

# Sexually transmitted infections (STI)

- **I. classical – venereal diseases**

- 1) syphilis (lues)
- 2) gonorrhoea (clap, drip)
- 3) chancroid - ulcus molle
- 4) lymphogranuloma venereum
- 5) granuloma inguinale



- **II. non-venereal STDs**

- 1) Non-specific UGI - chlamydia,  
mycoplasma, ureaplasma etc.  
+ trichomoniasis

- + bacterial vaginosis

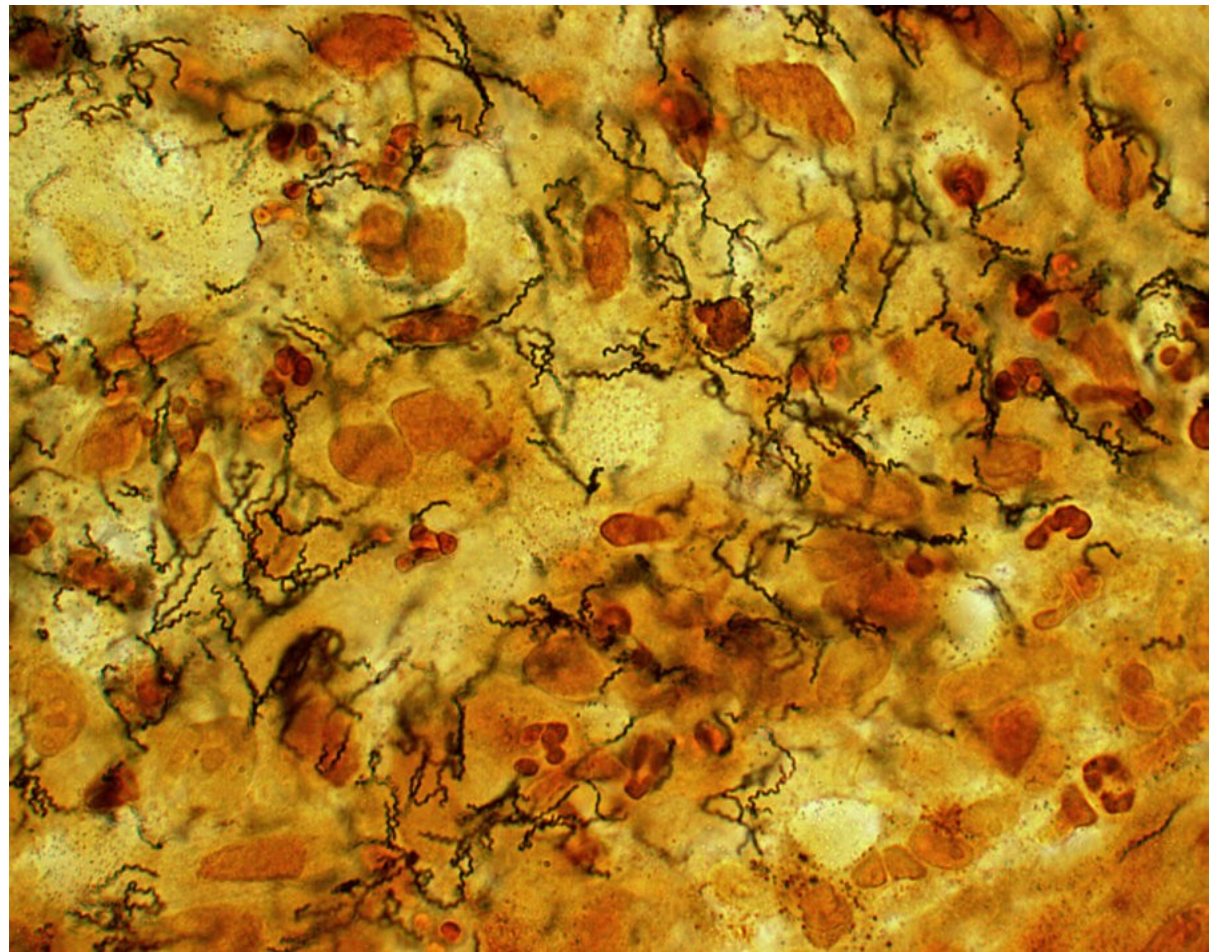
- 2) viral STD – HIV, hepatitis, genital herpes  
genital warts, mollusca

- 3) parasitic – scabies, phthiriasis



# 1) Syphilis

Causative organism:  
**Treponema pallidum**





# Epidemiology

- transfer: sexual intercourse (acquired sy)  
non-sexual transfer  
(transfusion, injury)

from mother to child

(congenital sy)

- IP 21 days (9-90 d)





# Primary syphilis

- after incubation period of 3 weeks  
**hard chancre** – indurated base  
sometimes atypical, multiple or  
superficial (primary syphilitic lesion)
- after 4-5 days reg. **lymphadenopathy**
- after 2-3 w (within 8 w) chancre heals  
with a scar
- sometimes latency follows

# Typical chancre



# Atypical multiple erosions





# Multiple lesions

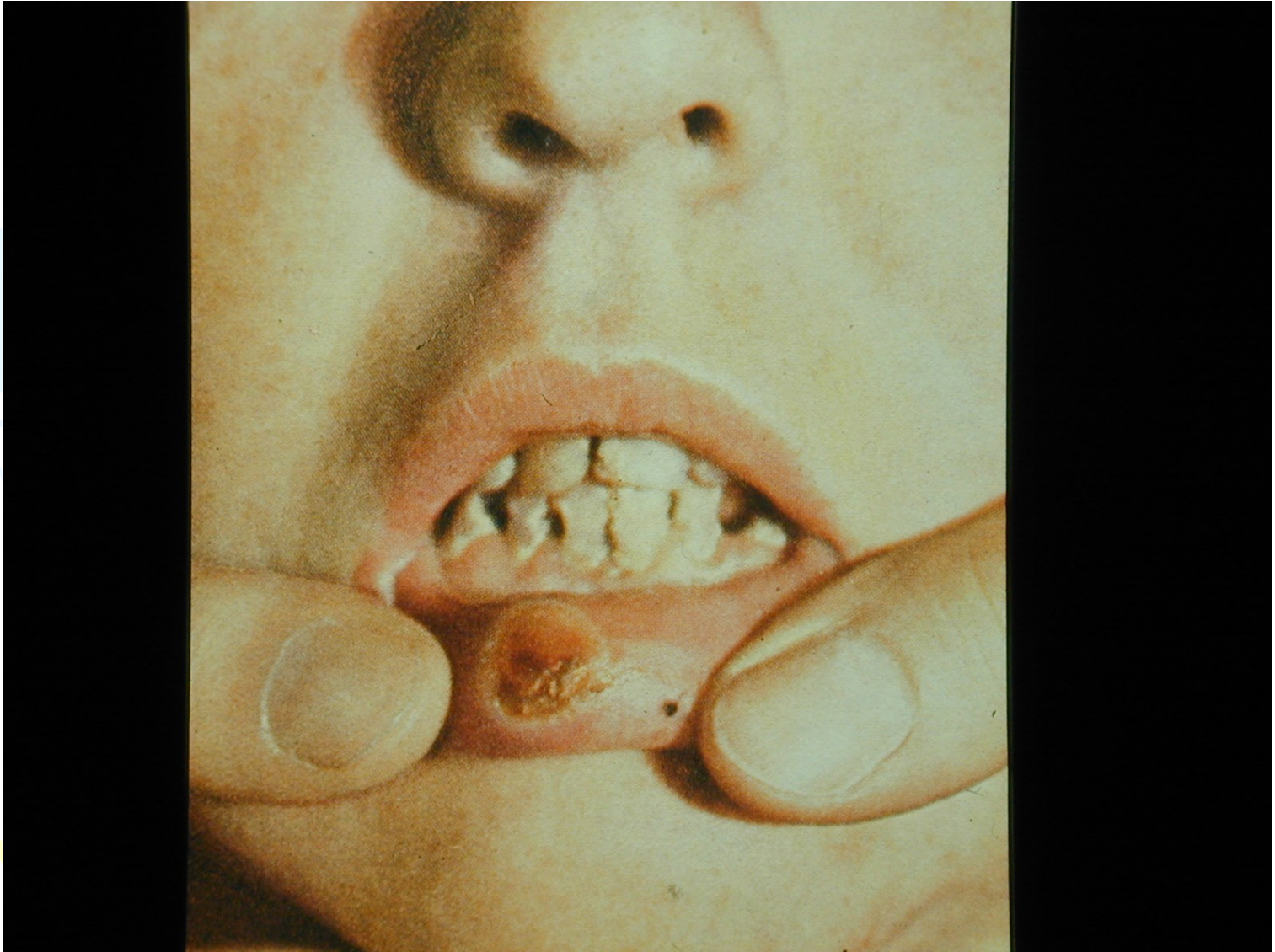


# Primary syphilitis lesions in a female





# Oral lesions





# Oral lesions



# Oral lesions







# Perianal chancre





# Secondary syphilis

- Starts usually after 9-10 th week,
  - untreated lasts for 5-6 months, then latency,
  - Recurrences are possible within 2-5 years
- 
- Recurrent rashes (syphilids) - noninfectious
    - macular syphilid (roseola syphilitica)
    - papular/papulosquamous syphilid (lichen syphiliticus)
    - palmoplantar syphilid (clavi syphilitici)
    - papulocrustous, papuloerrosive syphilid, pustular syphilid
- 
- 

