MUNI MED

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FAKULTNÍ NEMOCNICE BRNO

Pelvic infection and STDs

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Obstetrics and Gynecology - lectures

2020

Risk factors

- **Age, parity**
  - **early sexual life, high risk: 15-39 yo.**
  - **Multiparous women 10x higher risk compare to nulligravid women**
- **Promiscuity**
- **IUS/IUD - 5-6x higher risk of inflamatory disease**
- **Alcohol, drugs**
- **Other**
  - **Iatrogenic factors (cervical dilatation, abrasion and curretage of the uterine cavity, hysteroscopy ...)**

Gynecological inflammatory diseases

Localisation:

- **External female organs (vulvitis, colpitis)**
- **Internal organs (cervicitis, metritis)**
- **PID = pelvic inflammatory disease (oophoritis, salpingitis, pelveoperitonitis)**

Etiology:

- **Viruses, bacterias, fungi (?) protozoa (?)**

Vulvitis

- **Elderly women with skin damage (scratching, leakage of urine, sweat – obese people, menstrual blood)**
- **Reduced skin resistens (diabetes, hepatopathy, anemia)**
- **can occur concomitantly with other vaginal inflammatory diseases**

Etiology :

- **bacteria, fungi, viruses**

Vulvitis

Symptoms:

- **Bacterial : well-defined border (folliculitis, furuncle, abscess) or wihout sharply defined border (phlegmon), abrasions, skin defect with secretion, crusts**
- **Fungal (Yeast) : itchy, burning, white patches**
- **Viral (specific symptoms) : condylomata accuminata, herpes simplex genitalis**

Vulvitis

Diagnose:

- Clinical symptoms, microbiological culture (bacterial inflammation)
- Serological test (viruses)
- Dermatologic examination

Therapy: depends on etiology

- Antimycotics/local use of ATB/ATB systematic
- Painkillers, antihistamines, corticosteroids
- Surgical (abscess) incision/extirpation

Herpes simplex

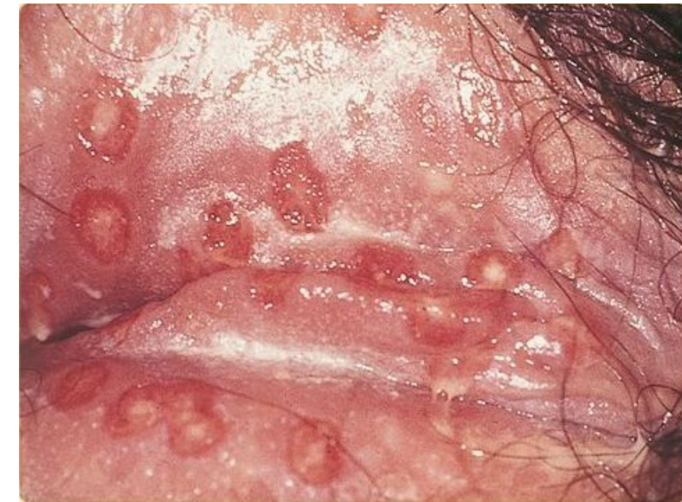
Etiology: DNA virus Herpesviridae (HSV1 a HSV2)

- Latent infection – notably reside in neural ganglia, in case of stress or immunodeficiency can be reactivated
- Transmitted by contact with infected person

Symptoms:

- Prodrome – red skin, itching 1-2 days before the onset of disease
- Painful blisters - papules, vesikles, pustules, crusts
- Tingling or burning in the genital area

Therapy: Acyclovir 200mg tablet five times a day



Condylomata accuminata (genital warts)

