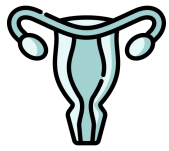


TEAM 443
MICROBIOLOGY

L3- Candida + trichomonas vaginalis + Bacterial Vaginosis

-Prof.Ali Alsomaily & Fawzia Alotabi





OBJECTIVES

- ◆ Know the terms : **vulvitis**, **vaginitis** and **vulvovaginitis**
- ◆ Describe the **characteristics** of the vagina and cervix in Women
- ◆ **Compare** prevalence of 3 primary infections: Bacterial vaginosis, candidiasis and Trichomoniasis
- ◆ Know **clinical features** and **diagnosis** of **Bacterial vaginosis**
- ◆ Know **clinical features** and **diagnosis** of **vaginal yeast**
- ◆ Know **clinical features** and **diagnosis** of **Trichomoniasis**



Introduction

Normal vagina

- Lined with 25 layers of epithelium cells.
- Separation of microbial pathogens from the normal genital microbiota

Female
Slides

Characteristic of normal vaginal secretion

- Desquamated vaginal epithelial cell.
- Lactobacilli dominate.
- PH 3.5 to 4.6 (Acidic).
- Odorless.
- No itching or irritation.
- Deonot soil underclothing¹.

Normal flora of the vagina

- **Lactobacilli** :
 - Compete with other microorganisms for adherence to epithelial cells.
 - Produce antimicrobial compounds such as organic acids (which lower the vaginal pH), hydrogen peroxide(Acidic), and bacteriocin-like substances.
- Corynebacterium spp.
- **Gardnerella vaginalis**
- Coagulase-negative Staphylococci Staphylococcus aureus
- Streptococcus agalactiae
- Enterococcus spp.
- Escherichia coli -Anaerobes
- Yeast

Abnormal Vaginal Secretion

Female
Slides

- Normal physiological vaginal secretion. should be colorless and odorless



Causes of abnormal vaginal secretion

- Vaginal infection:
 - Trichomoniasis ▸ Vulvovaginitis candidiasis ▸ Bacterial vaginosis
- Desquamative inflammatory vaginitis
- Cervicitis:
 - Infectious ▸ Noninfectious
- Estrogen deficiency



Introduction

Types of infections

|  In Men |  In Women | Female Slides |
|---|---|----------------------|
| <ul style="list-style-type: none"> ○ Urethritis ○ Prostatitis ○ Epididymitis ○ Genital ulcers | <ul style="list-style-type: none"> ○ Cervicitis ○ Urethritis ○ Vulvovaginitis ○ Endometritis ○ Bacterial vaginosis (BV) ○ Salpingitis (Pelvic Inflammatory Disease [PID]) ○ Endometritis ○ Genital ulcers ○ Pregnant females: Disease in the neonate. ○ Children and postmenopausal women | |

Terminology and Pathogenesis

- ❖ **Vulvovaginitis, vulvitis, and vaginitis:** are general terms that refer to the **inflammation** of vagina and/ or vulva.
- ❖ **Normal flora** in the vagina is **Lactobacilli**
- ❖ Changes in the vaginal acidity or disturb the normal bacteria in the vagina may predispose to an infection

Male Slides

Vaginosis / Vaginitis

- ❖ Most common reason for patient visit to OB/GYN
- ❖ **Three primary infections in order of prevalence**
 1. Bacterial vaginosis
 2. Candidiasis
 3. Trichomoniasis
- ❖ **Causes of vulvovaginitis**
 1. Bacterial: **Bacterial vaginosis** (40%) **most common**
 2. Fungal: **Candida vulvovaginitis** (25%)
 3. Parasitic: **Trichomonal vulvovaginitis** (25%)
 4. Low estrogen levels (called "atrophic vaginitis")
 5. Allergic or irritation or injury response from spermicidal products, condoms, soaps, and bubble bath called "contact vulvovaginitis".