# Roseola syphilitica





# Lichen syphiliticus

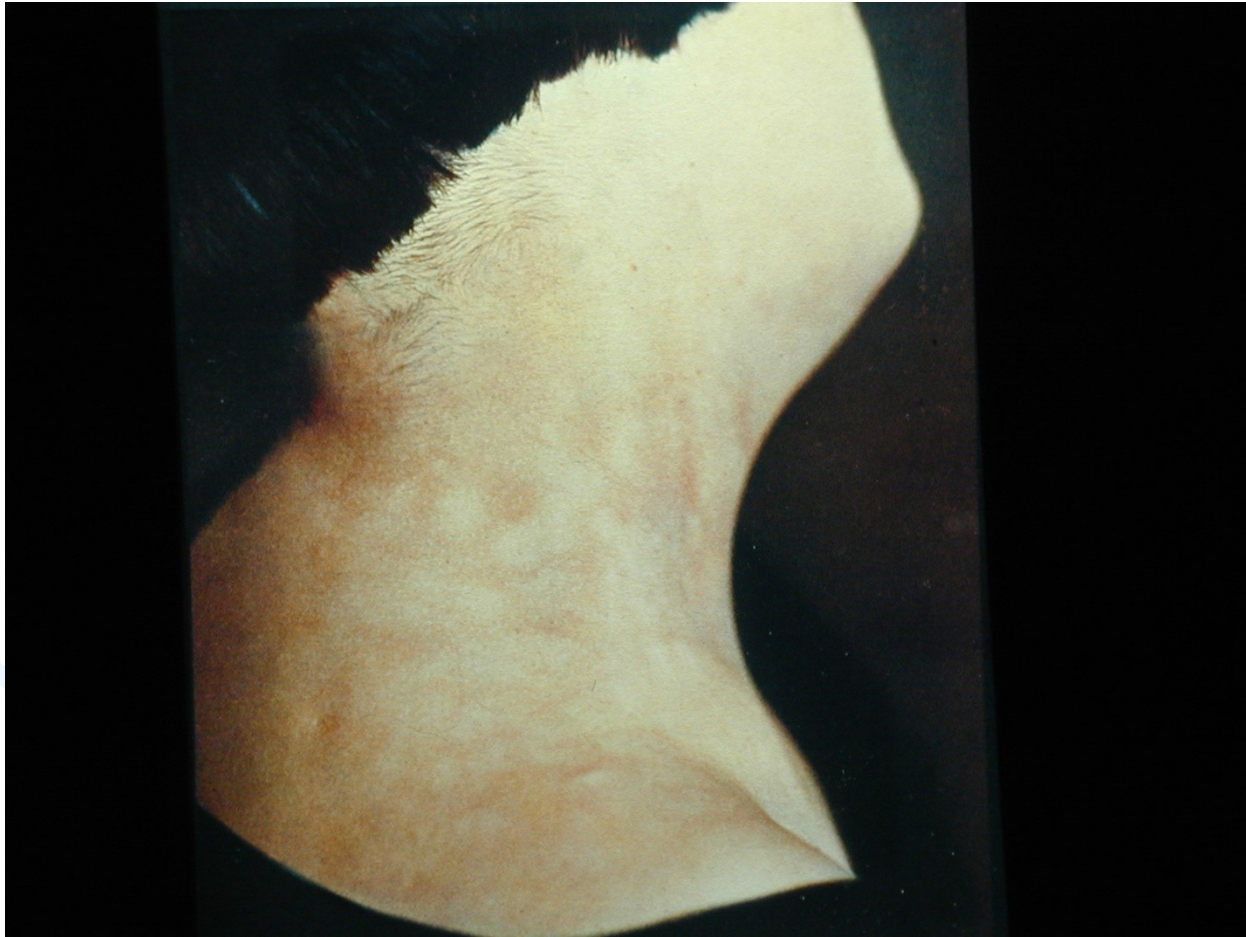




# Palmoplantar syphilid



# Leucoderma syphiliticum



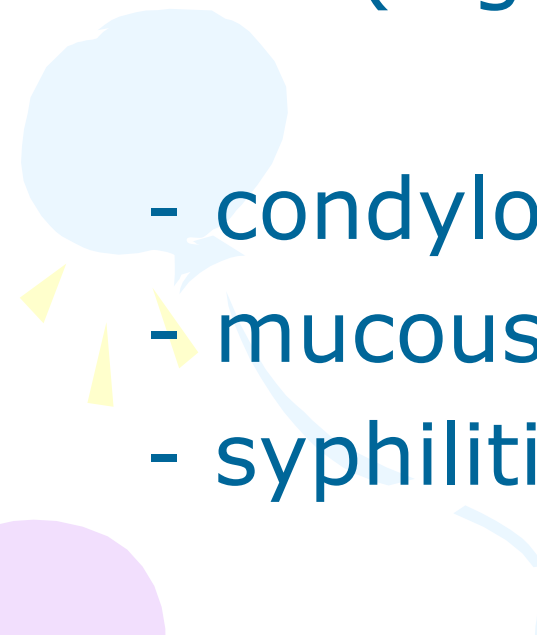


# Alopecia areolaris





- Mucous membranes lesions  
(highly contagious !!!!)