Etiology: DNA Papillomaviridae, HPV low risk 6, 11 , sexually transmitted

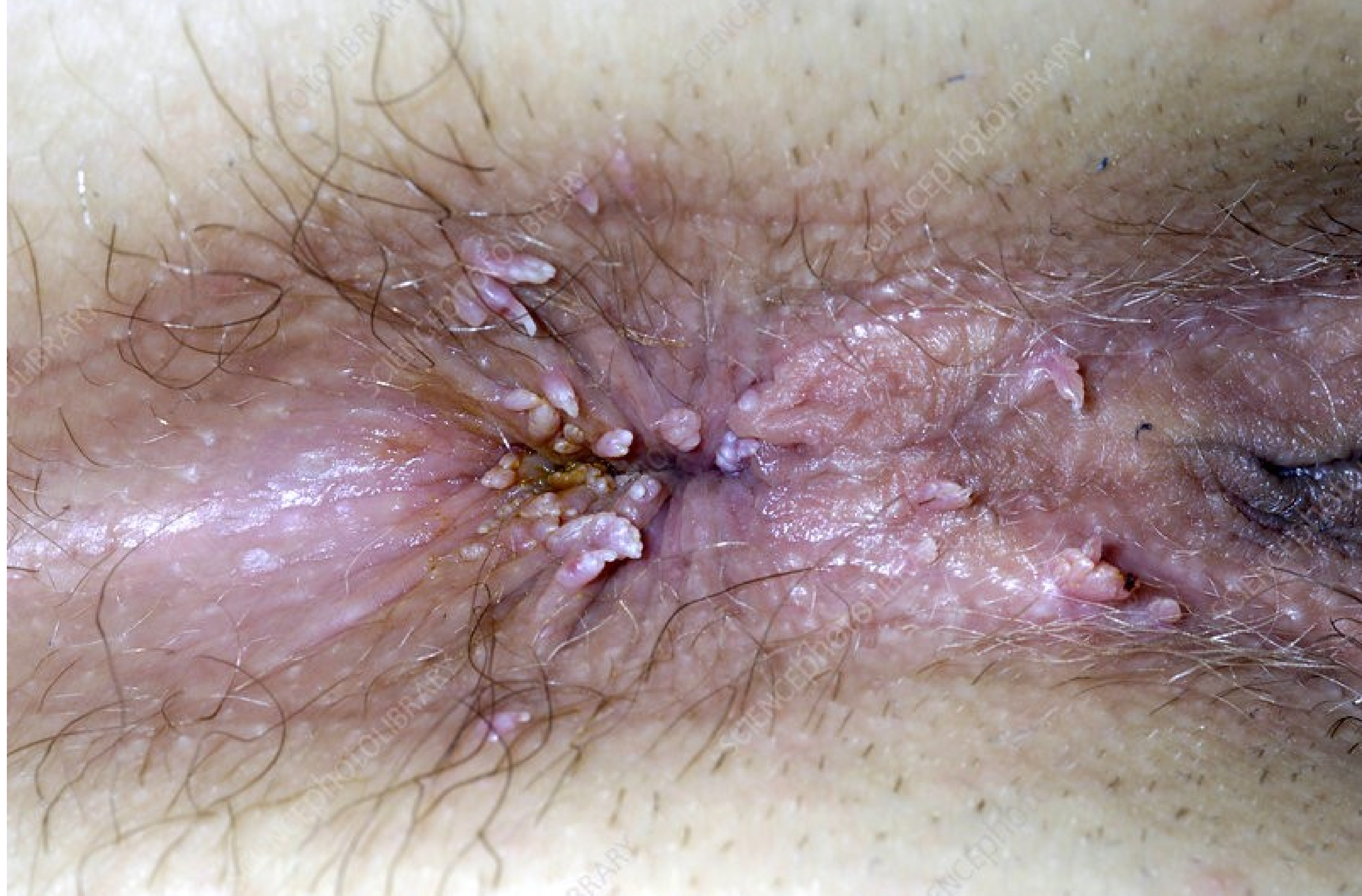
Symptoms and characteristics:

- anogenital warts, located on vulva, perineum, perianal region, anus, vaginal wall, cervix
- itching, bleeding
- spread through direct skin-to-skin contact (oral, genital, or anal sex)
- virus affect only squamous cells of the skin

Therapy:

- Topical agents: Podofylotoxin, Trichloroacetic acid, Imiquimod
- Physical ablation: excision, electrocauterization, laser ablation

Prophylaxis: HPV vaccination (low 6, 11 and high risk 16, 18 – cervical ca.)



