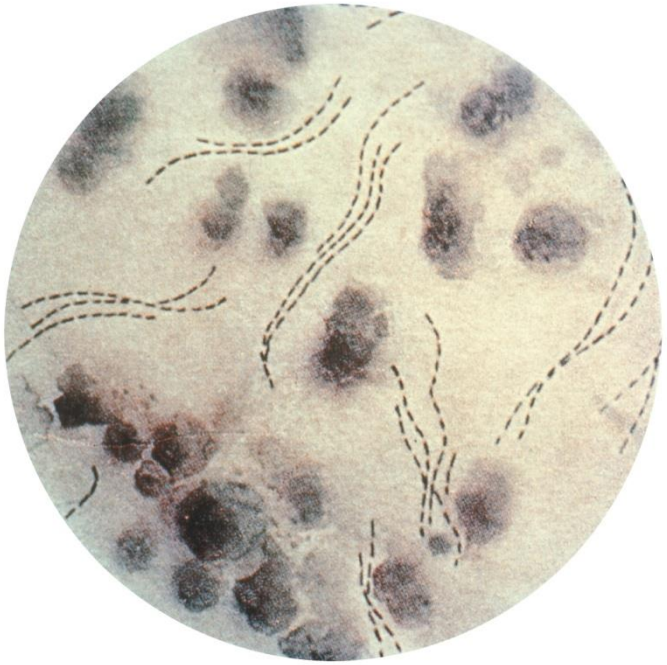


Laboratory diagnosis

1. **Gram staining:** show gram-negative coccobacilli singly, in clusters, or in various morphological forms described as **"schools of fish**,“
2. ***Culture is*** *now the accepted standard for chancroid diagnosis(*Nairobi medium& Mueller-Hinton agar)
3. ***Polymerase chain reaction (PCR):***

   Rapid,specific,sensitive,expensive

Haemophilus ducreyi : "Schools of fish,"



The US Centers for Disease Control and Prevention (CDC) recommends any one of the following treatments for chancroid:

First line:

1. **Ceftriaxone 250 mg intramuscularly in a single dose**
2. **Azithromycin 1 g orally in a single dose**

Second line:-

1. **Ciprofloxacin 500 mg orally twice a day for 3 days**
2. **Erythromycin base 500 mg 3 times a day for 7 days**

Ciprofloxacin is contraindicated for pregnant and lactating women & younger than 10 years old.

Gonorrhoea

Gonorrhoea

- Organism: **Neisseria gonorrhoea**
- Discovered by Albert Neisser 1879
- Gram negative kidney shaped intracelluar diplococci(inside PMN)
- **IP: 2-7 days(average 5 days).**
- **Affects columnar epithelia**
- **Transitional and stratified squamous epithelia are resistant to infection**

Mode of infection:

1. Sexual contact
2. Newborn during passage through infected birth canal of the mother
3. Accidental from towel,lavatory seats but very rare.

