Sexually transmitted infections (STI)

- **I. classical – venereal diseases**

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

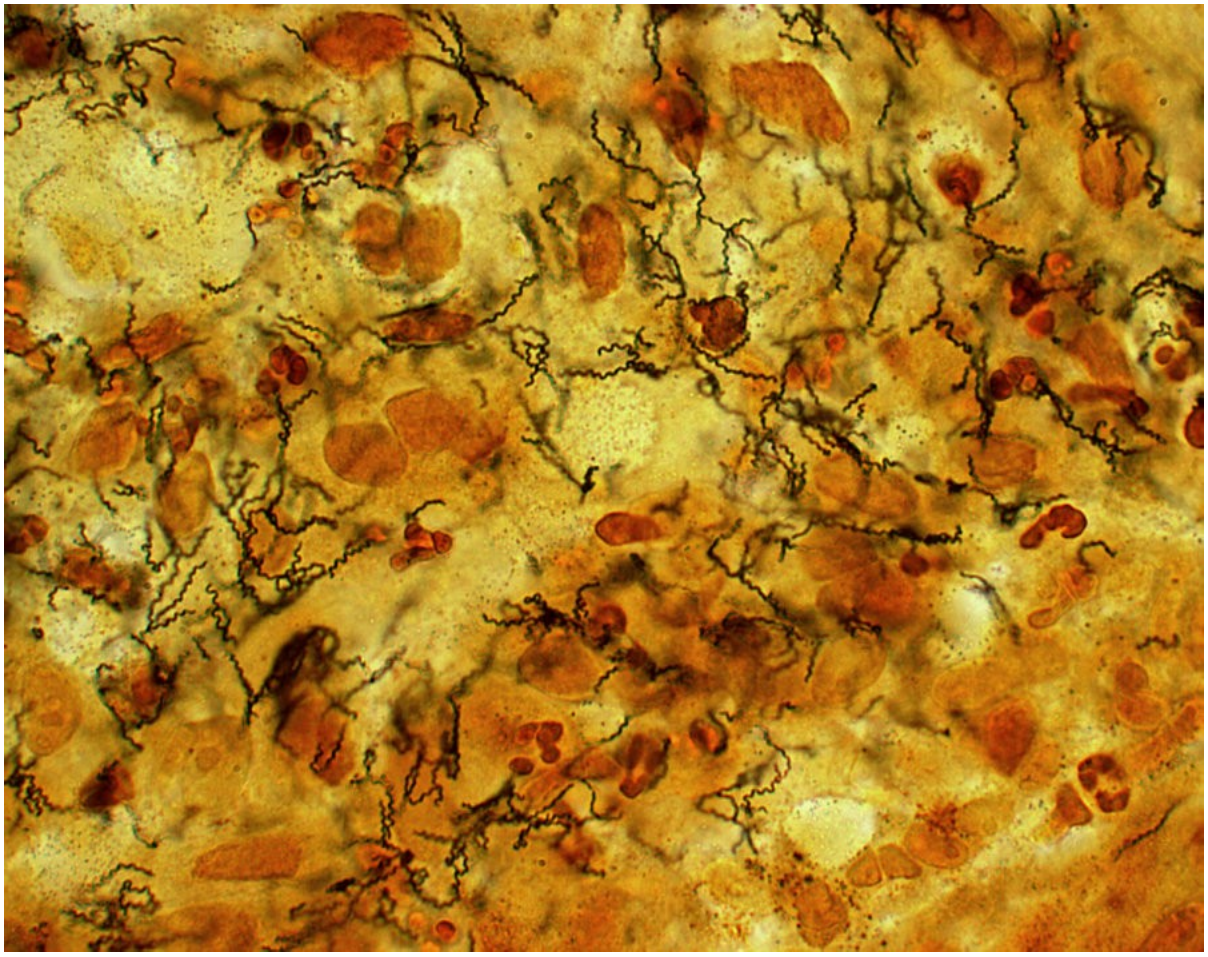
- **II. non-venereal STDs**

1) Non-specific UGI - chlamydia,
   mycoplasma, ureaplasma etc.
   + trichomoniasis
   + bacterial vaginosis
2) viral STD – HIV,hepatitis,genital herpes
   genital warts, molusca
3) parasitic – scabies, phtiriasis

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

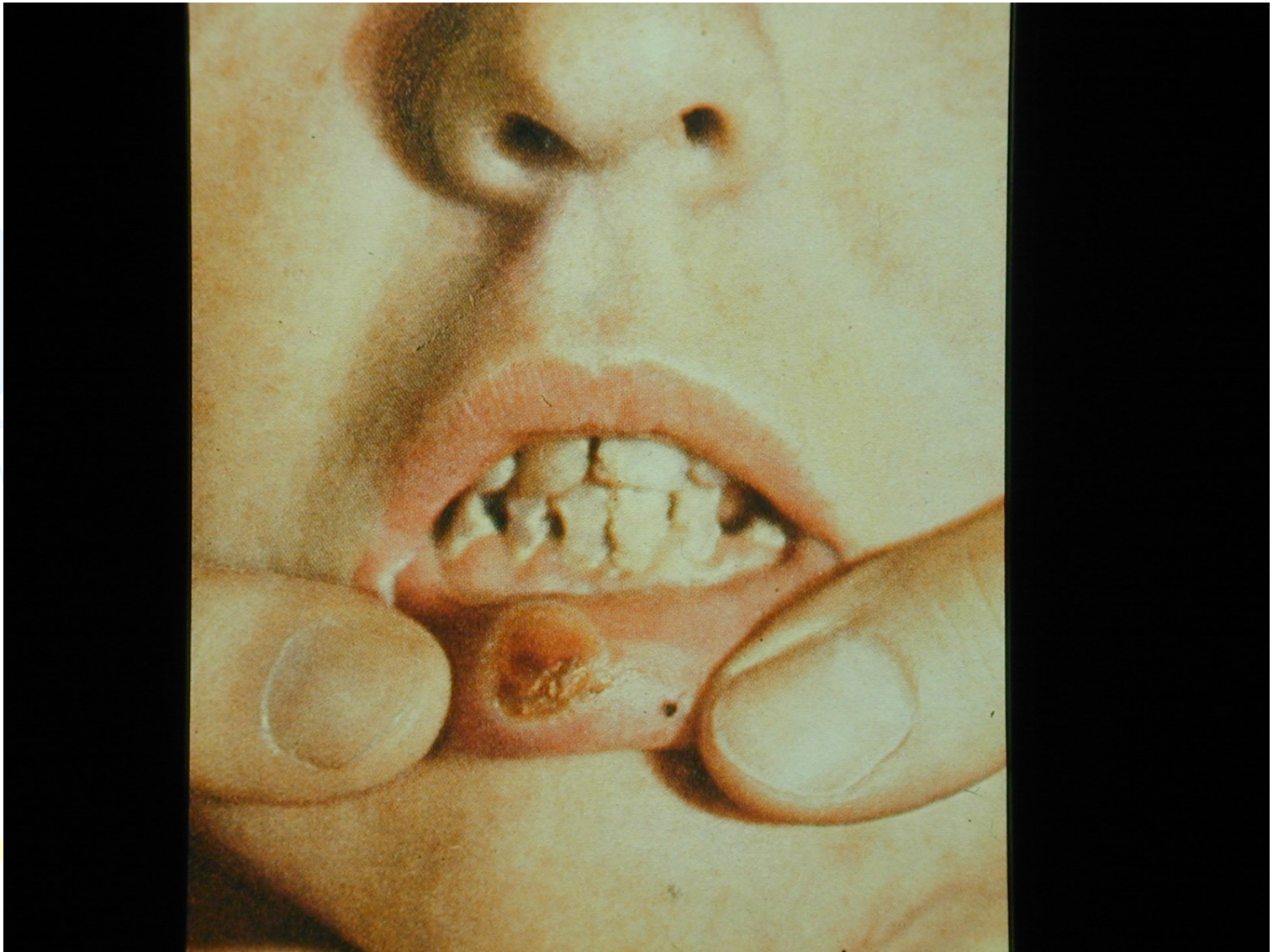
Typical chancre

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,
- Reccurences are possible within 2-5 years