Vaginal infections

Diagnosis:

1. **microscopic examination**

- **vaginal wet mount – looking for: WBC, epithelia, bacteria, yeast cell, trichomonads, clue cells**

2. **Whiff test**

- **several drops of a potassium hydroxide (KOH) solution are added to a sample of the vaginal discharge**
- **a strong fishy odor from the mix means bacterial vaginosis is present**

3. **KOH slide**

- **a sample of the vaginal discharge is placed on a slide and mixed with a KO**
- **The KOH kills bacteria and cells from the vagina, leaving only yeast for a yeast infection**

Vaginal infections

Diagnosis:

3 . Vaginal pH

- **normal vaginal pH: 3–4,5**
- **pH 4,5–5,5 suggestive of bacterial vaginosis**
- **pH higher than 5,5 may indicate bacterial vaginitis or trichomoniasis**
- **in case of yeast infection is pH in normal range**

In case of unclear diagnose or recurrent infection perform microbiological culture

Bacterial vaginosis

Definition:

- overgrowth of bacteria naturally found in the vagina, or decrease in the abundance of lactobacilli in the vaginal microbiota
- more common in women with IUD

Etiology:

- facultative anaerobic Gardnerella vaginalis
- overgrowth of other, predominantly anaerobic bacteria (Bacteroides, Mobiluncus (Vibrio), peptostreptococcus)

Bacterial vaginosis

Symptoms:

- **Thin, grey, white or green vaginal discharge**
- **Foul-smelling "fishy" vaginal odor, mostly after sexual intercourse**
- **Vaginal itching, burning**
- **Sometimes no signs or symptoms**

Diagnosis: Amsel criteria (2 out of 4 required for diagnosis)

- **Homogenous grey-white discharge**
- **Increased pH 4,5–5,5**
- **Clue cells in microscopy (squamous epithelial cell with bacteria adherent on their walls)**
- **Positive Whiff test**

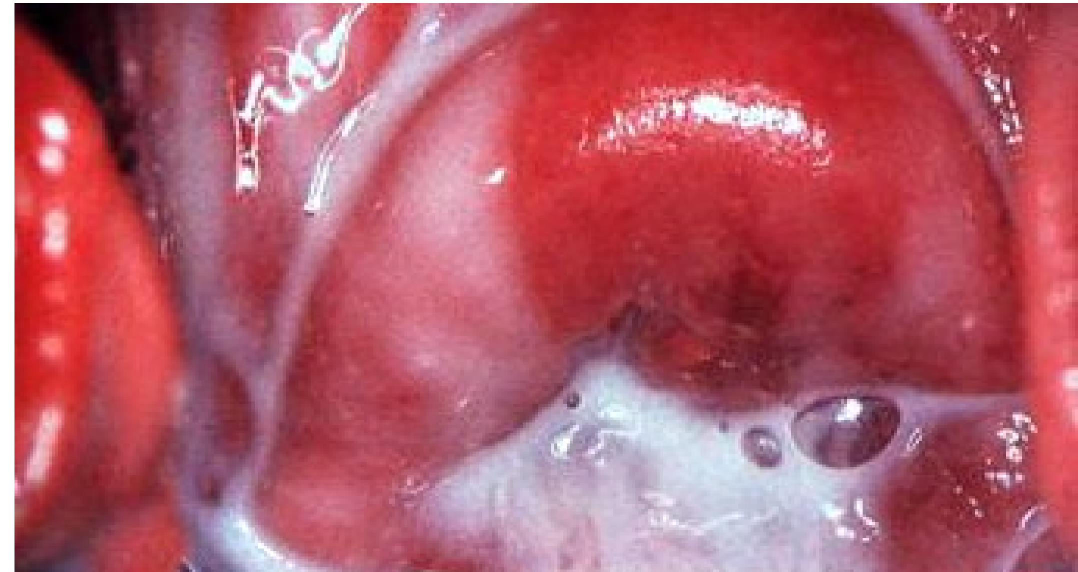
Bacterial vaginosis

Therapy:

- In women with symptoms, I. trim. of pregnancy, before surgery
- Metronidazol 500mg vag. 7 days, Clindamycin, Nifuratel (Macmiror)
- Vaginal probiotics after ATB treatment as recurrence prophylaxis
- treating the sexual partner is not necessary

Complication :

- metritis, cystitis, PID
- Risk factor for preterm birth



Bacterial colpitis (aerobic vaginitis)

Etiology : colistreptococcus, staphylococcus, enterococcus and E. coli

Symptoms:

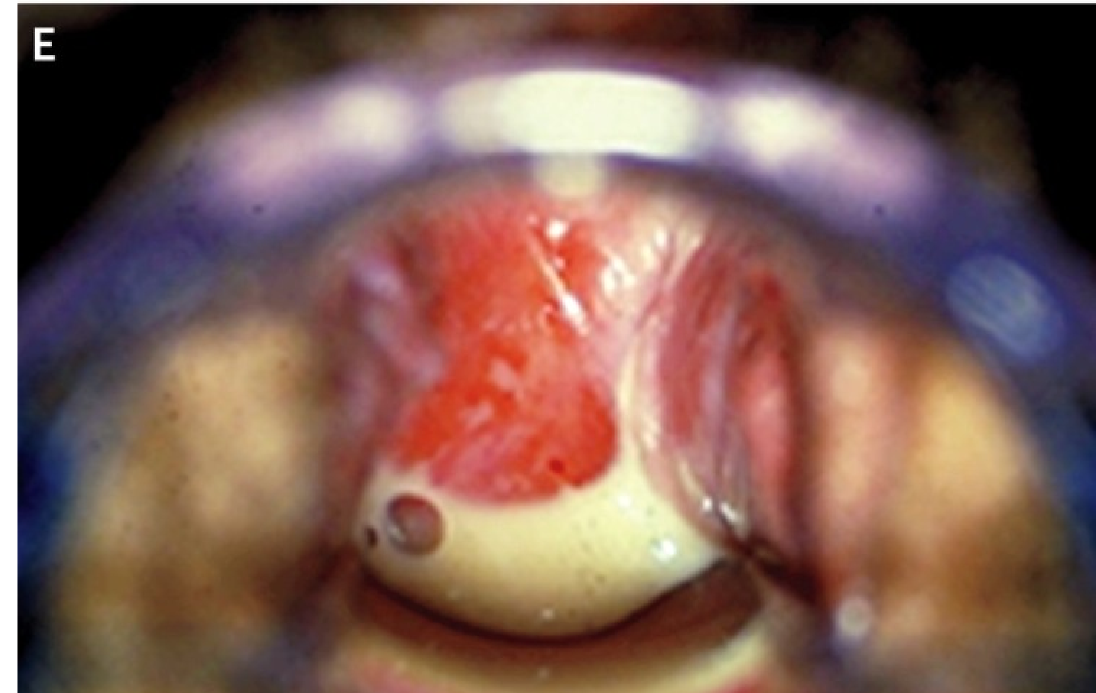
- Thick yellow vaginal discharge, dyspareunia, vaginal inflammation – red and swollen vaginal wall

Diagnosis:

- clinical symptoms
- microbiological culture

Therapy:

vaginal application: Clindamycin, Nifuratel



Candidiasis (yeast infection)

Eriology: Candida albicans, C. tropicalis, C. glabrata

- Vagina naturally contains a balanced mix of yeast including Candida
- In case of disrupted vaginal balance, in immunodeficient patients, increased estrogen levels (pregnant, COC, estrogen therapy)

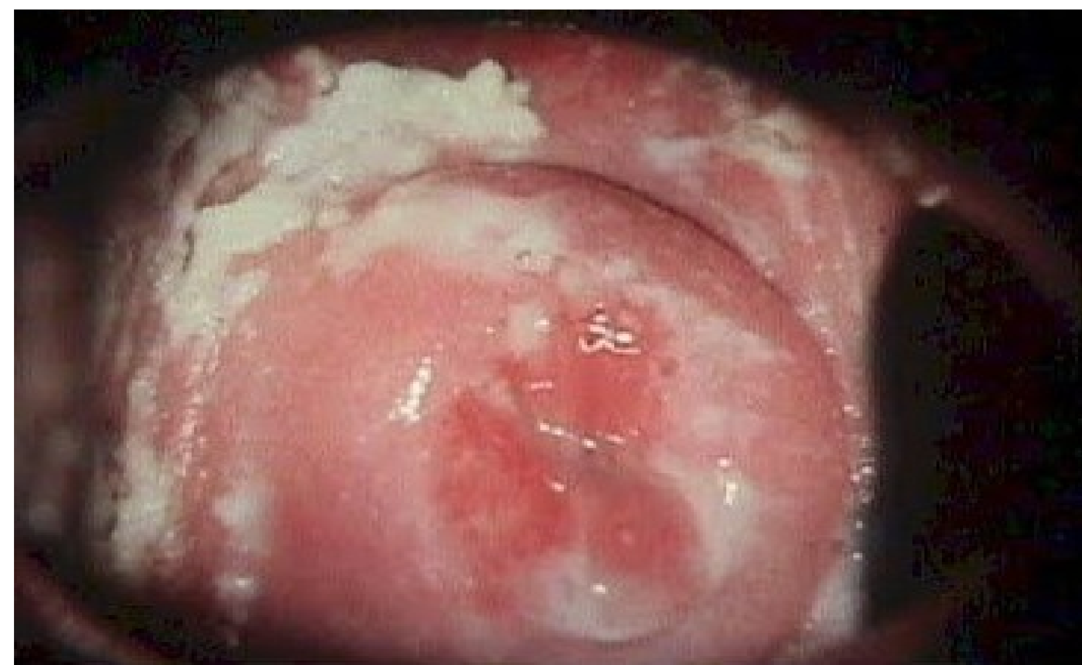
Risk factors:

- pregnancy (III. trimester)
- Diabetes mellitus, increased sugar intake
- ATB therapy, corticosteroids, estrogens
- Impaired immune system
- Synthetic underwear, promiscuity

Candidiasis (yeast infection)

Symptoms:

- itching, burning, especially during intercourse or while urinating
- Thick, white, odour-free vaginal discharge with a cottage cheese appearance
- redness and swelling of the vulva and vagina
- Very often as a vulvovaginitis



Candidiasis (yeast infection)

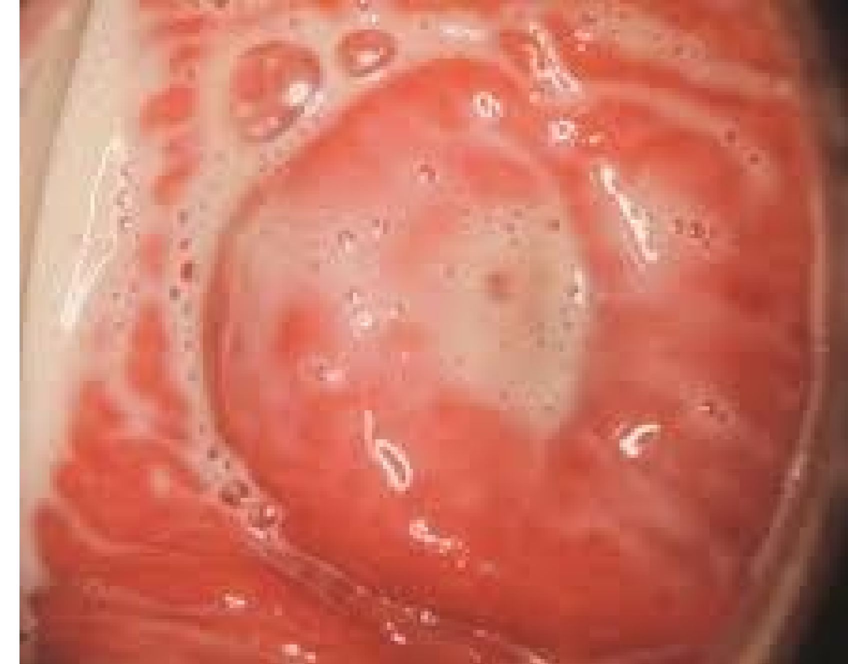
Diagnosis:

- Clinical symptoms
- microscopic examination
- microbiological culture
- In recurrent infections – oGTT (DM exclusion)
- Normal vaginal pH, negative whiff test

Therapy:

- Azol antifungals – topical/vaginal (Clotrimazole) or systemic
- therapy success rate is more than 90%

Trichomoniasis



Etiology : Trichomonas vaginalis

- **STD, treatment of all sexual partners is necessary**

Symptoms:

- **50 % of women are without any clinical symptoms**
- **frothy, greenish, foul-smelling vaginal discharge**
- **vulval itching and soreness, Cervix may have a ‘strawberry’ appearance**

Diagnosis:

- **Positive Whiff test**
- **pH > 4,5**
- **microscopy: flagellated moving protozoa (trichomonas vaginalis)**

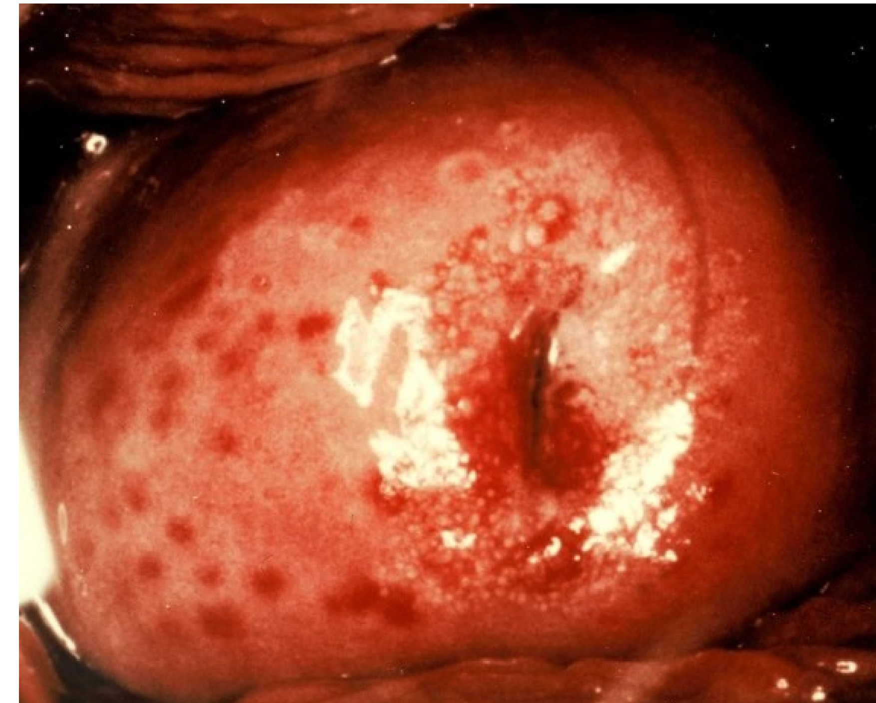
Trichomoniasis

Therapy:

- systemic use of Metronidazole 500mg tbl twice a day for 7-10 days

Complications:

- Preterm birth
- Low birth weight
- transmission of infection to the baby during delivery



Cervicitis

Etiology:

- Chlamydia trachomatis, mycoplasma, Neisseria gonorrhoea

Symptoms:

- Asymptomatic in 30–50 % cases
- large amounts of unusual vaginal discharge, dyspareunia, bleeding between periods, painful urination, lower abdomen pain
- chronic cervicitis– dysmenorrhoea, dyspareunia, infertility
- in men – urethritis, mostly asymptomatic – Asymptomatic carrier

Cervicitis

Diagnosis:

- a pelvic examination
- A specimen collection – microbiological culture from the cervix
- Antibody detection – RIA, ELISA, PCR
- Cervical cancer exclusion (colposcopy, cytology, biopsy)

Therapy:

- Systemic targeted antibiotic therapy
- Azithromycin 1000mg oral single dose (chlamydia)
- Doxycyclin 200mg every twice a day for 7 day (chlamydia, Neisseria)

Endometritis (endomyometriris)

Etiology:

- Ascendent infection - cervix
- Surgical procedures (curettage, hysteroscopy, IUD insertion)
- Neisseria, Chlamydia, rarely M. tuberculosis

Symptoms:

- acute: lower abdomen pain, fever, abnormal vaginal bleeding or discharge
  tender to bimanual palpation
- chronic: hypermenorhoea, chronic lower abdomen pain

Endometritis (endomyometriris)

Diagnosis:

- Symptoms
- a pelvic examination
- a specimen collection – microbiological culture from the cervix
- The inflammatory markers: CRP, WBC)
- Cervical cancer exclusion (colposcopy, cytology, biopsy)

Therapy:

- intravenous administration of antibiotics (empiric→ targeted)
- Symptomatic therapy: painkillers …

Pelvic inflammatory disease - PID

- **Inflammation of upper genital tract**
- **fallopian tube or ovary (salpingitis, oophoritis)**
- **Tubo-ovarian abscess (TOA)**
- **Pelviperitonitis**
- **Peritonitis**