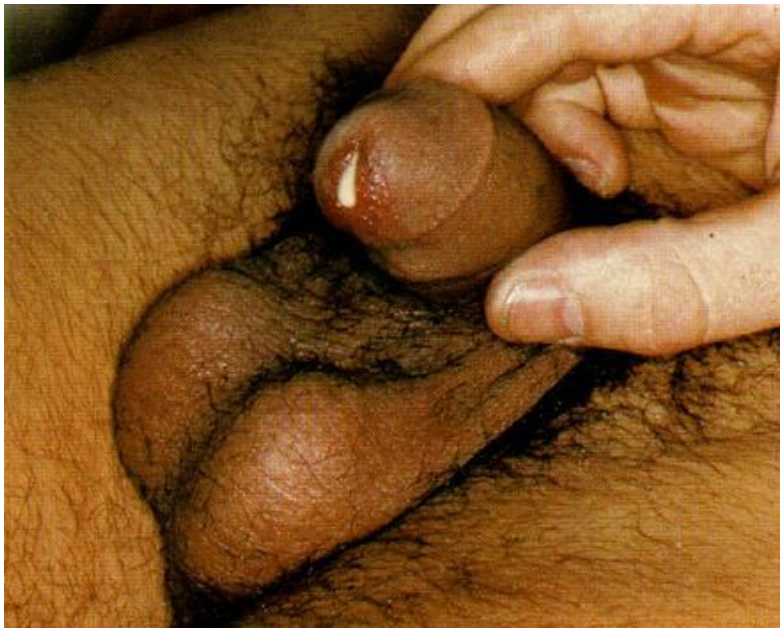
- **Clinical features:**

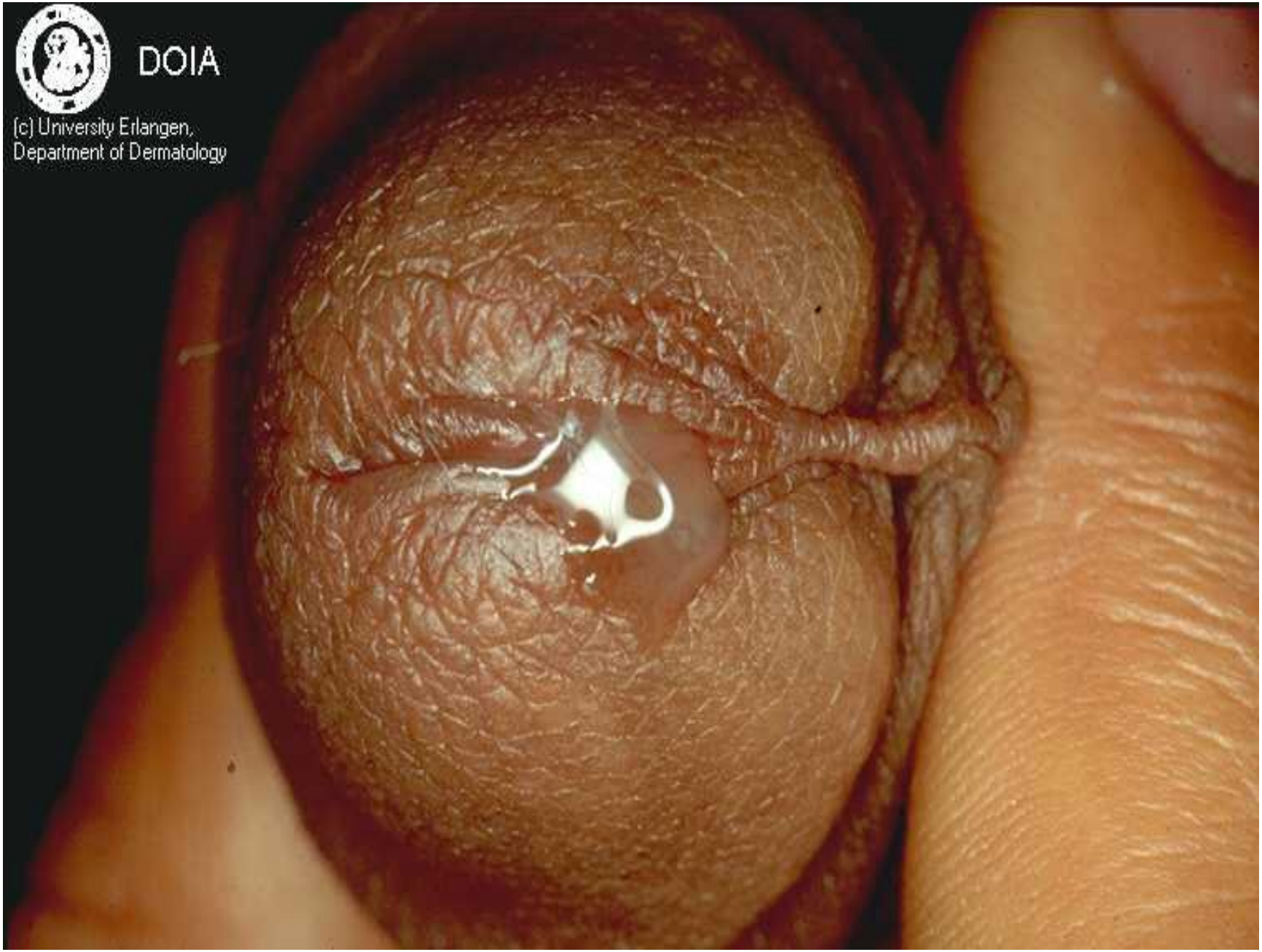
1.Male: 90% of the infection is symptomatic

Burning sensation.

- Dysuria .(24 hrs before discharge)
- **Profuse ,thick, cloudy, mucuopurulent , yellowish green urethral discharge**
- Erythematous oedematous external urethral meatus
- If not treated lead to posterior urethritis with urgency,frequency and discharge become less

Gonorrhoea discharge




DOIA
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Department of Dermatology

2.Female: Asymptomatic in > 50%

- Cervicitis presents with: Vaginal discharge ,itching
- Burning in urination,intermenstrual bleeding and menorrhagia
- Frequency,urgency.

Local complications in males

- Tynositis.
- Balanitis.
- Paraurethral ducts infection.
- Litteritis.
- Cystitis.
- Periurethral abscess .
- Cowperitis and abscess formation .
- Prostatitis , acute or chronic.
- Seminal vesiculitis.
- Epididymitis .
- Urethral stricture .
- Proctitis.

Epididymitis

Local complications in females

- Skinitis.
- Bartholinitis and Bartholin's abscess.
- Cervicitis.
- Salpinigits.
- Oophoritis.
- Endometritis.
- Tubal obstruction.
- Proctitis.
- Pelvic Inflammatory Disease (PID).