Male Slides

Characteristics of the Vagina and Cervix in Women of Reproductive Age

Male Slides

| | Vagina | Cervix |
|---------------------------|---|--|
| PH | <4.5 | 7.0 |
| Endothelial cells | Squamous | Columnar |
| Pathogens/syndrome | <ul style="list-style-type: none"> ❖ Bacterial vaginosis ❖ Candida species ❖ Trichomonas vaginalis | <ul style="list-style-type: none"> ❖ Neisseria gonorrhoeae ❖ Chlamydia trachomatis |



Introduction

History

- ❖ General gynecological history (Age: Neonate, Pregnancy, Prepubescent, atrophic postmenopausal.
- ❖ Estrogen depletion Onset
- ❖ Menstrual history
- ❖ Pregnancy
- ❖ Sexual Hx
- ❖ Contraception
- ❖ Sexual relationships
- ❖ Prior infections
- ❖ General medical Hx: Allergies, DM,
- ❖ Malignancies, Immunodeficiency
- ❖ Medication: OCP, steroids, douche

Female Slides

Symptoms

- ❖ Discharge:
 - Quality: Scanty
 - Physiology or due to OCP
- ❖ Valvular discomfort (HSV)
- ❖ Oder (BV, FB, EV fistula)
- ❖ Dyspareunia
- ❖ Abdominal pain (tricho) PID

Female Slides

Examination

- ❖ Breast
- ❖ Adequate illumination
- ❖ Magnification if possible
- ❖ Give a patient mirror
- ❖ Inspect external genitalia (lesions and Erythema)
- ❖ Vaginal mucosa (lesions, Erythema and secretions)
- ❖ Examination of cervix (Ectropion, Lesions, Erythema and Endocervical secretion)
- ❖ Collect cervical and vaginal specimen
- ❖ Bimanual examination

Female Slides

Classification of vulvovaginitis

Uncomplicated vulvovaginitis

- ❖ Sporadic
- ❖ No underlying disease
- ❖ By Candida albicans
- ❖ Not pregnant
- ❖ Mild to moderate severity
- ❖ Any available topical agent
- ❖ Fluconazole 150mg as a single oral dose

Complicated vulvovaginitis

- ❖ Underlying illness (HIV, DM)
- ❖ Recurrent infection 4 or more per year
- ❖ Non albican candida
- ❖ Pregnancy
- ❖ Severe infection.
- Culture confirmation mandatory**
- ❖ Antifungal suscep. Testing
- ❖ Treat for 10-14 days with vaginal or oral agent
- ❖ Other topical (Boric acid, 5 fluorocytosine)
- ❖ Consider treatment of the partners
- ❖ Long term suppressive treatment for frequently recurrent diseases

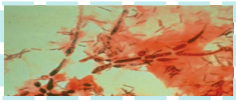
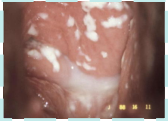