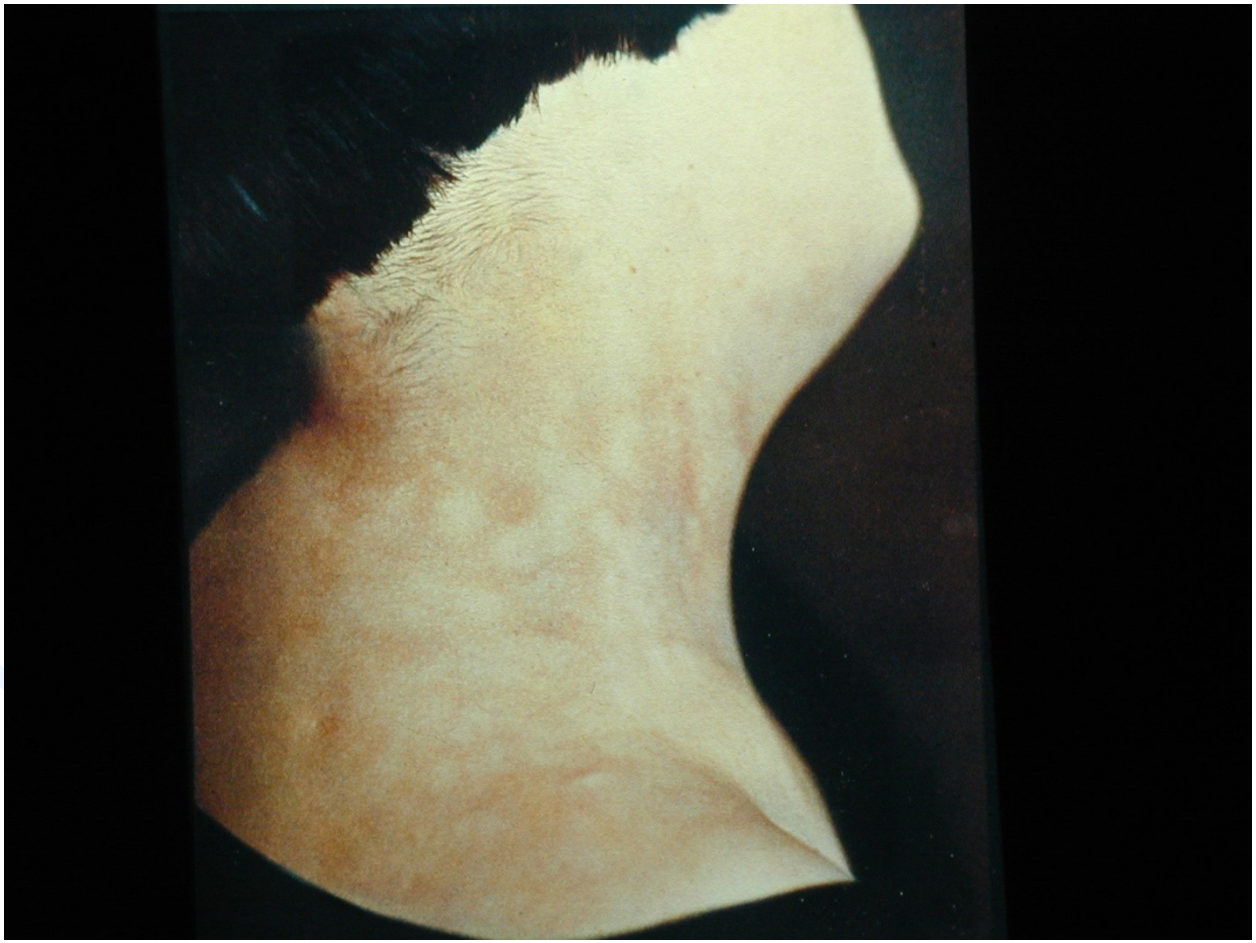
- Reccurent rashes (syphilids) - noninfectious
  - macular syphilid (roseola syphilitica)
  - papular/papulosquamous syphilid (lichen syphiliticus)
  - palmoplantar syphilid (clavi syphilitici)
  - papulocrustous, papuloerrosive syphilid, pustular syphilid