Regional and Systemic Complications

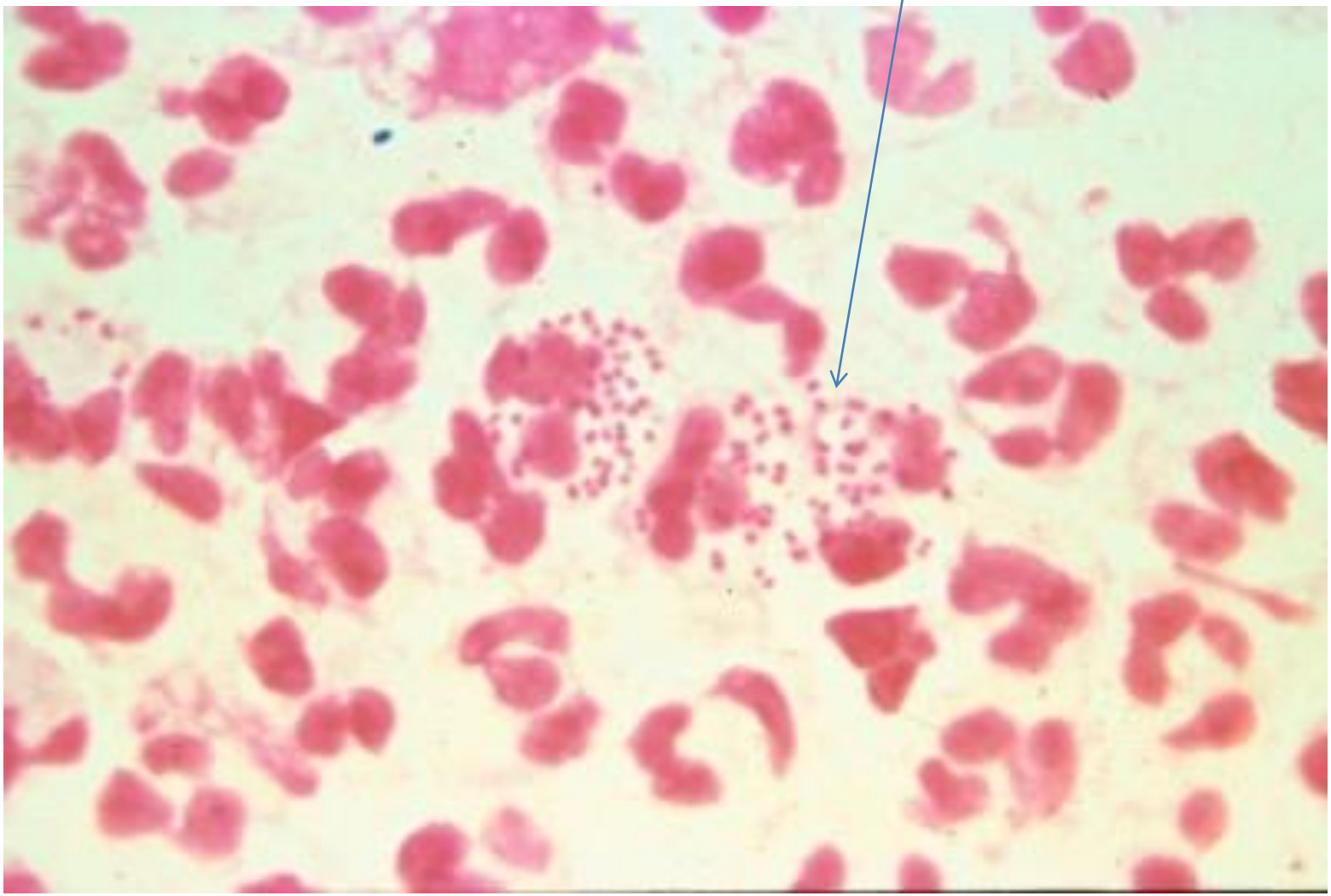
- Pharyangitis
- Ophthalamic
- Dissaminated gonorrhea
- Gonococcal arthritis
- Hepatitis & Peri-hepatitis
- Meningitis
- Gonococal proctitis
- Cardiac complications
- Skin rash of gonococcal septicemia

Diagnosis

1. **Gram staining** of discharge: **G-ve ,**kidney shaped **intracellular diplococci** (inside PMN)
2. **Culture**: A.**Enriched media** (Mc Leod's Chocolate agar)

   B.**Selective media**(Thayer Martin(VCN mixture): Vancomycin, Colistin, Nystatin
3. **NAAT**(Nucleic acid amplification techniques):-for detection of DNA or RNA of N.gonorrhoeae

Gonorrhoea - gram stain of urethral discharge



Treatment

1.Cefrtiaxone 500 mg IM single + Azithromycin 2 gram orally Or

- ❑Ciprofloxacin 500mg PO once Or
- ❑Ofloxacin 400mg PO once Or

2. Cefixime, 400 mg oral as single dose + Azithromycin 2 gram orally Or

3. Spectinomycin , 2 g IM single dose + Azithr.2gram

Plus :Doxycycline 100 mg po bid x 7 days

4.Resistant cephalosporin cases:

Gentamicin 240 mg IM + Azithromycin 2gram