Etiology:

- **ascendent infection from uterus or spreading from appendix**
- **TOA can develop from the lymphatic system with infection of the parametrium from an intrauterine device (IUD)**

PID

Symptoms: very variable

- **acute – almost 40% asymptomatic, lower (bilateral) abdomen pain, vaginal discharge, abnormal uterine (vaginal) bleeding, fever sometimes with chills, nausea, vomiting, dyspareunia, frequent or difficult urination**

- **chronic – dyspareunia, chronic lower abdomen pain, infertility, irregular menstrual cycle**

PID

Etiology :

- **Ch. trachomatis, N.gonorrhoeae, E.coli, mycoplasma, ureaplasma, Staphylococcus, Streptococcus, bacteroides, peptostreptococcus**

Risk factors:

- **Being sexually active women younger than 25 yo.**
- **Multiple sexual partners**
- **Previous STDs**
- **Uterine instrumentation – curettage, hysteroscopy, IUD insertion (very small risk)**

PID

Diagnosis:

- Symptoms
- a pelvic examination
- a specimen collection – microbiological culture from the cervix
- The inflammatory markers: CRP, WBC)
- Cervical cancer exclusion (colposcopy, cytology, biopsy)
- Ultrasound – sacto/pyosalpinx

Therapy:

- intravenous administration of antibiotics (empyric→ targeted)
- Symptomatic therapy: painkillers …
- Laparoscopy – ovariectomy, salpingectomy, adnexectomy,…..

ATB therapy PID

- Combination of broad-spectrum antibiotics – intravenous preferably
- Aerobic bacteria ATB
  - doxycyclin – 100 mg twice a day oral
  - azithromycin – 500 mg a day
  - Amoxicillin+Clavulanic Acid (Augmentin) – 1,2 g every 8 h. iv.
- Anaerobic bacteria ATB
  - metronidazole – 500 mg every 8 h. iv.

PID Complications

- **Acute:**
  - **Perihepatitis (4 - 28 %)**
  - **Rupture of TOA resulting in sepsis (life-threating)**
    - mortality 6 - 15 %
    - immediate surgical intervention
  - **Periappendicitis (2 - 10 %)**

PID Complications

- Chronic:
  - Chronic lower abdominal pain (5 %)
  - Infertility (14 - 38 %) – from blocked fallopian tubes
  - Ectopic pregnancy 10 - 30 %)
  - FITZ-HUGH-CURTIS sy. – perihepatic adhesion (Chlamydia, Neisseria)

Pelvic actinomycosis

Etiology: **Actinomyces israeli**

- formation of painful abscesses and fibrosis in human body (lung, breast, pelvis...)
- predominantly associated with the longstanding use of intrauterine device

Symptoms: **abdominal pain, fever, vomitus, nausea, diarrhoea, obstipation**

Therapy

- IUD extraction, ATB therapy PNC, Doxycycline
- laparotomy/LSC (abscess drainage, lavage) (in unsuccessful ATB treatment)