- 
- condylomata lata
  - mucous patches
  - syphilitic angina



# condylomata lata





# condylomata lata





# condylomata lata

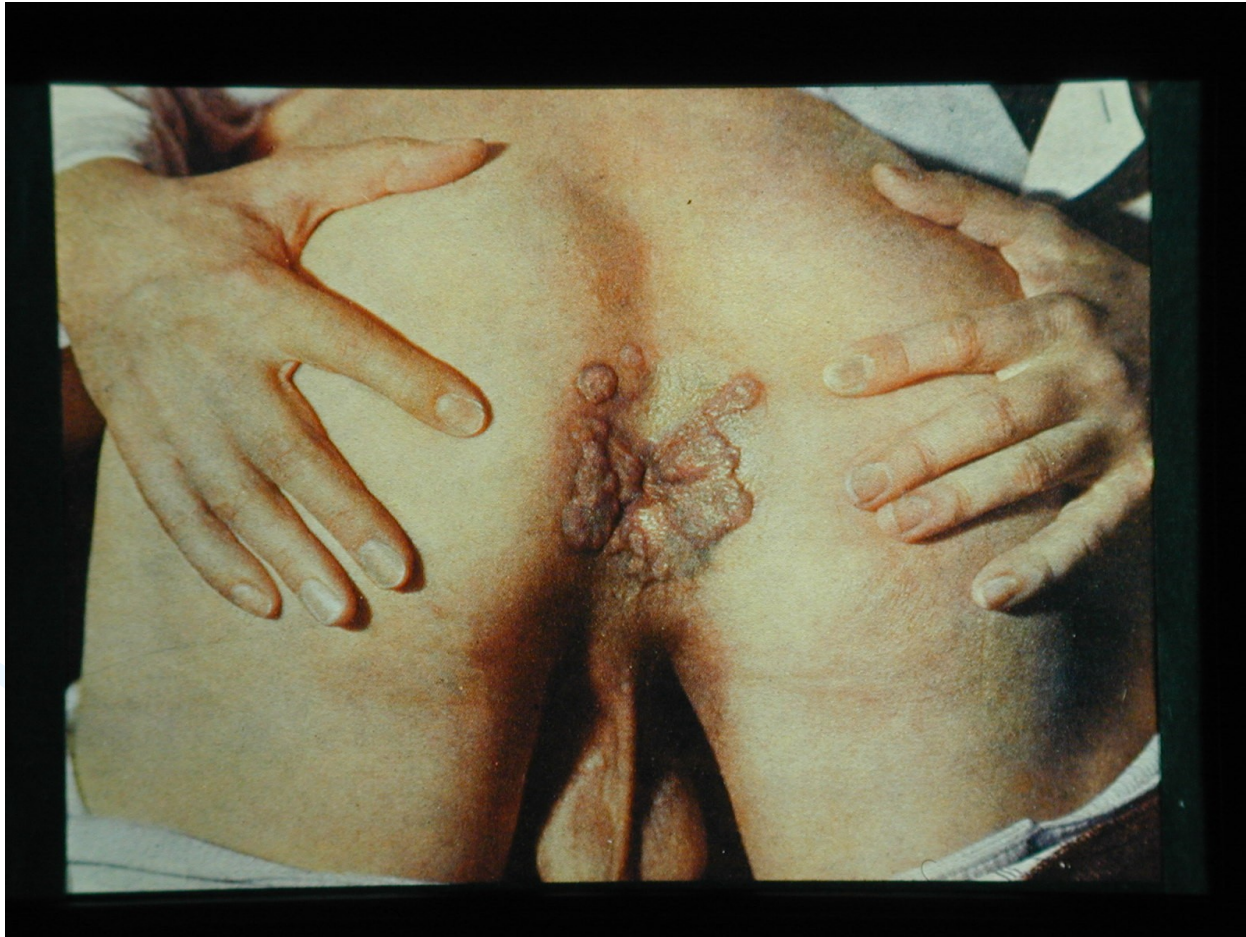


# condylomata lata





# condylomata lata



# condylomata lata

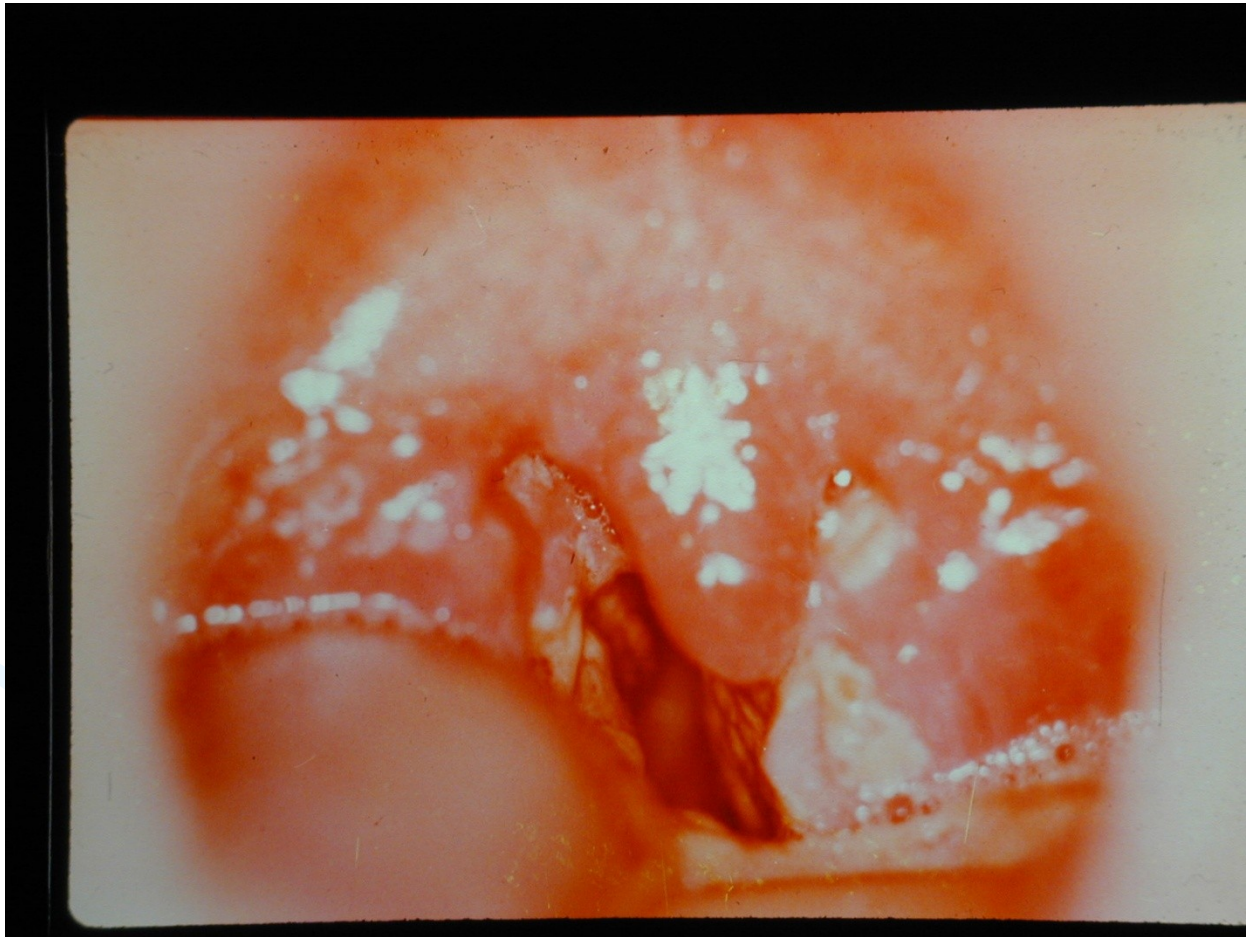




# mucous patches



# syphilitic angina







# Latent Syphilis

- No clinical features (either on the skin, mucous membranes or in internal organs)
- just positive serology
- longest between 2th and 3rd stage
- after 3-5 but even 10-15 years in 1/3 patients with untreated syphilis progression to 3rd stage



# Tertiary Syphilis

- Noninfectious, lesions not containing viable treponemas
- Clinics:
  - 1) tubercous syphilis
  - 2) gummata : skin (specif. granuloma)  
: organs  
tongue, bones- hard palate,  
nose and parenchymal  
organs – liver, lungs etc.

# tuberous syphilis



# Gummata





# gumma of the hard palate with perforation





### 3) Visceral sy : bones

syphilitic periostitis,osteomyelitis

: parenchymal organs

interstit. inflammation- liver,parotides,testes...



### 4) KV syphilis : mesaortitis --> aneurysma

endarteritis of coronary vessels  
insufficiency of aortal valve





# neurosyphilis

- Meningovascular damage

- intracranial hypertension
- focal symptoms similar to cerebral stroke

- Degeneration of neurons

- **general paresis of the insane**

disturbances of memory, intellect, attention, discernment, moods, depressions, agitation, demented states with megalomaniac delirium, trembling, dysarthria





# neurosyphilis

## - **tabes dorsalis**

sclerosis of the posterior columns of spinal chord



Progressive ataxia (specific walk, + Romberg sign)

Absent deep tendon reflexes ( but positive Babinski sign)

Argyll-Robertson pupils – no reaction to light

Shooting pains

Sphincter disorders, impotence

Charcot's joints – damaged due to a lack of sensation



Trophic defects - malum perforans



# Congenital Syphilis

- Transplacental transfer conditions - mother has TP in the blood
    - permeable placenta
- (rarely before the end of 1st trimester)

implications: treated sy – healthy child

non- treated early sy - abortion in 6-7 m

non treated late sy – early congenital sy

- late cong. syphilis

- healthy child



# Early congenital Sy

- atrophic newborn
- yellow-grey colour (anemia, jaundice)
- hepatosplenomegaly
- pneumonia alba
- general. lymphadenopathy
- pemphigus syphiliticus blisters on palms & soles
- papulosquamous lesions