Roseola syphilitica

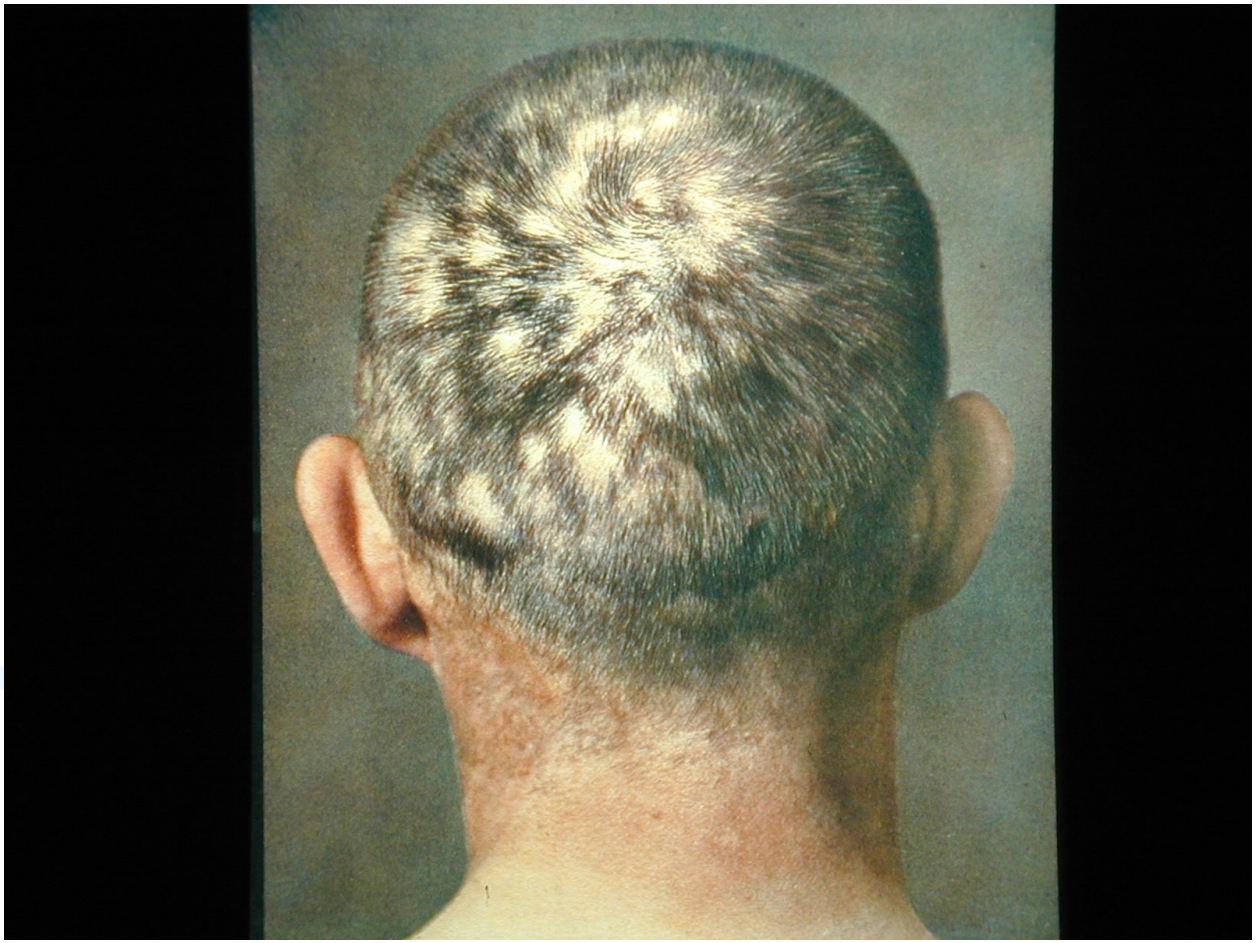
Lichen syphiliticus

Palmoplantar syphilid

Leucoderma syphiliticum



Alopecia areolaris



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

  - condylomata lata
  - mucous patches
  - syphilitic angina

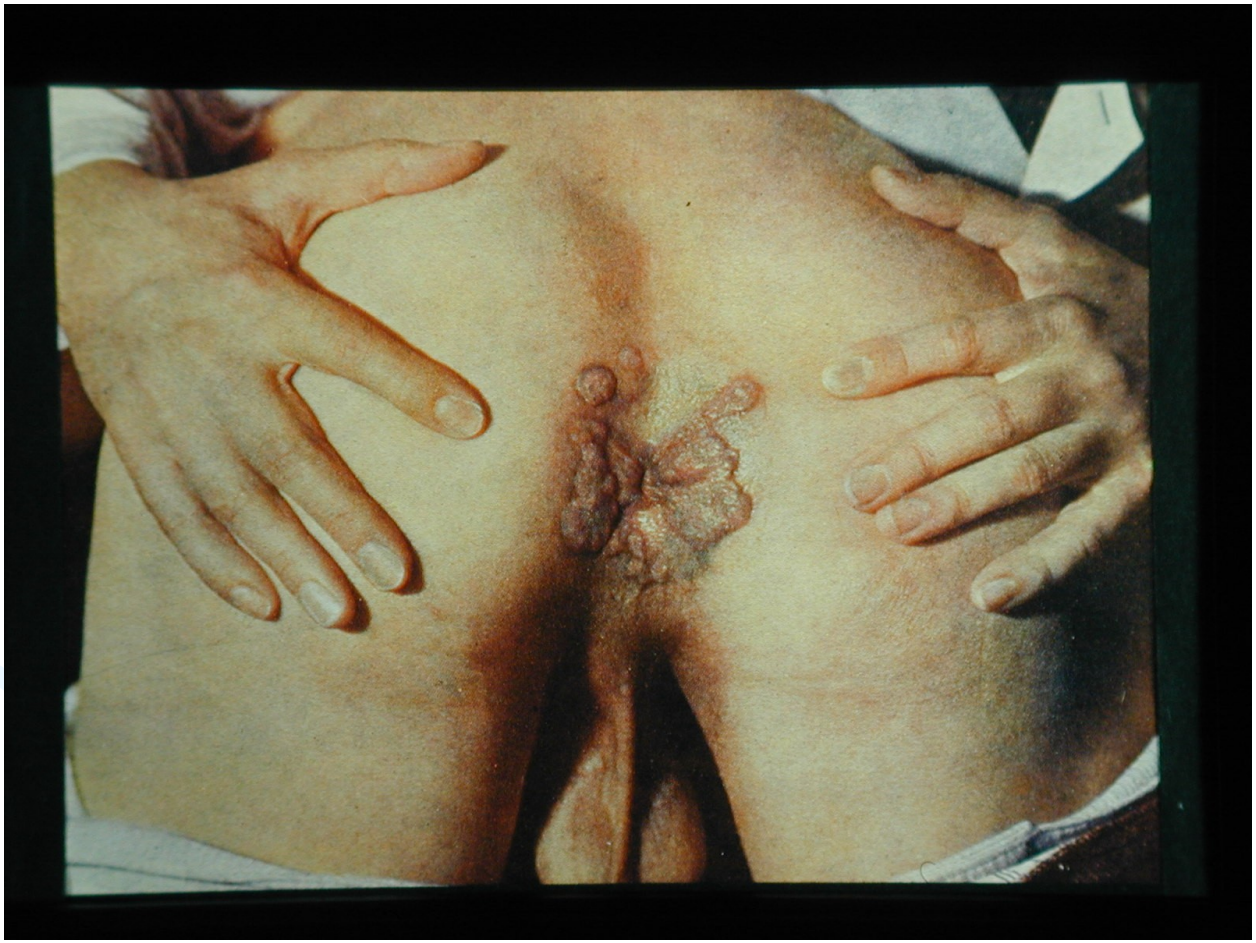
condylomata lata

condylomata lata

condylomata lata

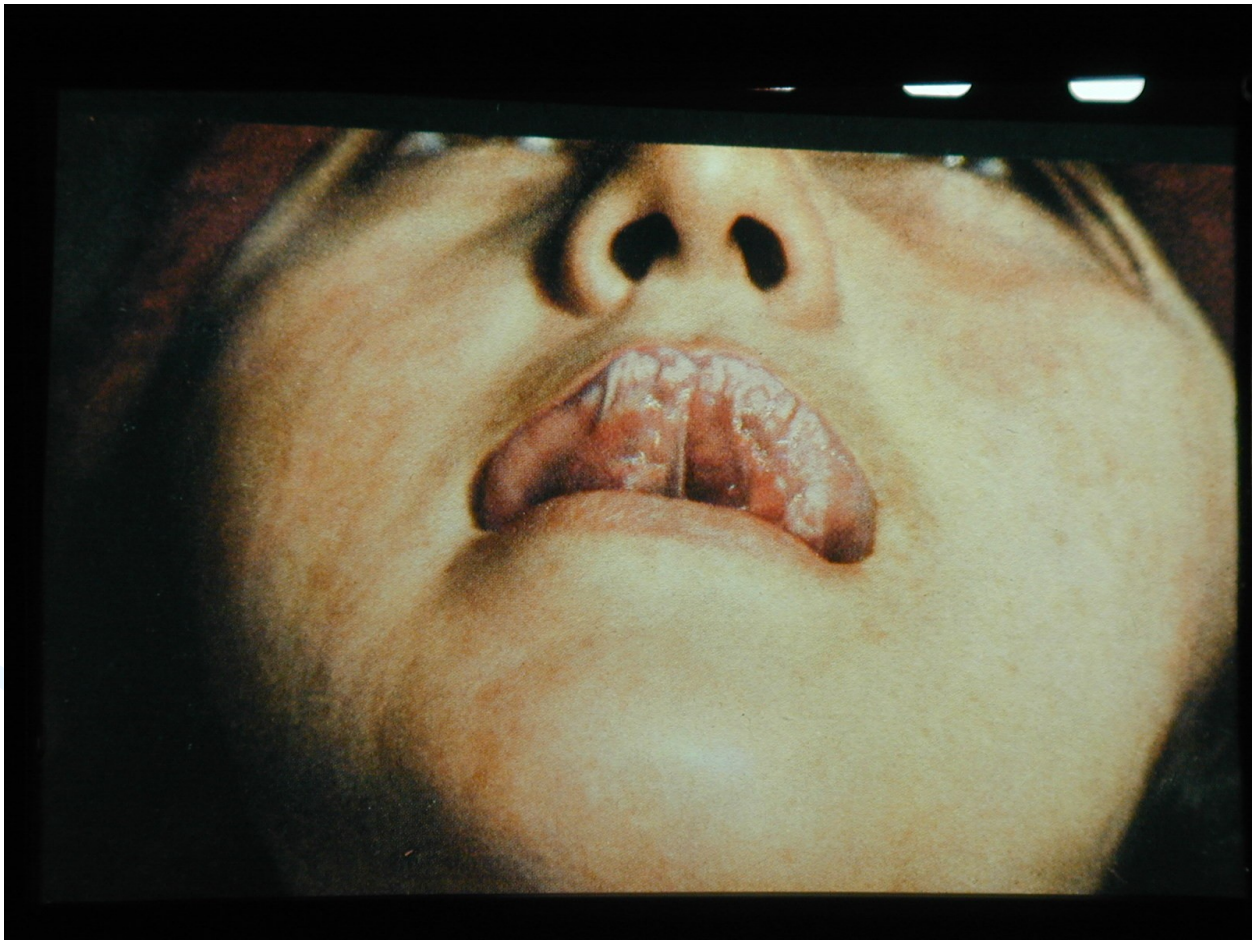