Introduction

| | | |
|---|---|--|
| <h2>History</h2> | <ul style="list-style-type: none"> ❖ General gynecological history (Age: Neonate, Prepubescent, Adolescent, Adult, Postmenopausal (atrophic). ❖ Estrogen depletion Onset ❖ Menstrual history ❖ Pregnancy ❖ Sexual Hx | <ul style="list-style-type: none"> ❖ Contraception ❖ Sexual relationships ❖ Prior infections ❖ General medical Hx: Allergies, DM, ❖ Malignancies, Immunodeficiency ❖ Medication: OCP, steroids, douche |
| <h2>Symptoms</h2> | <ul style="list-style-type: none"> ❖ 🩸 Discharge: -Quality <ul style="list-style-type: none"> ➢ Quantity: scanty ➢ Physiology or due to OCP ❖ 🧑‍🦲 Valvular discomfort (HSV) ❖ 🧑‍🦲 Oder (BV, FB, EV fistula) ❖ 🧑‍🦲 Dyspareunia ❖ 🧑‍🦲 Abdominal pain (tricho) PID | |
| <h2>Examination</h2> | <ul style="list-style-type: none"> ❖ Breast ❖ Adequate illumination ❖ Magnification if possible ❖ Give a patient mirror ❖ Inspect external genitalia (lesions and Erythema) | <ul style="list-style-type: none"> ❖ Vaginal mucosa (lesions, Erythema and secretions) ❖ Examination of cervix (Ectropion, Lesions, Erythema and Endocervical secretion) ❖ Collect cervical and vaginal specimen ❖ Bimanual examination |
| <h2>Classification of vulvovaginitis</h2> | <h3>Uncomplicated vulvovaginitis</h3> <ul style="list-style-type: none"> ❖ Sporadic ❖ No underlying disease ❖ By Candida albicans ❖ Not pregnant ❖ Mild to moderate severity ❖ Any available topical agent ❖ Fluconazole 150mg as a single oral dose | <h3>Complicated vulvovaginitis</h3> <ul style="list-style-type: none"> ❖ Underlying illness (HIV, DM) ❖ Recurrent infection 4 or more per year ❖ Non albican candida ❖ Pregnancy ❖ Severe infection. Culture confirmation mandatory ❖ Antifungal suscep. Testing ❖ Treat for 10-14 days with vaginal or oral agent ❖ Other topical (Boric acid, 5 fluorocytosine) ❖ Consider treatment of the partners ❖ Long term suppressive treatment for frequently recurrent diseases |



Candidiasis

| | |
|--------------------------------------|---|
| <p>Information</p> | <ul style="list-style-type: none"> ● Infection of the vagina's mucous membranes by <i>Candida albicans</i>. ● 75% of adult women ● Found naturally in the vagina ● Overgrowth of a normal inhabitant of the vagina. ● Pruritus, thick cheesy discharge PH<4.5 ● Candidiasis or thrush is a fungal infection "yeast" (mycosis) of any of the <i>Candida</i> species (yeasts) of which <i>Candida albicans</i> is the most common. ● Common superficial infections of skin and mucosal membranes by <i>Candida</i> causing local inflammation and discomfort. <div style="text-align: right;">  <p>You will see <i>Candida Pseudohyphae</i> or budding yeast</p> </div> |
| <p>Etiology Male Only</p> | <ul style="list-style-type: none"> ❖ <i>Candida albicans</i> 80 - 90% ❖ <i>C. Glabrata</i>'s ❖ <i>C. tropicalis</i> |
| <p>Clinical presentation</p> | <ul style="list-style-type: none"> ❖ Vulvar itching Soreness and Irritation ❖ Pruritus ❖ Painful sexual intercourse (Superficial dyspareunia.) ❖ Burring on passing urine (Dysuria) ❖ Fissuring ❖ Satellite lesions. ❖ Erythema (redness) ❖ A thin and watery or thick,, small amount of white (like cottage cheese/curdy) Odourless vaginal discharge. <div style="text-align: right;">  </div> |
| <p>Predisposing factors</p> | <ul style="list-style-type: none"> ❖ Pregnancy ❖ Poorly controlled DM ❖ Immunocompromised conditions ❖ Use of Broad-spectrum antibiotics ❖ Hormonal changes ❖ Age: 20-30 years ❖ Change in vaginal acidity ❖ Use of corticosteroid medications ❖ Use of Contraceptive medications ❖ Sexual behaviour ❖ Tight-fitting clothing ❖ Female hygiene |