# pemphigus syphiliticus



# Papuloerrosive lesions, coryza syphilitica



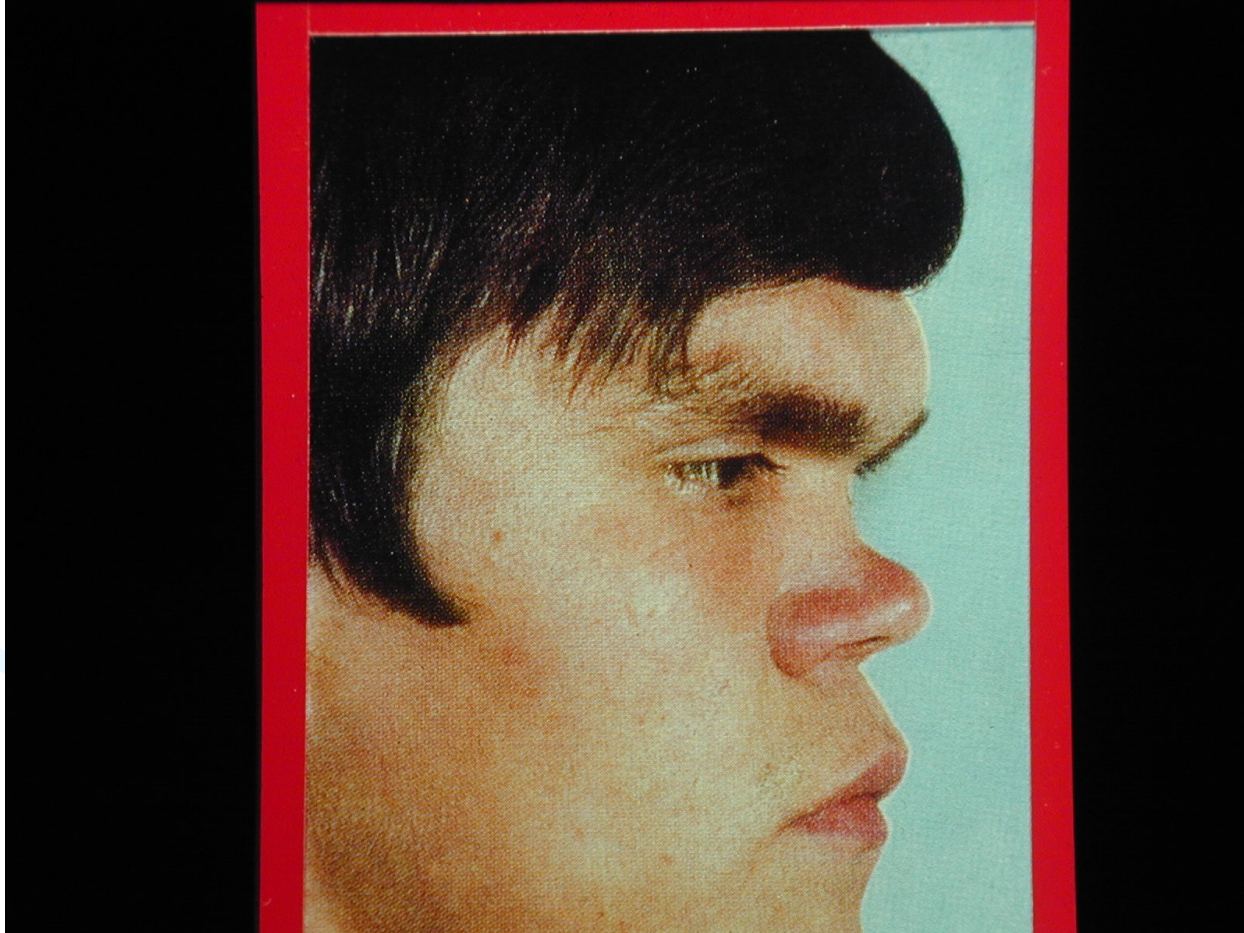


# Early congenital Sy

- coryza syphilitica rhinitis
- Parrot lines – rhagades--> scars around mouth
- 30% mucous patches
- condylomata lata
- Bone damage: saddle nose  
palate perforation  
frontal bossing  
sabre shins



# saddle nose





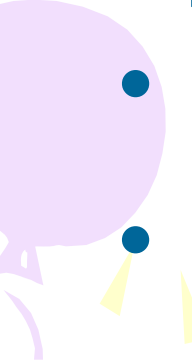
# Late congenital Sy

after 2 years of age

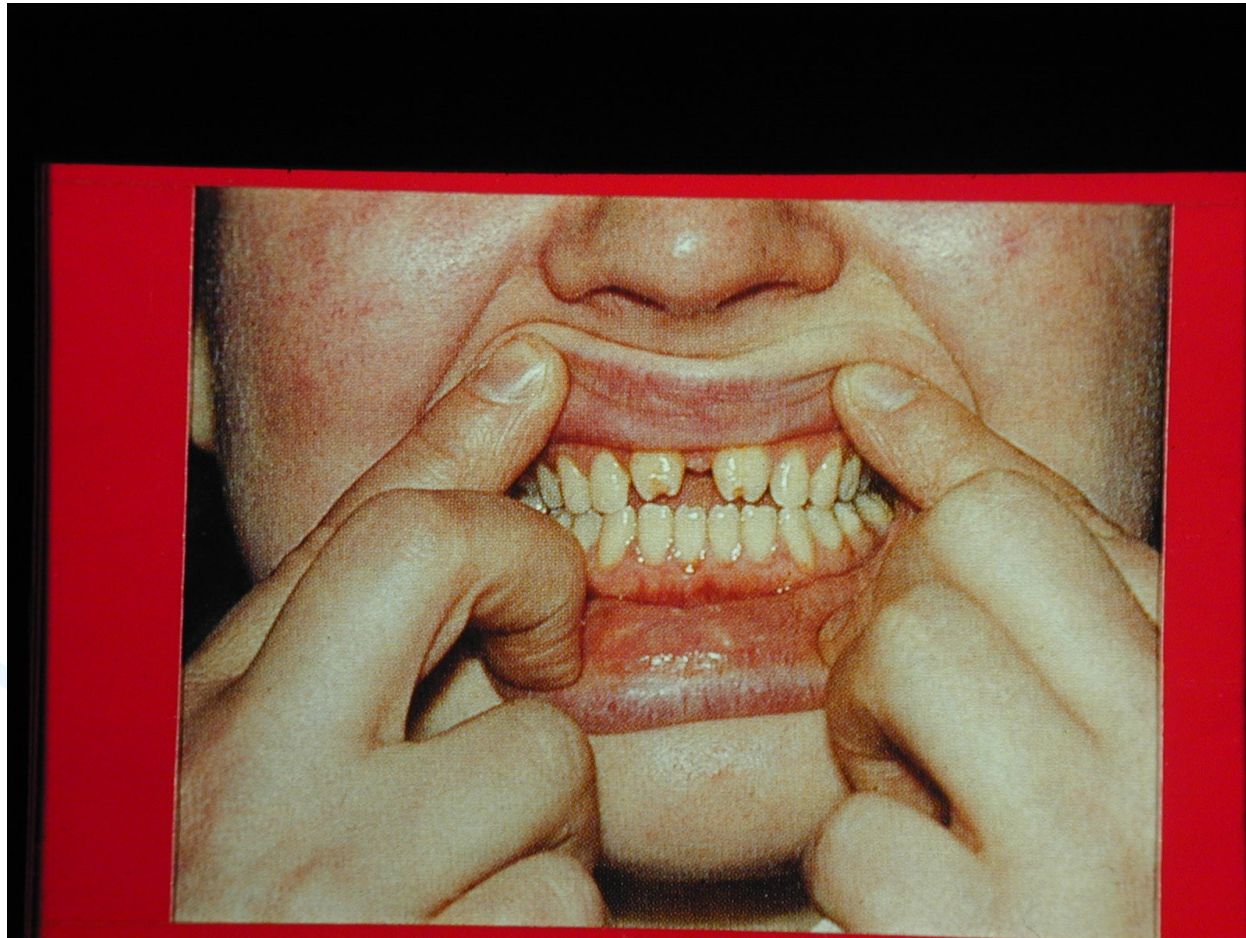


- **Hutchinsons trias:**

- barrel incisors
- interstitial keratitis
- 8 th nerve deafness

- 
- saddle nose, frontal bossing, sabre shins
  - effusions to joints /Clutton joints/
  - sometimes gummata on the skin
  - rarely internal organs involvement:  
hepatosplenomegaly, KV syphilis- mesaortitis
  - neuro sy – disorders of speech and intellect

# Barrel incisors, diasthema





# Barrel incisors, diasthema



# saddle nose



# Diagnosis of syphilis

- **Direct examination**

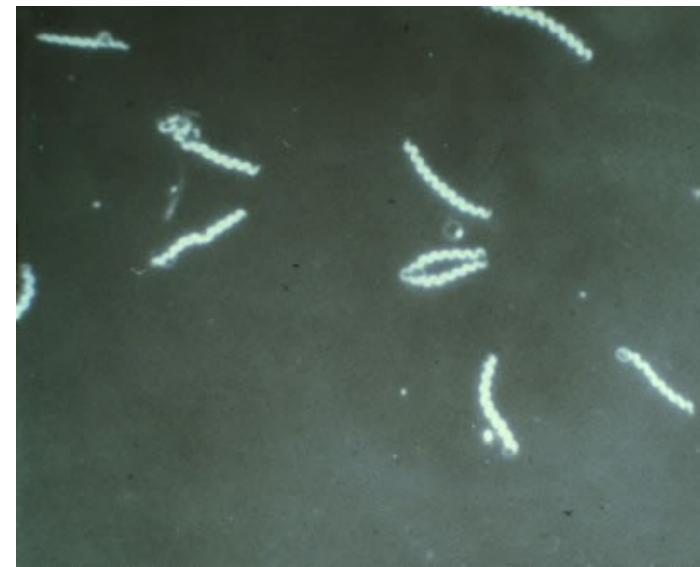
- **Ulcer or other mucous membranes lesions**

- I) **dark field microscopy** Technique:

- Massage of the ulcer with a plastic loop,
    - Picking up the fluid with the loop to a drop of saline solution
    - Put on a slide
    - Slowly moving shining spiral structures
    - in dark field /5 to 15 um, 10 to 20 spirals/
    - differentiation from non pathogenic treponemas/T. macro,microdentium etc./

- II) **DFATP** (DIF – Ab against TP),

- III ) **PCR**








- **Serology**



- 1) nonspecific reactions** - antigen is cardiolipin

1906 Bordet Wassermann - KFR (BWR)  
flocculation reactions (RRR ,VDRL )

- screening reaction
  - positive since 5th week after infection
  - sometimes biologic false positivity
  - Acute (< 6 months) gravidity, spirochetal infections (leptospirosis), viral infections (mononucleosis, rubella, chicken pox)
  - Chronic (> 6 months) - chronic infections (leprosy, TBC, malaria), autoimmune disorders(SLE), malignancies, drug abuse
- 

## 2) specific reactions – antigen is TP

1949 Nelson TPIT TP immobilization test, not performed now

- FTA-Abs. Test (IgM)(Fluorescent Treponemal Antibody)
- Specific confirmation test, positive since 3<sup>rd</sup> week

- TPHA Test (S-IgM SPHA)(Treponema Pallidum Haemagglutination) sheep ery coated with TP antigens