condylomata lata

condylomata lata

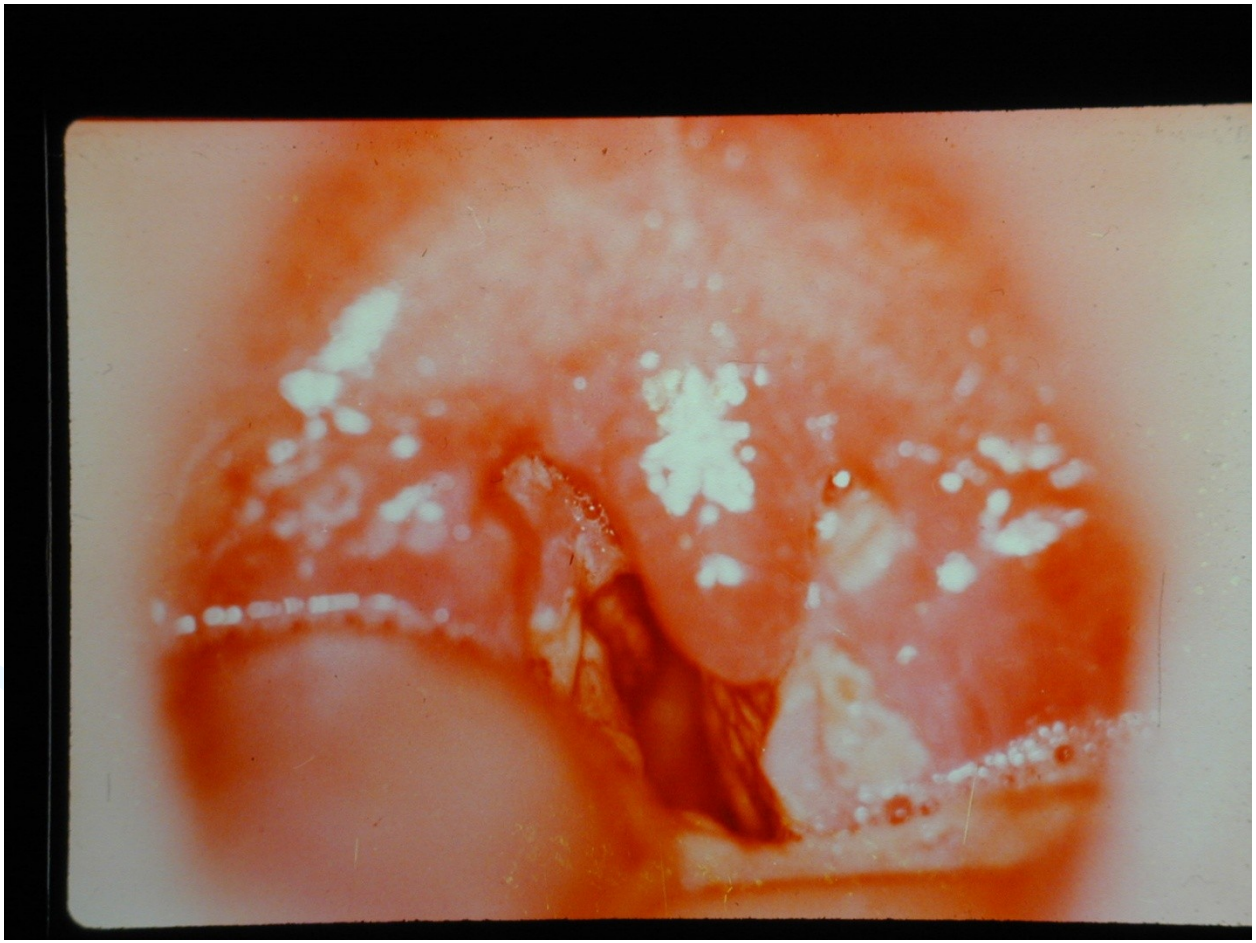


condylomata lata

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) tuberous 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, intetellect, attention, discernment, moods, depressions, agitation, dementn states with megalomanic deliria 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