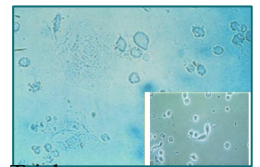
Candidiasis

| | | |
|--|--|--|
| <p>Diagnosis of VVC</p> | <ul style="list-style-type: none"> ❖ History & symptoms ❖ physical and pelvic exam ❖ Wet prep to see clumps of pseudohyphae. ❖ Budding yeast and no pseudohyphae in patient with C.Glabrata ❖ KOH prep helpful but not always necessary. ❖ Candidiasis can be similar to other diseases: (Sexually transmitted disease , Chlamydia, Trichomoniasis, Bacterial vaginosis, Gonorrhea) | |
| <p>Vaginal Yeast Cultures Male Only</p> | <ul style="list-style-type: none"> ❖ Probably not routinely indicated as many women are colonized with Candida already ❖ Used in recurrent infections and susceptibility testing ❖ If obtained must correlate with patient signs and symptoms | |
| <p>Treatment</p> | <ul style="list-style-type: none"> ❖ Oral agent:- Fluconazol (oral one tablet in single dose) ❖ -Itraconazol ❖ Others: -Butoconazole cream -Clotrimazole (1% cream, vaginal tablet) -Miconazole(2% cream, vagina suppository) -Nystatin (vaginal tablet) ❖ Short-course topical formulations: (– single dose and regimens of 1–3 days – effectively treat uncomplicated candidal vulvovaginitis ❖ Topical azole drugs are more effective than nystatin –Azole drugs relief of symptoms in 80–90% of cases. ❖ Treatment failure: <ul style="list-style-type: none"> ➤ In up to 20% of cases ➤ (If the symptoms do not clear within 7–14 days) | |
| <p>Female Slides</p> <p>Types of candidal vulvovaginitis</p> | <p>Uncomplicated thrush</p> | <ul style="list-style-type: none"> ❖ Single episode/less than four episodes in a year. ❖ Mild or moderate symptoms ❖ Caused by the Candida albicans |
| <p>Complicated thrush</p> | <ul style="list-style-type: none"> ❖ Four or more episodes in a year. ❖ Severe symptoms. ❖ Pregnancy ❖ Poorly controlled diabetes/immune deficiency. ❖ Not caused by the Candida albican | |

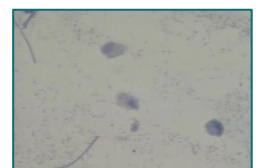


Trichomoniasis

| | |
|--------------------------------|--|
| <h2>Introduction</h2> | <ul style="list-style-type: none"> Sexually-transmitted parasites. Trichomonas is the most prevalent non-viral sexually transmitted disease (STD) agent. Caused by: <ul style="list-style-type: none"> Trichomonas vaginalis. |
| <h2>Clinical features</h2> | <ul style="list-style-type: none"> Vaginal discharge, pruritus in females, but may be asymptomatic. Painful urination, Painful sexual intercourse, Vulvar irritation (strawberry cervix) A malodorous smelling yellow-green to gray, sometimes Abnormal vaginal odor (frothy), vaginal discharge. Males usually asymptomatic, but can cause Non-gonococcal urethritis Copious foamy discharge, PH>4.5 |
| <h2>Complications</h2> | <ul style="list-style-type: none"> Premature rupture of membranes Preterm labor and birth Low birth weight Increased transmission of other STDs including HIV <p>Prof.Ali: Complications no need to remember just remember تمنعها من الحمل وإذا حملت تسبب لها مشاكل</p> |
| <h2>Confirm the diagnosis</h2> | <p>Gram stain: we diagnose it based on: flagella size (we see flagellated protozoa).</p> <ul style="list-style-type: none"> Trichomonas-Wet mount preparation Trichomonas-Pap Smear Culture: Culture is considered the gold standard for the diagnosis of trichomoniasis. Its disadvantages include cost and prolonged time before diagnosis, and it requires a special media EIA (ELISA) <ul style="list-style-type: none"> Sensitivity 91.6% Specificity 97.7% DNA Probe |
| <h2>Treatment</h2> | <ul style="list-style-type: none"> Oral Metronidazole (500 mg bid for 7 days or 2g daily for 3-5 days) Confirm all current sexual partners treated. If Rx failure: <ul style="list-style-type: none"> Consultation with experts Susceptibility testing Higher dose of metronidazole Alternative Tinidazole |



Trichomonas wet prep (tear like parasite)