Screening and confirmation test, positive since 4<sup>th</sup> week

- ELISA IgM, IgG - confirmation test, early positivity
- Westernblot - confirmation test, more accurate than ELISA

**screening** – RRR, TPHA, **confirmatory** – ELISA, WB, FTA ABS



# Treatment of syphilis

- **Recent sy:** P-PNC G 1,5 -3 mil U im.  
1 week, at the end 1 application of benzathin PNC 2,4 mil U im.
- **Late sy :** P-PNC G 1,5-3 mil U. 2 weeks ,  
then benzathin PNC 3 x á 1 week
- **Neurosyphilis:** crystalic PNC 18-24mil U/d iv
- allergy : TTC, macrolids – not so effective!  
cephalosporins





# Complications of treatment of syphilis

- Jarisch – Herrxheimer's reaction
- Rupture of the aneurysma of aorta





## 2) Gonorrhoea

- pathogen: *Neisseria gonorrhoeae*
- G- diplococcus, 0,8-1,6  $\mu\text{m}$
- Acute purulent inflammation of the mucous membranes of urogenital tract (but also rectum,conjunctiva...)
- no immunity develops!
- transfer: sexual intercourse,  
rarely during delivery  
exceptionally via objects
- IP: 2-6 days ( 1-14 d)



# Clinical picture

## Acute go in men

- Discharge and dysuria
  - complications: balanitis, balanoposthitis, phimosis, paraphimosis  
Tysonitis, Littreitis, periurethritis, cavernitis, cowperitis
  - Ascending infection  
prostatitis, epididymitis, seminal vesiculitis  
cystitis, ureteritis, pyelonephritis,  
sepsis, metastatic complications
- 
- 



# Acute go in men





# Gonococcal sepsis

- Epizodic fever, polyarthritits,
  - Hemorrhagic ,pustular rashes
  - Metastatic complications
    - mostly knee - gonarthritits
    - (empyema, perforation, ankylosis),
    - less often other joints – sterno-clavicular
  - Pneumonia
  - Endokarditis,myositis
- 
- 



## **Chronic gonorrhoea in men**



Gonococci hidden in small glands  
or in prostate,

Spare milky discharge- 'bonjour drop'

- consequences: stricture of urethra,  
fimosi, sterility
- 





## **Acute gonorrhoea in women**

- Urethritis
- Cervicitis
- Complications: Bartholinitis, paraurethritis, cystitis, endometritis, salpingitis, adnexitis, peritonitis, perihepatitis, pyelonephritis, sepsis, metastatic complications



## Chronic gonorrhoea in women

mostly asymptomatic course

inf. hidden in small glands

after intercourse, menses, alcohol intake  
egestion of cocci and infection of sexual  
partner

consequences: sterility, risk of ectopic pregnancy,  
chronic PID /pelvic inflam. disease/

# diagnostics

- **Microscopy**

taking of samples with a loop

- **smear** – spread on a glass slide, heat fixation and Gram staining

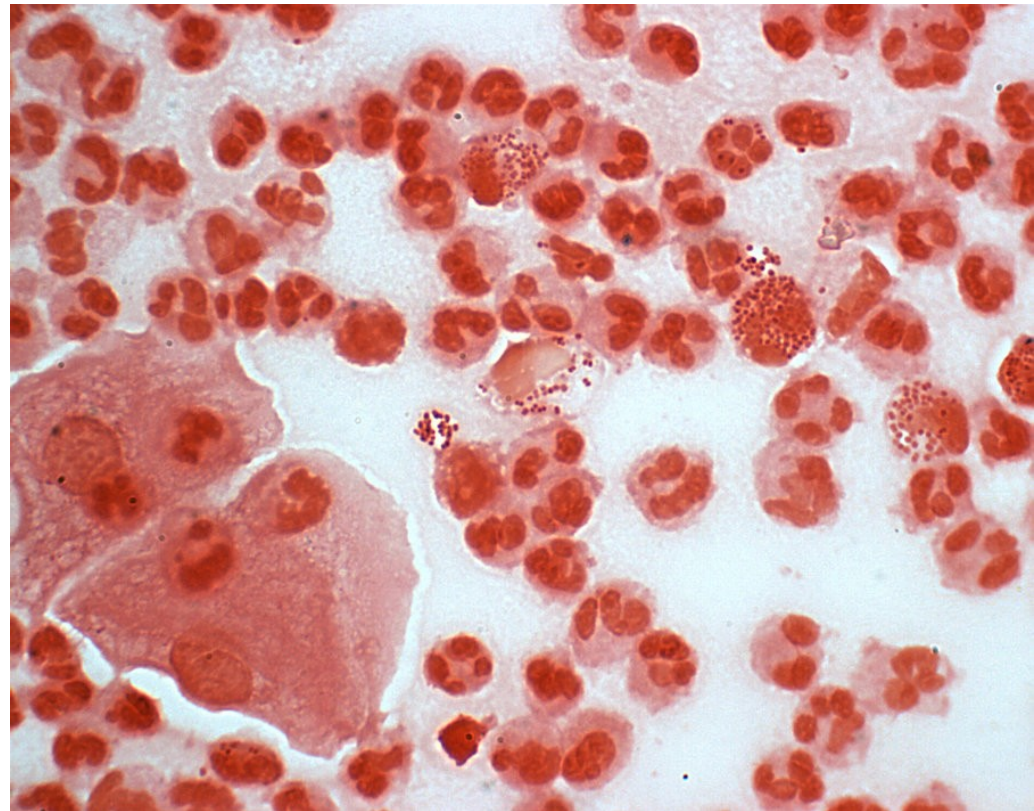
- **Culture** – blood agar  
at 36 dC, CO<sub>2</sub> rich atm.  
gray colonies

- identification – *oxidase* reaction and others

- ATB sensitivity (PNC, cefalosporins, TTC)

- Serology: unreliable

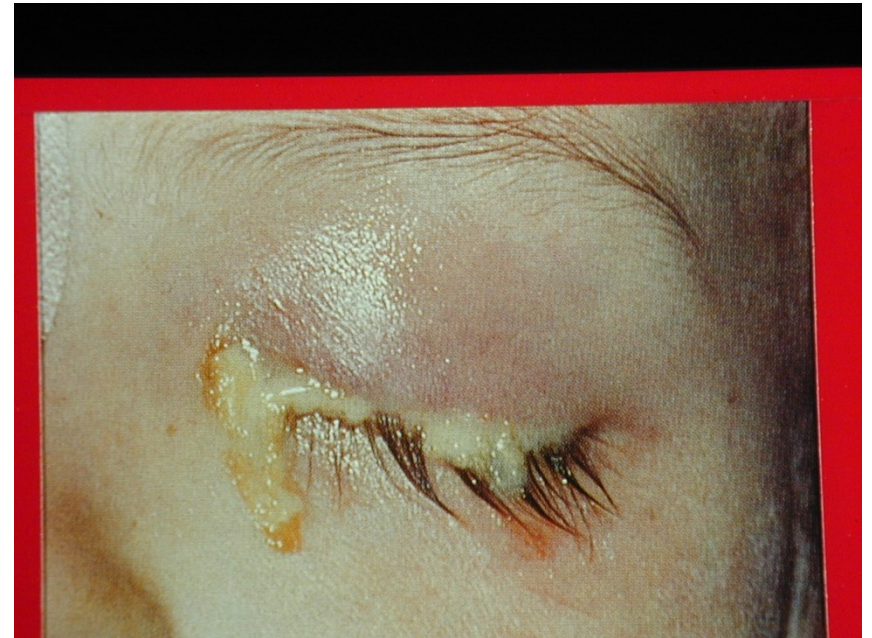
- PCR





# Extragenital go

- Go conjunctivitis  
neonatal  
adult
- Rectal go  
primary  
secondary
- Pharyngeal go





# Treatment of gonorrhoea

Acute non complicated go:

- ceftriaxone 1g i.m.  
(+ azithromycine 2g (single dose)
- doxycycline 7-10 days 2x100 mg  
spectinomycine 2g i.m.