Trofic 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

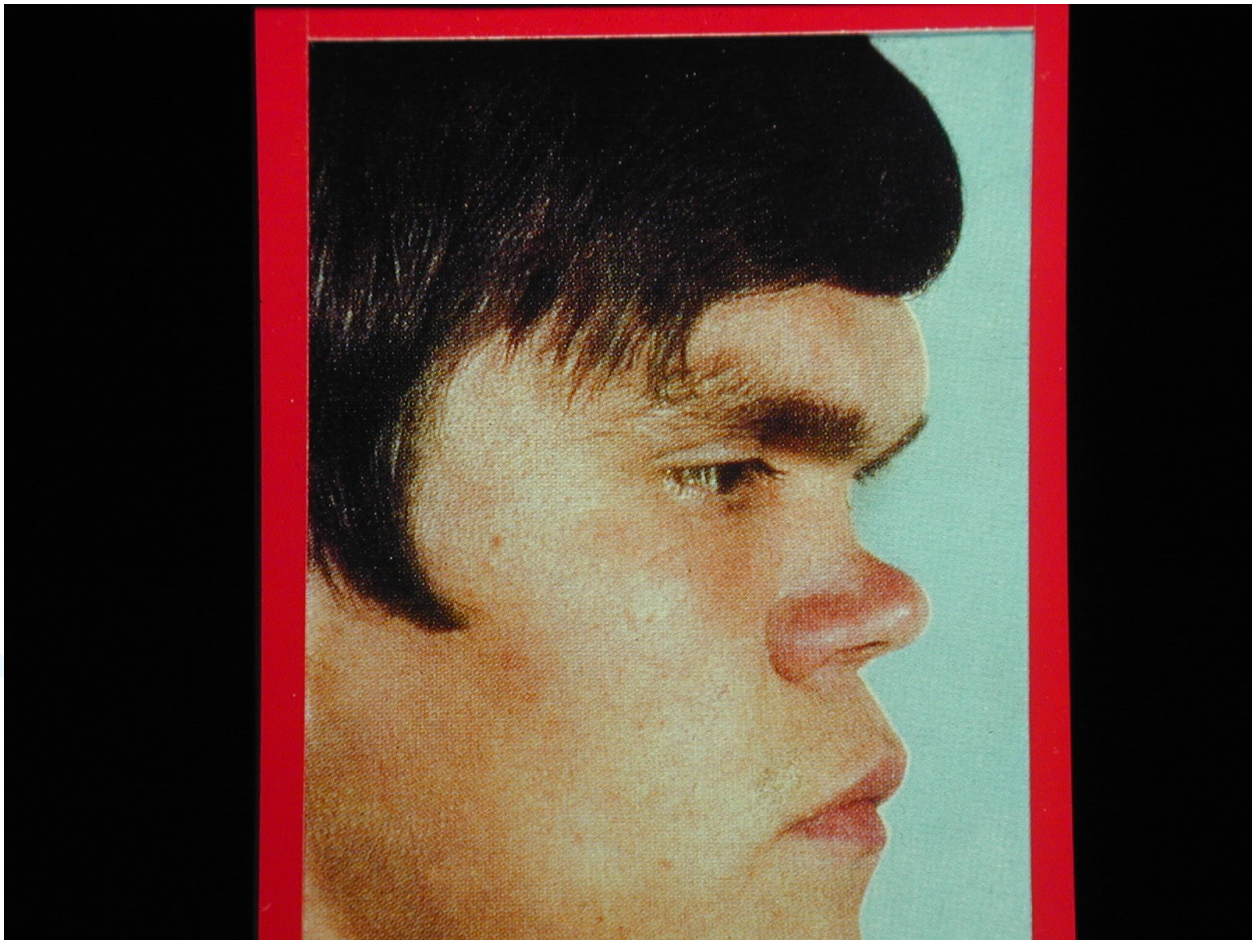
pemphigus syphiliticus

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

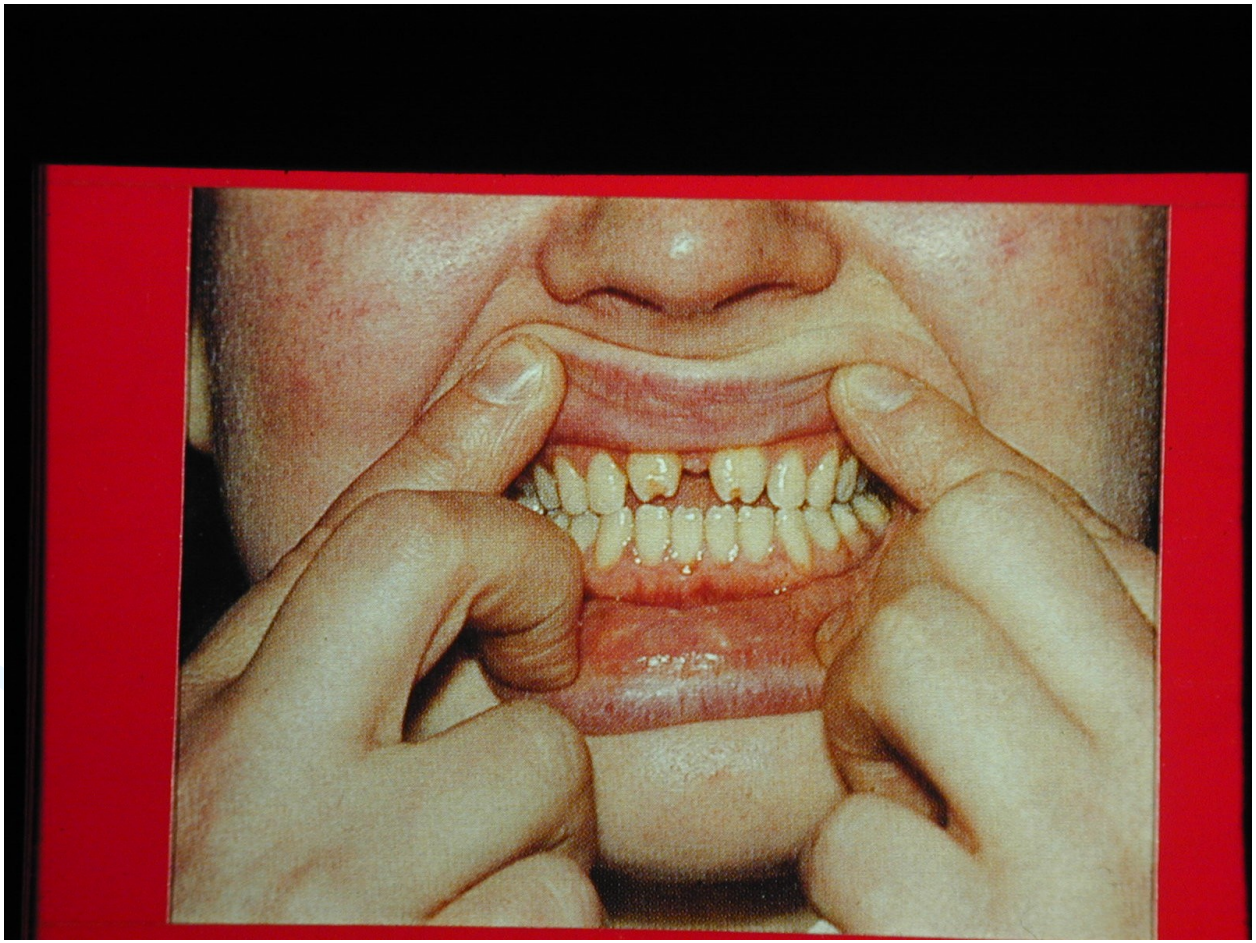


Late congenital Sy

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 3rd week

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

  Screening and confirmation test, positive since 4th 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) Gonorrhea

- pathogen: Neisseria gonorrhoeae
- G- diplococcus, 0,8-1,6 um
- 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, polyarthritis,
- Hemorrhagic ,pustular rashes
- Metastatic complications

  -mostly knee - gonarthritis

  (empyema, perforation, ankylosis),

  less often other joints – sterno-clavicular
- Pneumonia
- Endokarditis,myositis

Chronic gonorrhea in men

Gonococci hidden in small glands

or in prostate,

Spare milky discharge- ’bonjour drop’

- consequences: stricture of urethra, fimosis, sterility

Acute gonorrhea in women

- Urethritis
- Cervicitis

- Complications: bartholinitis, paraurethritis,cystitis, endometritis, salpingitis, adnexitis peritonitis,perihepatitis, pyelonephritis, sepsis, metastatic complications

Chronic gonorrhea 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** – spred on a glass slide,heat fixation and Gram staining
- Culture – blood agar