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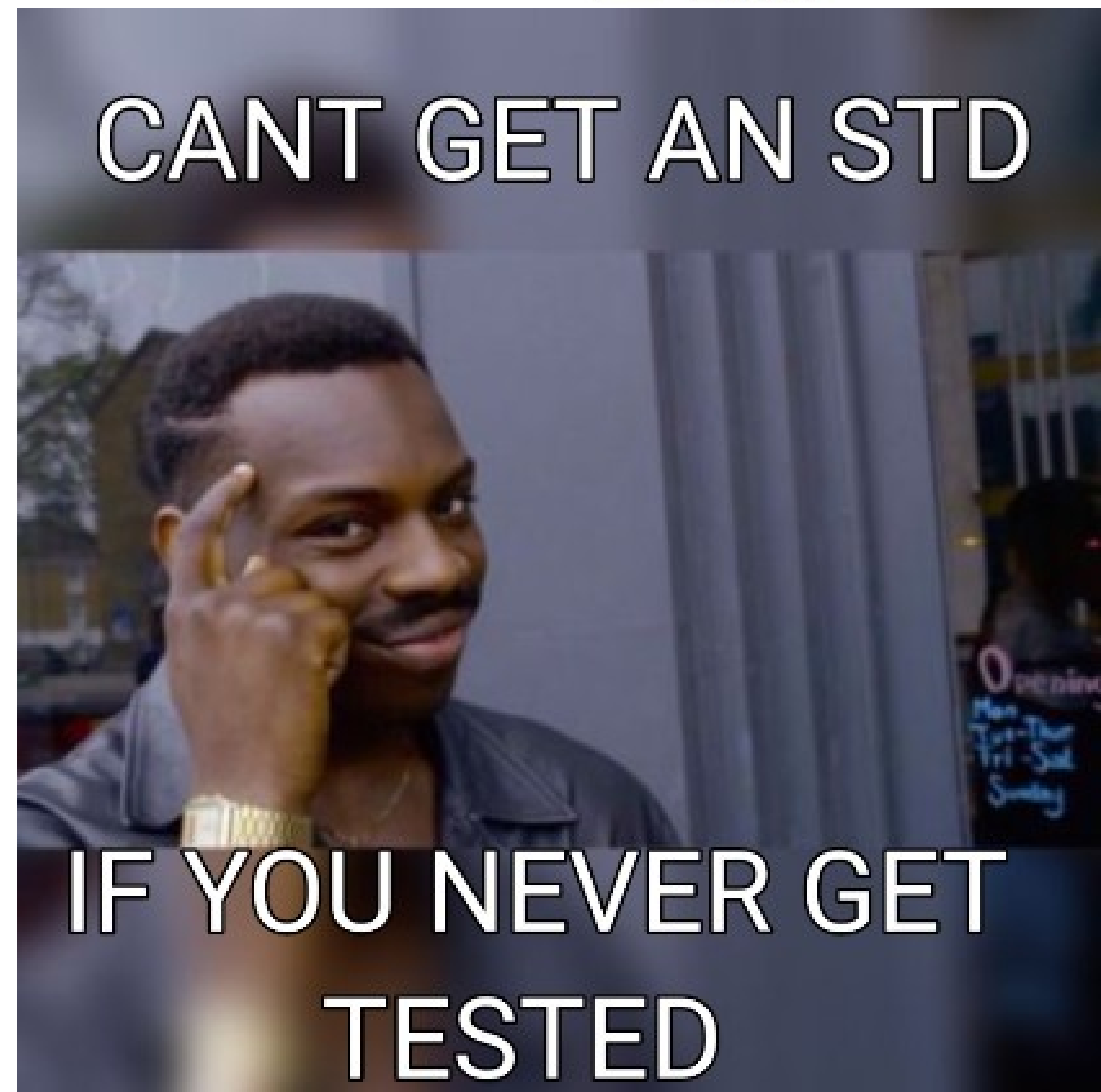
Thank you

for your attention



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1. Which of the following is not the risk factor of pelvic infection?

A) Promiscuity
B) Alcohol
C) Late sexual life
D) Cervix dilatation

2. What two STDs cause PID when left untreated?

A) Syphilis and gonorrhoea
B) Genital herpes and genital warts
C) Chlamydia and genital warts
D) Gonorrhoea and chlamydia

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A) Between 3.8 and 4.5
B) Below or equal to 4.5
C) Above or equal to 4.5
D) Between 4.5 and 7

4. Whiff test?

A) may suggest either trichomoniasis or bacterial vaginosis
B) strong fishy odour is indicative of a negative test result
C) may suggest either trichomoniasis or bacterial colpitis
D) All of the above answers are correct

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A) Tingling or burning in the genital area
B) Painful blisters in the genital area
C) Vaginal discharge
D) A and B
E) A,B and C

6. The cytomegalovirus (CMV) can‘t be spread by:

A) Kissing
B) Sharing an office with an infected person
C) Changing a child's wet diapers
D) Childbirth

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7. Which of these is a health problem that can be caused by STIs in women?

A) Pelvic inflammatory disease (PID)
B) Ectopic pregnancy
C) Higher risk for cervical cancer
D) All of the above

8. What are symptoms of pelvic inflammatory disease?

A) Abdominal pain
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C) Painful sexual intercourse (dyspareunia)
D) Fever
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A) 6, 18
B) 16, 11
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