Trichomonas-pap smear



culture



Bacterial vaginosis

| | | | |
|---|--|---|------------------------|
| <p>Overview</p> | <ul style="list-style-type: none"> ❖ It is a floral imbalance ❖ ↓ <i>Lactobacillus acidophilus</i> ↑ other normal flora ❖ Most common of vaginal syndrome ❖ Very high numbers of bacteria such as: vaginal normal flora: <ul style="list-style-type: none"> ❖ <i>Lactobacillus acidophilus</i>. ❖ <i>Gardnerella vaginalis</i>. ❖ <i>Mycoplasma hominis</i>. ❖ <i>Mobiluncus</i> species. ❖ Anaerobes: <ul style="list-style-type: none"> - <i>Bacteroides</i> (<i>Porphyromonas</i>). - <i>Prevotella</i> -<i>Peptostreptococcus</i> -<i>Fusobacterium</i>. ❖ In contrast, <i>Lactobacillus</i> bacteria are in very low numbers or completely absent. ❖ Lactobacilli: <ul style="list-style-type: none"> ➤ Complete with other microorganisms for adherence to epithelial cells. ➤ Produce antimicrobial compounds such as organic acids (which lower the vaginal pH) hydrogen peroxidase and bacteriocin-like substances. | | |
| <p>BV Sequelae</p> | <p>OB Complications</p> | <p>GYN Complications</p> | <p>Male Slides</p> |
| | <ul style="list-style-type: none"> ○ Preterm delivery ○ Premature rupture of membranes ○ Amniotic fluid infection ○ Chorioamnionitis ○ Postpartum endometritis ○ Premature labor ○ Low birth weight | <ul style="list-style-type: none"> ○ Pelvic inflammatory disease (PID) ○ Portaportal pelvic inflammatory disease ○ Increased risk of HIV/STD | |
| <p>Clinical Presentation</p> | <ul style="list-style-type: none"> ❖ Itching and burning. (<u>Male Only</u>) ❖ Fishy-smelling (specially after sexual intercourse and menses) thin, milky-white or gray vaginal discharge. <p>Most cases (50-75%) Homogenous grey vaginal discharge.</p> <ul style="list-style-type: none"> ❖ Dysuria and dyspareunia rare • Pruritus and inflammation are absent ❖ Fishy vaginal discharge: <ul style="list-style-type: none"> - During menstruation – After intercourse ❖ Minimal itching or irritation • Absence of inflammation is the basis of the term "vaginosis" rather than vaginitis | | |
| <p>Etiology</p> | <p>Unclear, associated with <i>Gardnerella vaginalis</i> <i>mobiluncus</i>, <i>Prevotella</i> sp.</p> | | |
| <p>Female Slides</p> <p>Pathogenesis</p> | <p>Marked reduction in <i>Lactobacillus</i> → Decreased hydrogen peroxide production → Polymicrobial superficial infection: overgrowth of <i>G. vaginalis</i> and anaerobic bacteria → After metronidazole treatment: <i>Lactobacilli</i> predominate again.</p> | | |
| <p>Female Slides</p> <p>Epidemiology</p> | <ul style="list-style-type: none"> ❖ Bacterial Vaginosis is the most common vaginal infection in women of childbearing age-29% ❖ Risk factors: <ul style="list-style-type: none"> -Multiple or new sexual partners (sexual activity alteration of vaginal pH). -Early age of first sexual intercourse. -Douching. -Cigarette smoking. -Use of IUD. <p>Note: Although sexual activity is a risk factor for the infection, bacterial vaginosis can occur in women who</p> | | |



Bacterial vaginosis

Diagnostic Methods

- Related **symptoms and sexual history**.
- Examination of introitus may reveal erythema of the vulva and edema of the labia.
- Speculum examination.
- A sample of the vaginal swab.
- Culture has a poor predictive value for *G. vaginalis* as it is prevalent in healthy asymptomatic women.
- DNA probes are expensive, and have a poor predictive value alone.