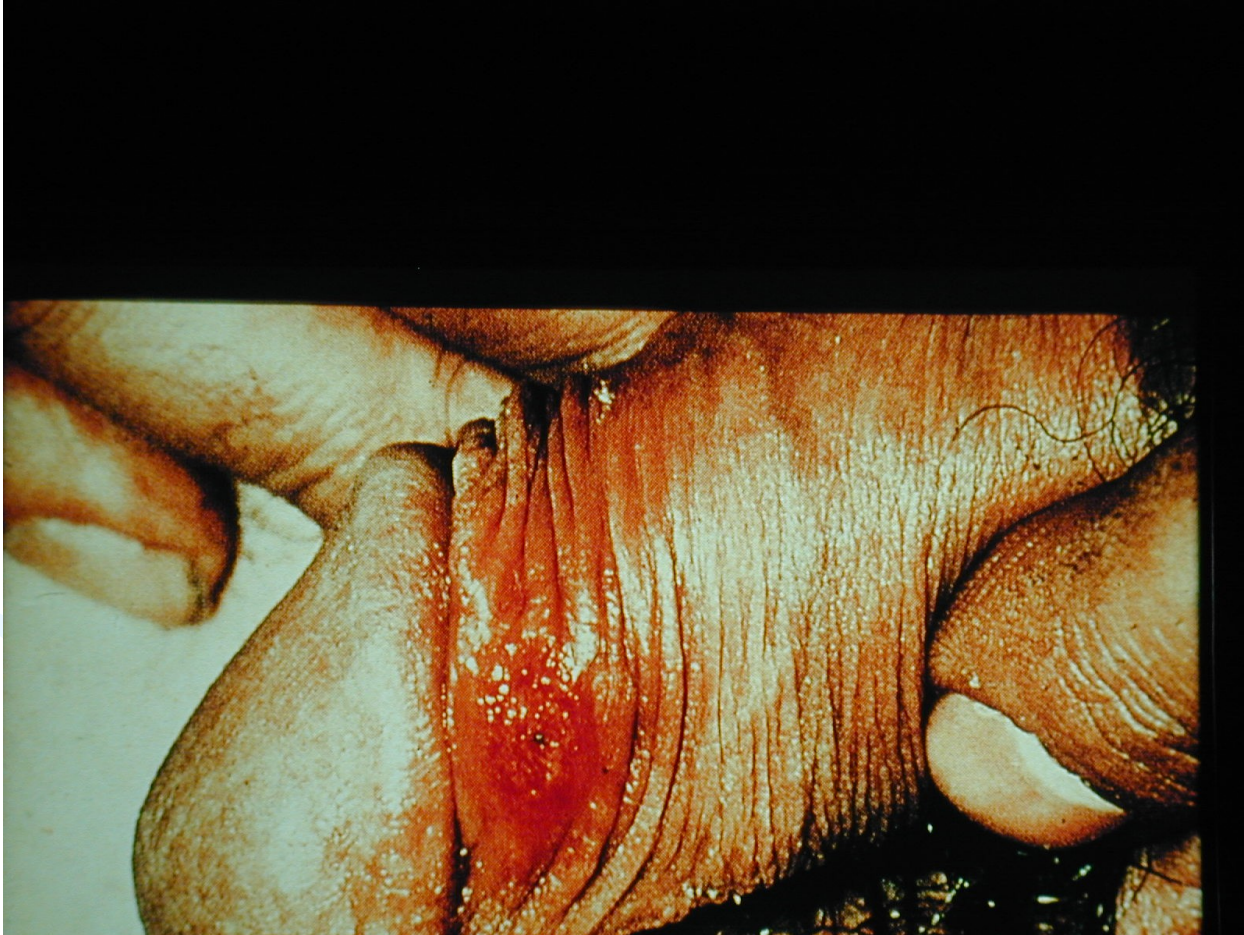
Complicated, chronic go:

better to treat during hospitalization

ceftriaxone 3-7 days 1g i.m.



### 3) Chancroid





# Chancroid - Ulcus molle

- Causative org.: Hemophilus Ducreyi
- short G- rod
- IP: 3-5 days ( 1-14 days)
- epidemiology: Africa, India, Carribean
- No immunity
- Clinics: painful ulcer with undermined border, mostly innner aspect of the foreskin
- Within 3 weeks lymphadenopathy(bubo) colliquation, fistulas





# Chancroid

- **Dg: microscopy**

described as schools of fish

**culture** : blood agar enriched with  
vancomycine and 1% izovitalex

- **Th:** Azithromycine 1g 3 days

Cephalosporins – ceftriaxone 1 g i.m.

Ciprofloxacin 2 x 500 mg 1 week

## 4) Lymphogranuloma venereum

- cause: chlamydia - serovars L1-3
- IP: 1-3 weeks ( 3-30 days)
- Epidemiology: Asia, Africa, India, South Am.
- Venereal disease affecting lymphatics
- Clinic: small ulcer
- Healed within 1 week
- After 1-6 weeks regional lymphadenopathy, colliquation, fistulas, healing with scars
- consequences: lymphoedema of penis, vulva

# Lymphogranuloma venereum



# Lymphogranuloma venereum







# Lymphogranuloma venereum

- Dg: – serology KFR (titer > 1:64 or 4 x increase and higher)
  - microimmunofluorescence
  - culture - expensive
  - PCR
- Th: doxycycline 2x100mg 3 weeks, ery 4x500mg 3w, azitro 1g 3 w surgery of abscesses



## 5) Granuloma inguinale

- Cause: Klebsiella - formerly:  
Calymmatobacterium granulomatis
- G- small oval microorganism  
grows intracellularly in macrophages
- epidemiology: SE India, N. Guinea,  
Caribbean, South Africa, Australia  
IP: 2 weeks – 2 months
- clinics: chronic ulcerative vegetating  
often large ulcers

# Granuloma inguinale

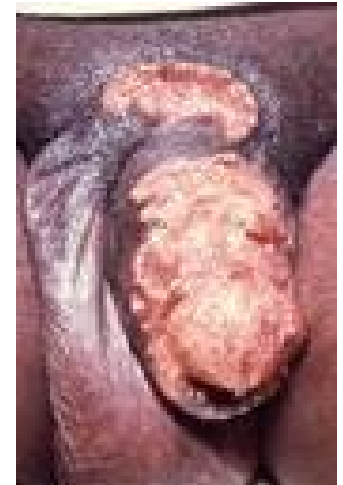


# Granuloma inguinale

- Dg:

- microscopy- Wright or Giemsa staining:  
G-oval bodies inside macrophages,
- culture – difficult
- serology (x Kl. Rhinoscleromatis)
- PCR

- Th: streptomycine 1g im. 2-3w  
azithromycine 1g weekly 4w  
doxycycline 2x 100mg 3 w

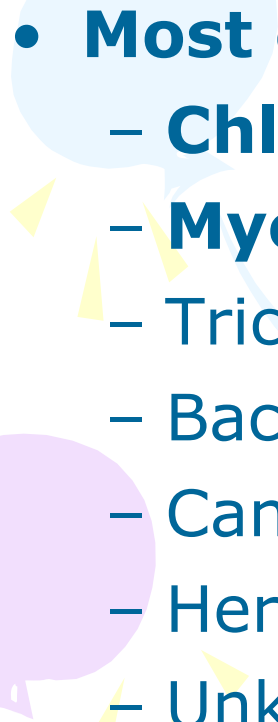







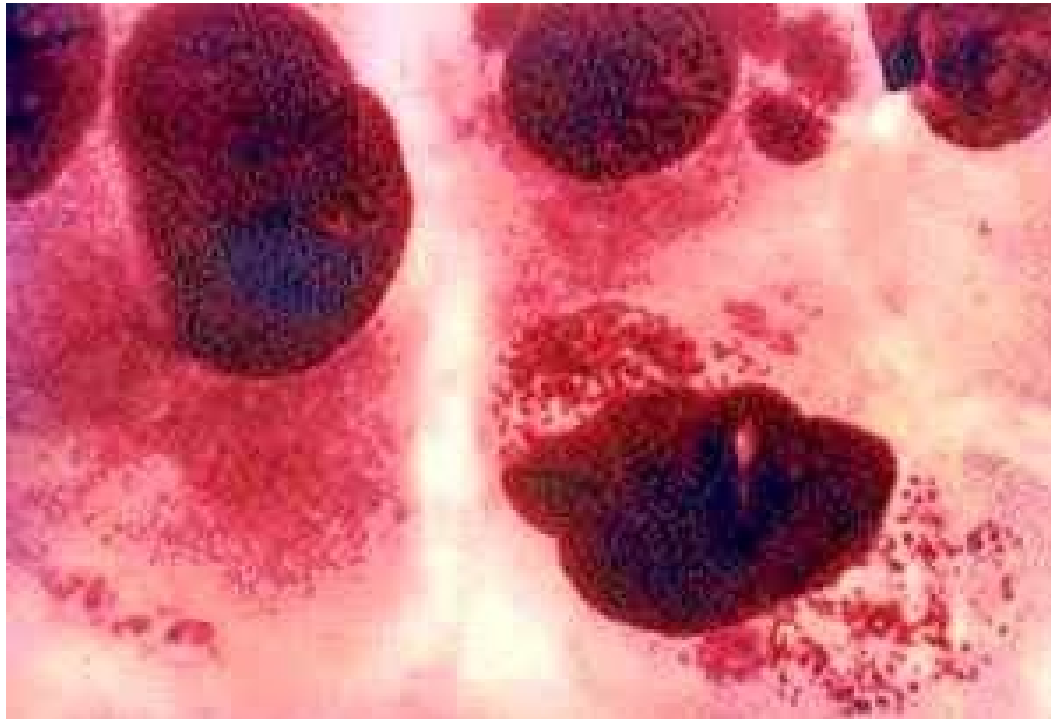
## II ) Other STDs

### 1) non-specific UG infections

- **Most common agents:**
    - **Chlamydia trachomatis (D - K) 50%**
    - **Mycoplasma, Ureaplasma 20-30%**
    - Trichomonas vaginalis < 5%
    - Bacterial urethritis < 2%
    - Candida < 2%
    - Herpes simplex < 2%
    - Unknown 10 %
- 
- 