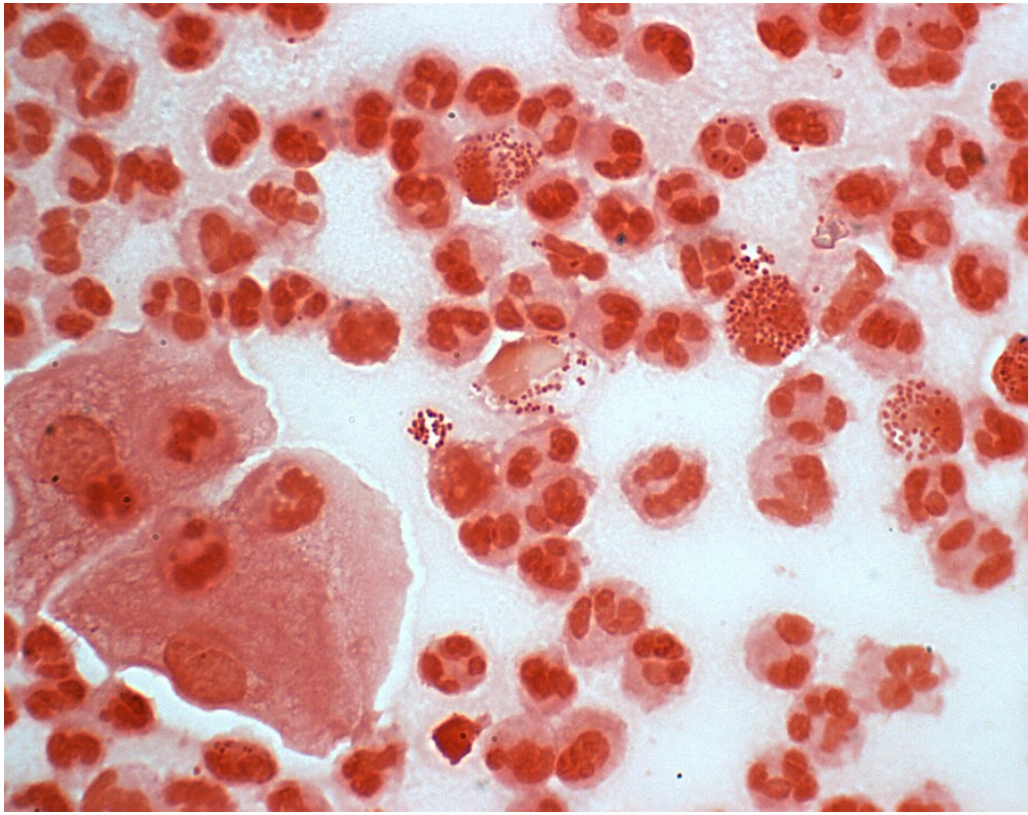
  t 36 dC, CO2 rich atm.

  gray colonies

- identification –*oxidase* reaction and others
- ATB sensitivity (PNC, cefalosporins, TTC)

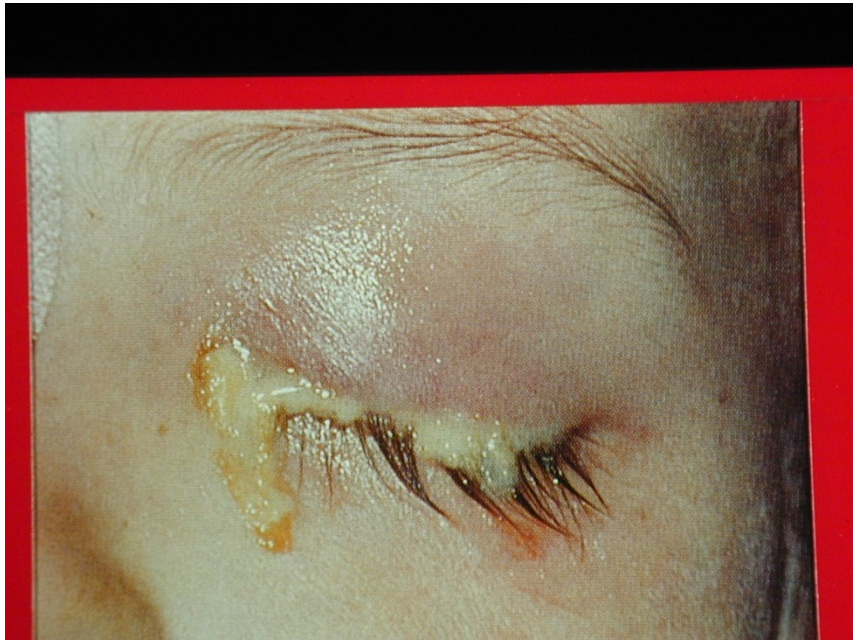
- Serology: unreliable

- PCR



Extragenital go

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



Treatment of gonorrhea

Acute non complicated go:

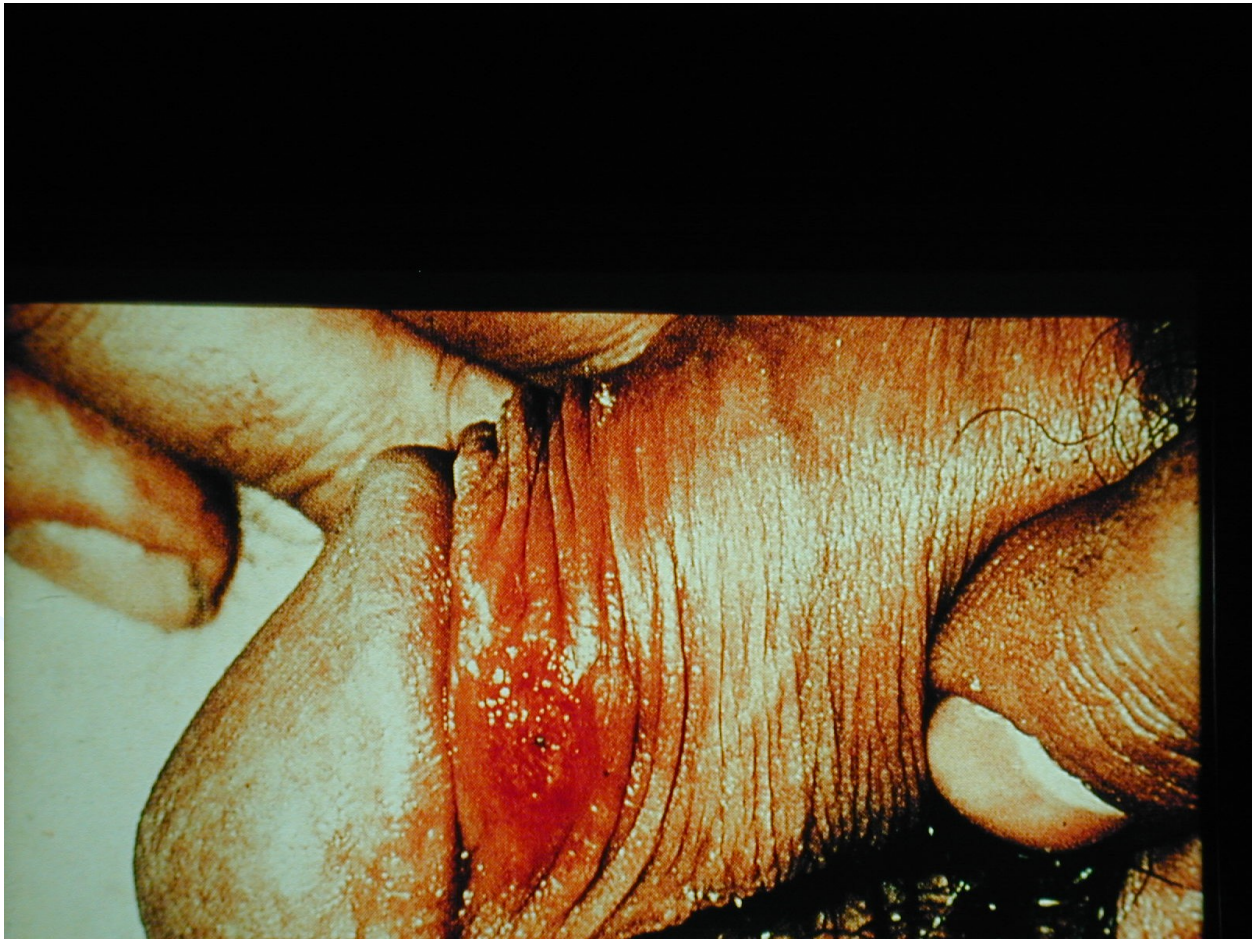
- ceftriaxone 1g i.m.
  (+ azithromycine 2g (single dose)
- doxycycline 7-10 days 2x100 mg
  spectinomycine 2g i.m.