Office Diagnostics for Vaginitis

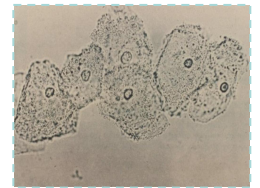
- ❖ Empiric diagnoses often inaccurate and lead to incorrect treatment and management.
- ❖ Need for rapid, accurate and inexpensive diagnostic tests.
- ❖ Simple, inexpensive, office-based tests were underutilized:
 - **Microscopy** - PH measurement - Whiff amine test

Clinical Diagnosis of BV

- ❖ Clinical diagnosis. 3 out of 4 of these criteria:
 - PH greater than 4.5
 - Positive Whiff test - Any clue cells
 - Homogeneous discharge (grey or milky white)

Male Slides

Clue cell wet mount



Gram Stain Diagnosis

- ❖ **Gram Stain is the GOLD STANDARD test for diagnosis**
- ❖ Predominance of lactobacilli = normal
- ❖ **Mixed small gram-positive and gram-negative rods ± curved rods = BV.**
- Bacteria adhered to epithelial cells; most reliable single indicator.
 - ❖ Elevated pH and increased amine
 - Sensitivity 87%; Specificity 92%
 - ❖ Culture- poor predictive value for *G. Vaginalis* as prevalent in healthy asymptomatic women
 - ❖ DNA probes- expensive, poor predictive value alone
- **Vaginal pH > 4.5.**

| Score | Lactobacillus morphotype | Gardnerella and Prevotella morphotypes | Mobiluncus morphotype |
|-------|--------------------------|--|-----------------------|
| 0 | 4+ | 0 | 0 |
| 1 | 3+ | 1+ | 1+ or 2+ |
| 2 | 2+ | 2+ | 3+ or 4+ |
| 3 | 1+ | 3+ | |
| 4 | 0 | 4+ | |

PH Test

- ❖ PH indicator strips: pH 3.5 - 7.0
- ❖ Place sample of vaginal secretion on test strip: read while still moist.
- ❖ **PH > 4.5 indicates abnormality** (i.e. BV-Trichomonas- or menstrual blood).
- ❖ Be careful not to sample the cervix; cervical secretions and blood have a PH 7.0

KOH "WHIFF" Test

- Sample of vaginal secretions are placed in a test tube with 10% KOH.
- KOH alkalizes amines produced by anaerobic bacteria-results in a sharp **"fishy odor"**

Male Slides



Bacterial vaginosis

Diagnostic Methods, cont.

Male
Slides
**Wet Mount
Preparation**

- ❖ Vaginal secretion sample from the anterior fornix and lateral wall
- ❖ Place swab in test tube with small amount of normal saline and place sample on glass slide with cover slip
- ❖ Visualize at both low and high power
- ❖ Clue cells, yeast, Trichomonas, WBC, bacteria.

Treatment

Oral:

- ❖ **Metronidazole** (500 mg bid x 7 days (\$5):84-96% cure rate. > Single dose therapy (2g) may be less effective.)
- ❖ Clindamycin 300 mg bid x 7 days (\$28): Less effective.
- ❖ Tinidazole

Topical (higher recurrence rates):

- ❖ Metronidazole (gel (0.75%) 5 g PV qhs x 5 days (\$30); 70-80% cure rate.)
- ❖ Clindamycin (cream (2%) 5 g PV qhs x 7 days (\$31): Less effective. May lead to Clindamycin resistant anaerobic bacteria.)

Specimens obtained during Gynecological examination

Vaginal secretions

PH - Saline wet preparation - KOH wet preparation

Cervical cultural and non cultural

GC - C.trachomatis.

Vaginal culture

Candida - Trichomonas vaginalis

Cervical cytological examination if not documented within previous 12 months

Specific Tests

Routine Bacterial Cultures ARE NOT HELPFUL

Wet mount
(60% sensitive for
Trichomoniasis & BV)

Wet mount with yeast & Trichomonas cultures:

Recommended tests to diagnose vaginitis.

Wet mount, without yeast or Trichomonas cultures:

50% of either of these agents of vaginitis will be missed.