# Chlamydia

G- immobile bacteria, round-shaped  
obligate intracellular parasites  
lack cytochromes  
IP 10-20 days





# Serovariants :

- serovariant: A-C .... trachoma
- serovariant :L1-L3....lymph. vener.
- serovariant :**D-K** ... urog. infections



women: cervicitis (50% asymptom.)

urethritis (mostly asymptomatic)

proctitis

endometritis, salpingitis



PID, infertility



- Men:

- Mucopurulent urethritis (10-50% symptomatic)
- Epididymitis, prostatitis
- Reiter sy:
  - starts as urethritis or balanitis circinata
  - after 10 -30 days .: arthritis (95%)  
conjunctivitis 25-50%)  
rashes (10%)  
lesions similar to pustular psoriasis or EEM





# diagnostics

- **Chlamydia trachomatis** (D-K)  
microscopy- Giemsa stain  
direct IF with monoclonal. Ab,  
culture on cell cultures (Mc Koy)  
PCR, LCR
- serology - ELISA, KFR, IIF  
(unreliable, follow the Ab titre dynamics)

# Treatment of chlamydial infections

- Doxycycline 2x100 mg 7-10 days
- or azitromycine 1g mg 1-3 days
- or chinolones 2x 250 mg 5 days

/ofloxacine,ciprofloxacine/

pregnancy : erythromycine

PID: clindamycine+ gentamycine

or ciprofloxacine+ metronidazole



# Mycoplasmata, ureaplasmata

- M. genitalium, (hominis, fermentans)
- (Ureaplasma urealyticum)
- Lack cell wall, immobile, ectoparasites
- Dg: culture, mycoplasma agar, PCR
- Clinical picture:
  - men: 70 % symptomatic chron. urethritis, serous discharge, sterile leukocyturia compl. prostatitis, pyelonephritis, Reiter sy
  - women : mostly asymptomatic infection: urethritis, vaginitis, cervicitis, endometritis, spontaneous abortions
- Th: azitromycine 500 mg, then 250 mg until day 5

# Trichomoniasis

**Trichomonas vaginalis** – flagellated protozoan

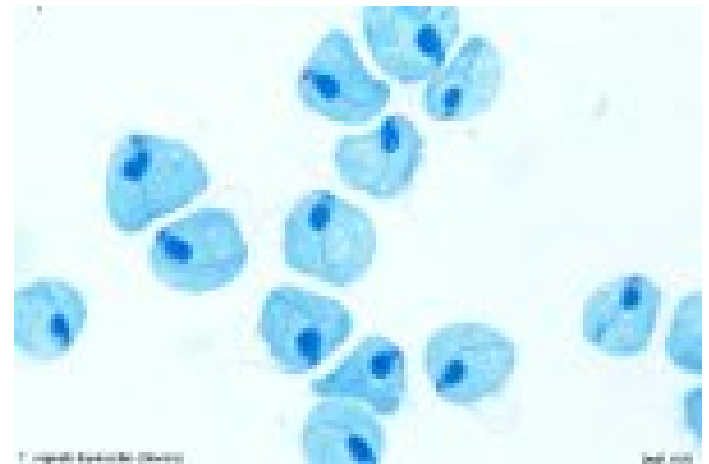
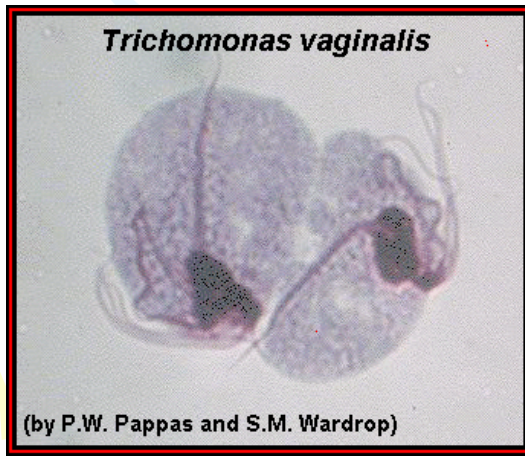
- transfer during sex but also via objects /sponges, wet towels/

clinics: women – vaginitis – foamy vaginal discharge  
dysuria , dyspareunia

men – mostly asymptomatic course or mild dysuria

dg: mikroskopy -native preparate  
culture

th: metronidazole 1x2g or 2x500mg 1 week







## 2) Viral STDs

- **genital herpes** – HSV 1,2
- **genital warts** – HPV (6,7,11,16,18)
- **molusca contagiosa** – poxvirus



## a) Genital herpes

- Causative agent HSV II : 70-90%,  
HSV I : 10-30%
- Clinical picture:
  - primoinfection** :herpetic blisters-->polycyclic erosions, very painful,enlarged lymphnodes, healing 2 to 6 weeks
  - recurrent infection**: approx. 80%,  
in women more severe course
  - asymptomatic infection** – carriers

! Infection in pregnancy !

# Genital herpes





# Genital herpes

- Dg: clinical appearance  
serology : KFR, ELISA, WB  
( culture ) ( PCR )

Th: according to the extent- iv. ACV 5mg/kg  
p.o. ACV 200-400 mg 5xd  
or valacyclovir, famciclovir  
cidofovir

Recurr. infection: prolonged suppressive th:  
ACV 3x200 or 2x400 mg at least 3months



## b) Genital warts

- Cause: HPV  
> 200 types
- 83% HPV 6 and 11,
- 6% HPV 16 a 18
- IP 1-6 months
- Some related to cervical carcinoma
- vaccination



# Genital warts

- Dg:
- Clinical appearance
- PCR
- Histology
  - akantosis,
  - papilomatosis,
  - koilocytes =  
(hyperchromic nucleus,  
perinuclear halo)





# Genital warts

- Th:
- excision, abrasion
- Cryoth., electrocoag.
- podophylin tct  
podofylotoxin  
( Wartec crm )
- Imiquimod 5% crm  
(Aldara)