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.
  Ciprofloxacine 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.
- Veneral 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, Carribean,South Africa, Australia

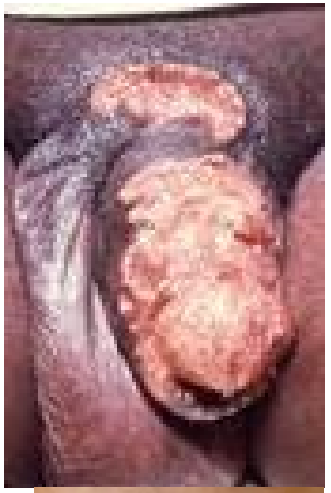
IP: 2weeks – 2 months

- 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

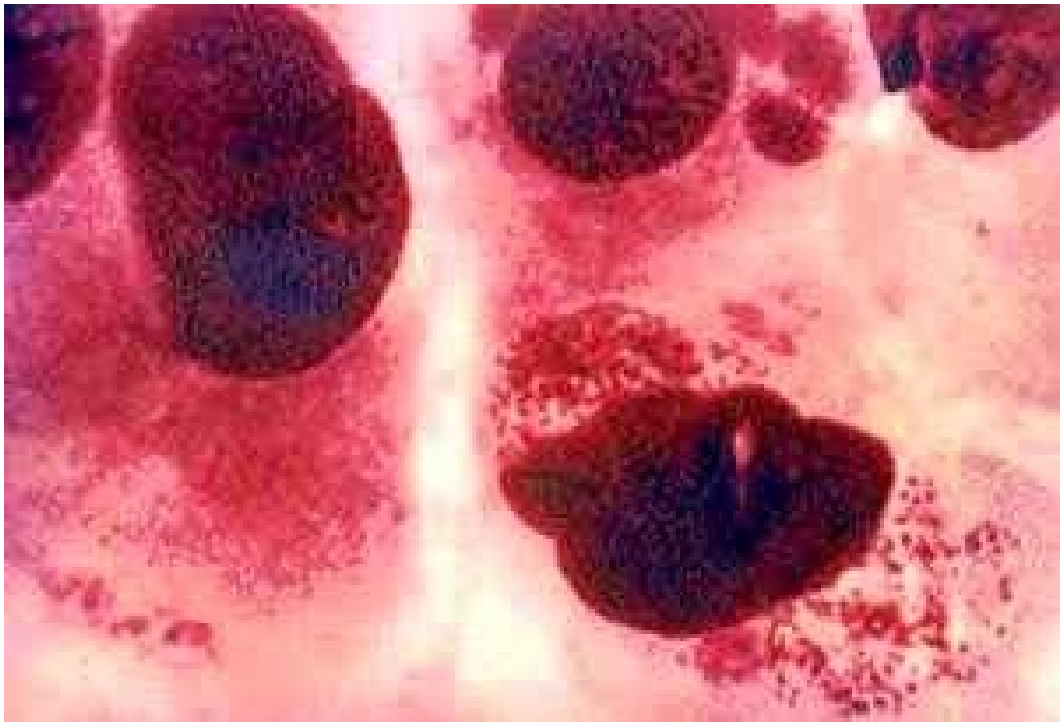
II) Other STDs

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,pyelonefritis,Reiter sy

  women : mostly asymptomatic infection: urethritis, vaginitis, cervicitis, endometritis, spontaneous abortions
- Th: azitromycine 500 mg, then 250 mg until day 5

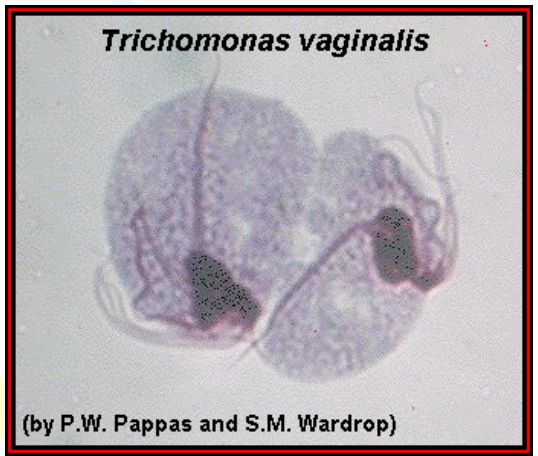
Trichomoniasis

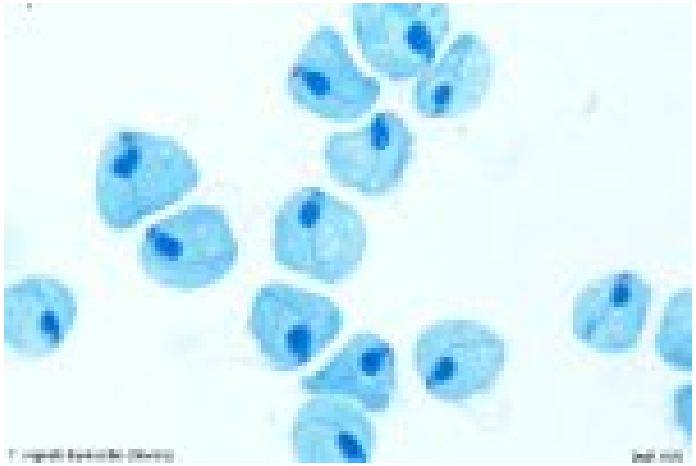
Trichomonas vaginalis – flagellated protozoan
- transfer during sex but also via objects /sponges, wet towels/

clinics: women – vaginitis – foamy vaginal discharge
dysuria , dyspareunia
men – mostly asymptomatic course or mild dysuria

dg: mikroscopy -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-->polycyklic erosions, very painful,enlarged lymphnodes, healing 2 to 6 weeks

  reccurent 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 valacyklovir,famyciclovir
cidofovir

Reccur. infection: prolonged supressive 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