Vaccination



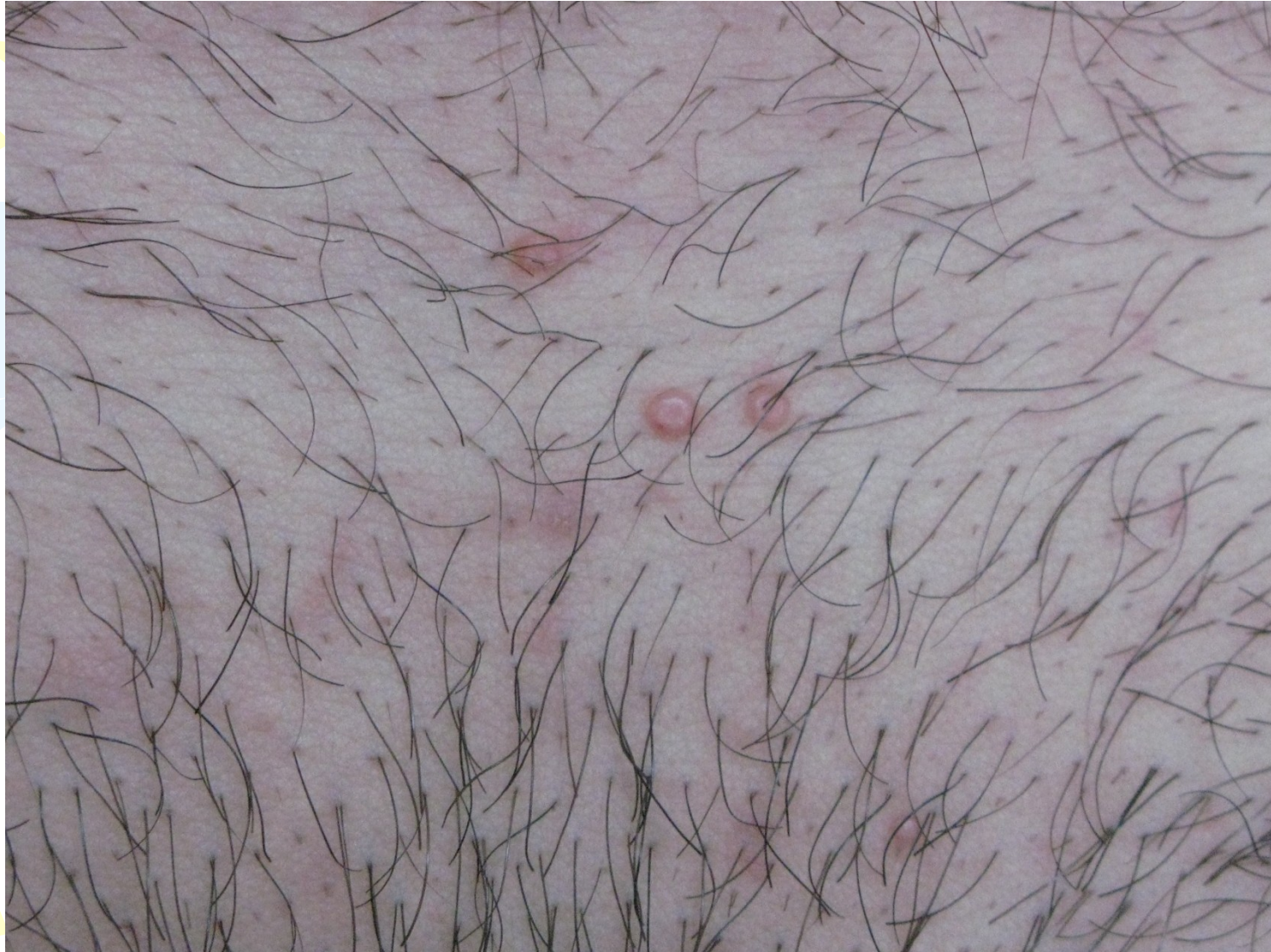
# c) Moluscum contagiosum

- cause: poxvirus  
MCV1,2
- transfer:
  - direct contact - among children
  - during sex. intercourse- in young adults around 20 y
- No itch, spontaneous regression
- Dg: clinics, (histology)
- Th: excision, abrasion  
cryotherapy  
iodine





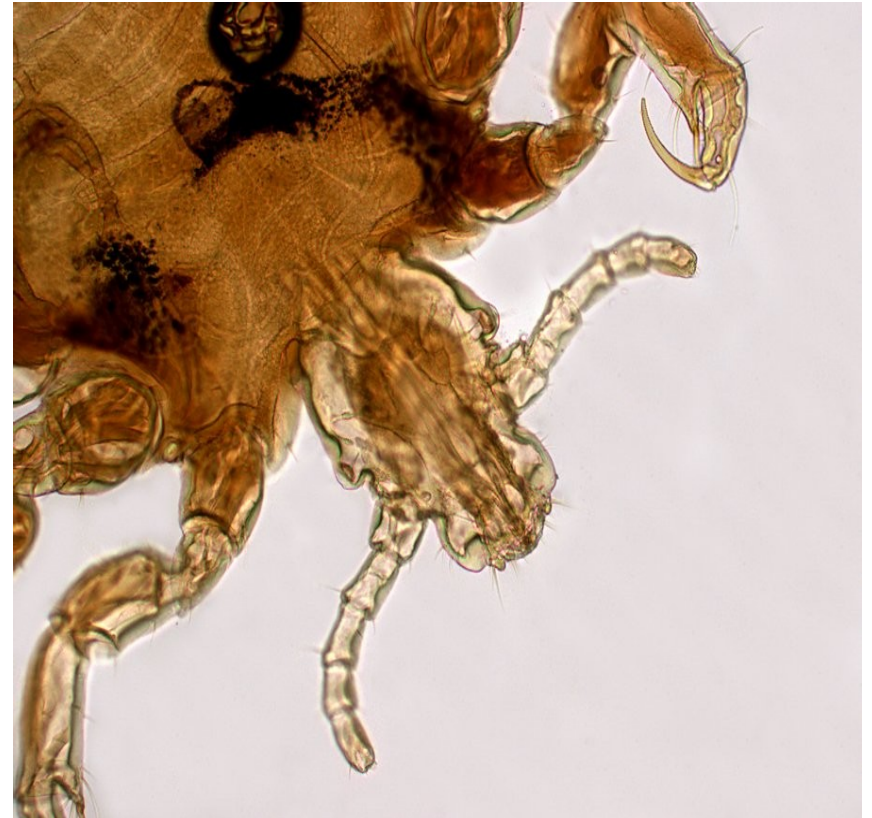
# Moluscum contagiosum



# 3) Parasitic STD

## 1) Phtiriasis (crabs)

- cause: phtirus pubis  
= pubic louse (crab)
- Size: approx 2mm  
smaller than head or  
body louse
- IP approx. 30 days





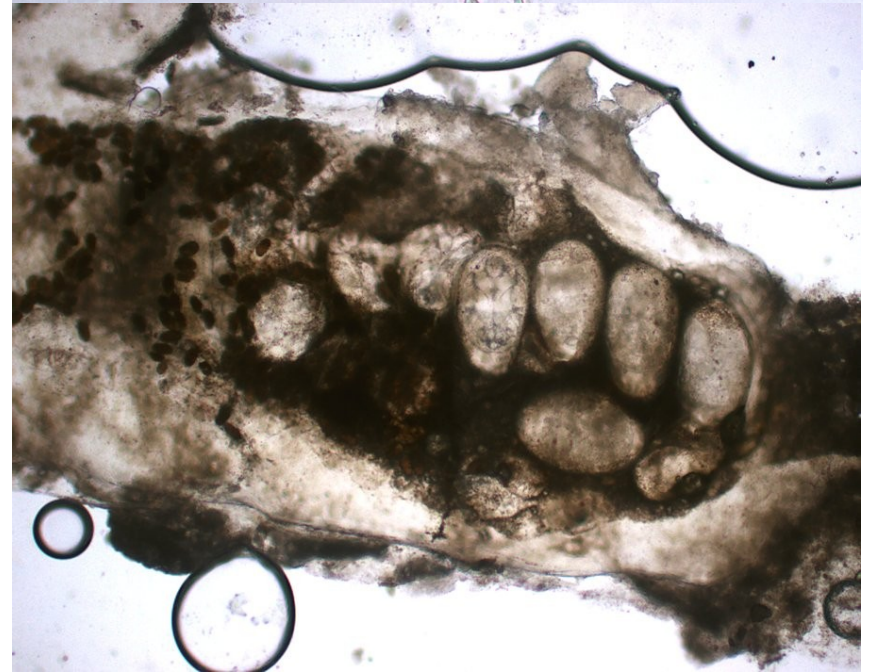
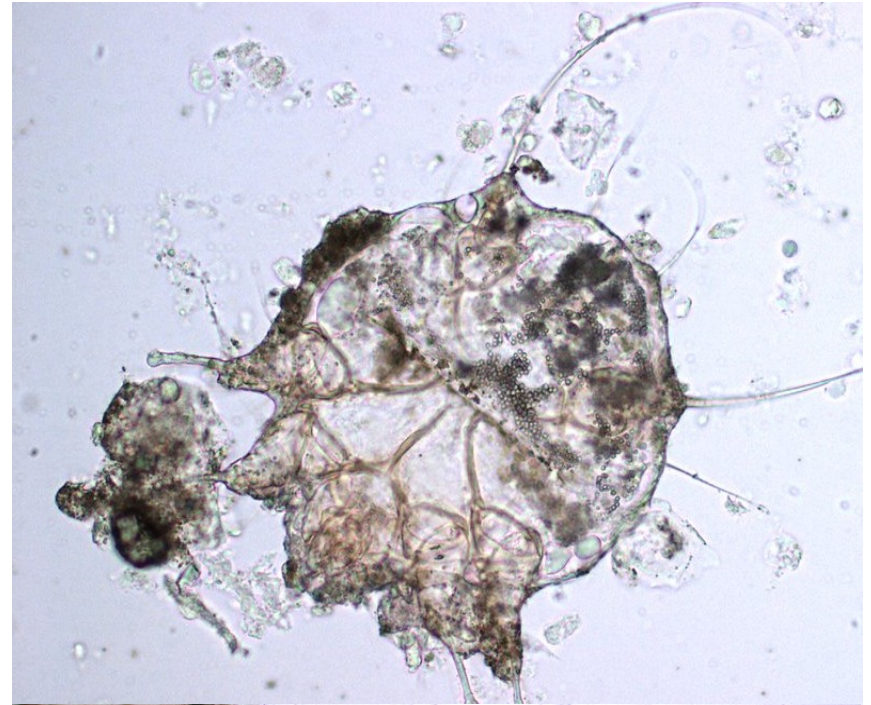
# a) Phtiriasis

- itching in pubic region ( or in axillary hairs )
- Nits attached to the hairs just as head lice
- Maculae coeruleae = violaceous macules result from the bite
- Dg: clinical picture
- Th: ivermectin 0,5%  
malathion 0,5%
- top. dimethicon



## b) Scabies

- Causative agent:  
Sarcoptes scabiei  
(scabies mite)
- Makes burrows in stratum corneum
- Feeds with tissue fluid
- Size: cca 0,3 mm
- IP: 2-6 weeks
- Transfer: direct contact indirectly  
via linen, underwear,  
in cheap hotels, lodging-houses  
hospices, retirement houses  
among homeless people ,  
even health-care workers !





# Scabies

- clinics: small papules, doubled pruritus at night
  - Predilection: interdigital spaces - fingers, anterior axillary fold, around umbilicus, genitalia
  - Dg: clinical appearance  
microscopy
  - Th: topical - permethrine (Infectoscab)  
sulphuric ointment  
systemic: ivermectin
- !!! Hygienic measures !!!