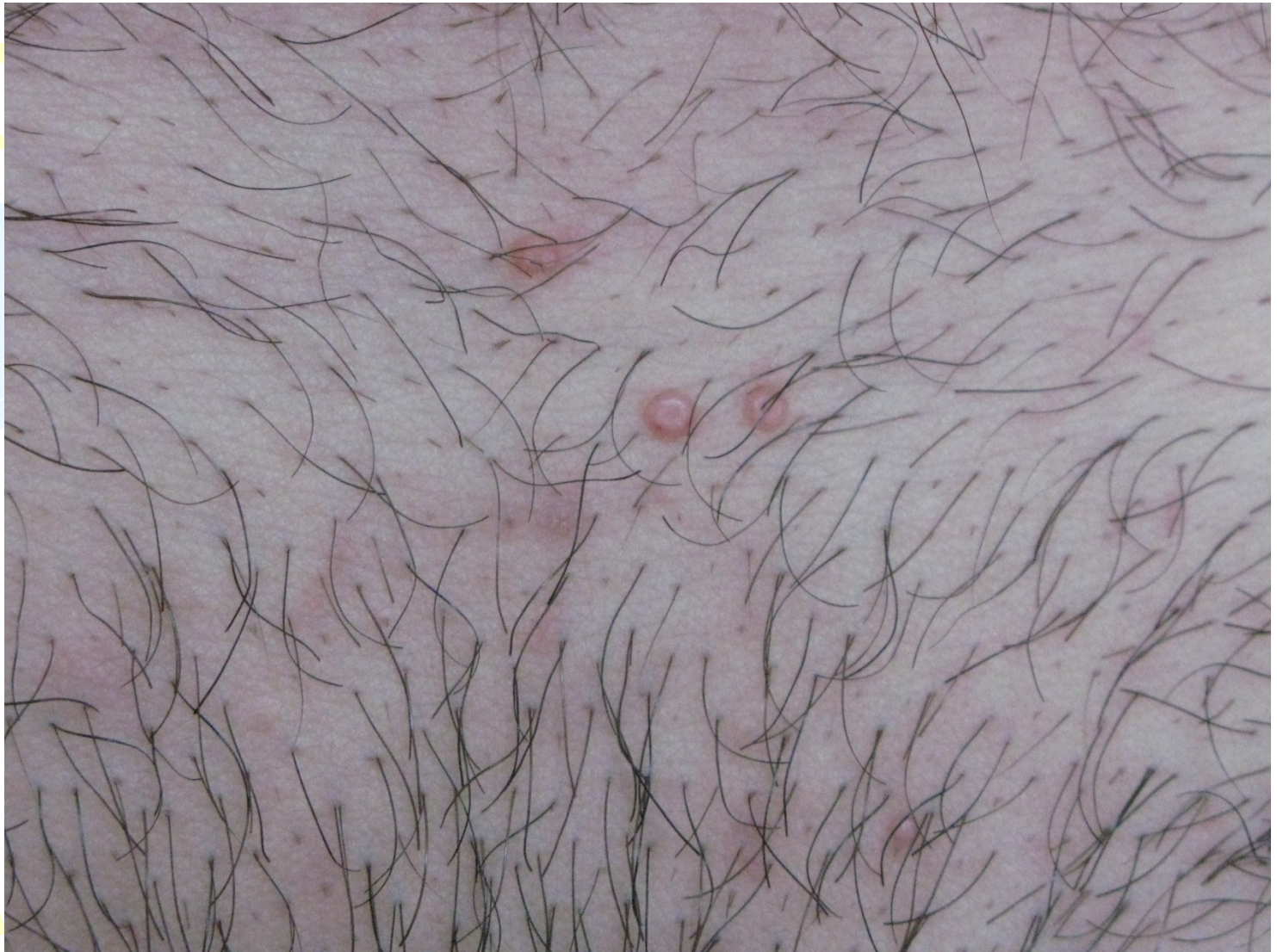
- Th:
- excision, abrasion
- Cryoth., electrocoag.
- podophylin tct
  podofylotoxin
  (Wartec crm)
- Imiquimod 5% crm
  (Aldara)

Vaccination

c) Moluscum contagiosum

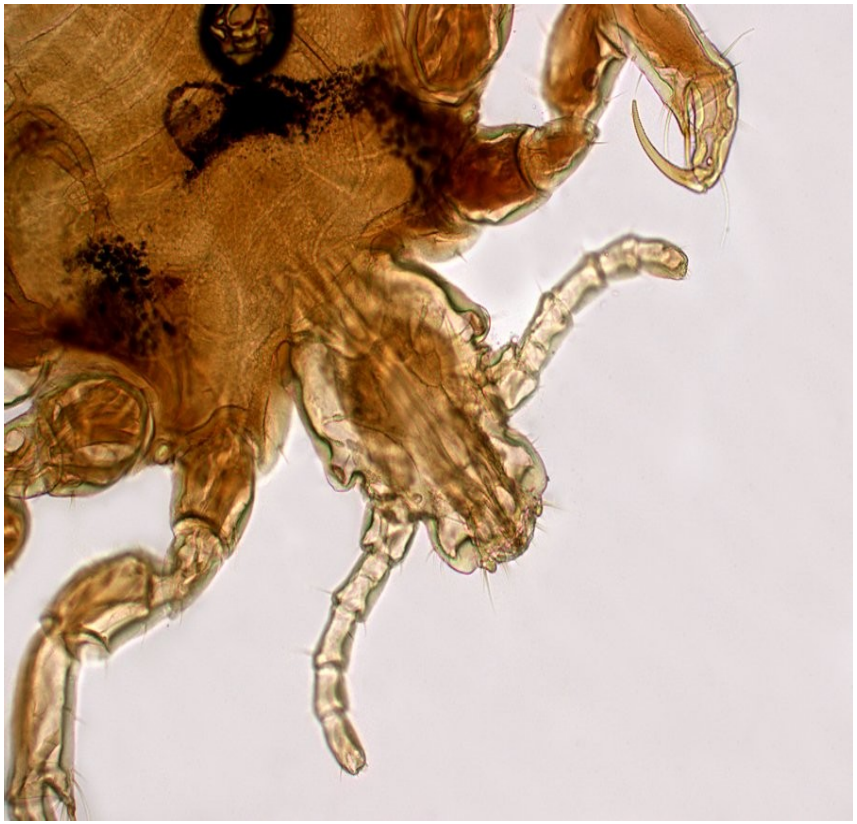
- cause: poxvirus
  MCV1,2
- transfer:
- direct contact - among chilren
- during sex. intercourse- in young adults around 20 y
- No itch, spontaneous regression
- Dg: clinics,(histology)
- Th: excision, abrasion
  cryotherapy
  iodine

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

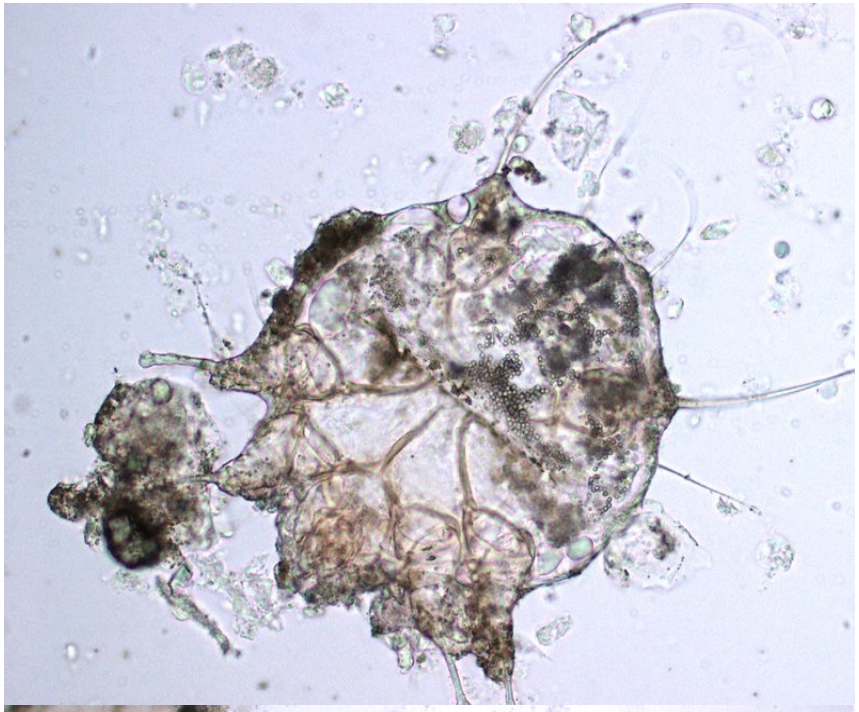
a) Phtiriasis

- 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 oinment
systemic:ivermectin

!!! Hygienic measures !!!