(KOH) "Whiff test"

Presence of abnormal or foul odor.

Gram stain

Using the **Nugent scoring system**, Useful to diagnose BV.

Sensitive DNA probe assay

Combines the detection of yeasts, Trichomonas, and G. vaginalis as a marker for BV.



Prof Ali's notes:

- ❖ Normal flora is only lactobacillus gram positive bacilli that's why they produce lactic acid and cause acidity
- ❖ When women grow older the flora change into gi flora so you see gram negatives and anaerobes
- ❖ Bacterial vaginosis is alteration of normal flora, before they thought that vaginosis was because of gardenilla vaginalis but they found other gram negatives so they defined it as the absence of lactobacillus and replaced by any type like gardinella or bacteroides (مو مهم الاسامي)
(حقت البكتيريا المهم تعرفون انه لاكتوباسيلوس تختفي وتظهر نوع جديد من البكتيريا)
- ❖ in **African** populations for example vagionsis is normal they only have discharge and they are used to it unlike **western countries** its annoying complaint in especially during intercourse it causes a smell and might effect pregnancy and cause infertility
- ❖ vaginosis is not inflammation (there is some inflammation but the majority is alteration normal flora)
- ❖ the patient present with large amount of fishy grey whitish discharge (important) and two test positives :

pH is alkaline (it changes from acid) and whiff test positive (10% KOH we add it to the discharge and the fishy smell appears because of release of ammonium)
- ❖ So clinical diagnosis child bearing aged women present to the clinic with acute vaginal discharge after fishy and grey white appearance (after intercourse because of the alkaline semen will react with vaginal acidity and produce ammonia like koh test)
- ❖ How we diagnose in lab ? we do gram stain we see clue cells and no lactobacillus

مو مهم تعرفون بس زمان كانوا يسوون كلتشر وكانوا يظنون انه القاردينلا هي الوحيدة اللي تسبب المرض فكانوا يزرعون)
وتطلع موجودة في الكلتشر بس المريض ما عنده اعراض عشان كذا يسوون قرام ستاين لانه ما فيه لاكتوباسيلوس وبرضوا
clue cells يشوفون



Prof Ali's notes:

❖ Vaginitis : either **Candida** or **Trichomonas**

❖ **Candida**

- Clinically the patient comes with itching and when you examine no clear discharge but when you do speculum examination you see erythema and small amount very thick discharge whitish and inside vaginal wall with a mark on the wall because of the itching.
- In lab wet mount for both candida and trichomonas (we take discharge and we put normal saline and see the Candida under microscope as hyphae and pseudohyphae and budding yeast)

❖ **Trichomonas**

- Wet mount not used here (in KSA) because its very hard and the specimen arrives dry to the lap. but if you do it for trichomonas you see flagella but hard to see because its very small.
- Only affect female that's why its called vaginalis yellowish or greenish foamy or frothy vaginal discharge

➤ لل trichomonas اتحدى أي واحد يشوفها بسهولة لكن نعرفها انها اصغر من ال squamous cells و اكبر من ال wbc
وال flagella صغيرة لكن لا تعذبون نفسكم عشان فيه pcr

- Candida we use culture but trichomonas not used (sucrose agar)

❖ Patient 24 years old male with history of unprotected sex presented with urethral discharge, gram negative diplococci intracellular, which one of the following media is recommended to isolate the bacteria?

- **Answer:** Thayer martin

❖ Patient comes with vaginal discharge ph is alkaline whiff test is negative what is the diagnosis?

- **Trichomonas** is the answer because candida is not alkaline

❖ **Treatment** Metronidazole for vaginosis and trichomonas

❖ Candida we use Fluconazol

❖ Vaginosis clue cell and grey whitish discharge

❖ Trichomonas high ph and whiff test negative

❖ Candida small amount of white thick excoriation marks discharge



Prof Ali's notes:

On slides

- ❖ Normal flora stds in cervix because ph is alkaline unlike vagina acidic and different epithelium as well so different diseases
- ❖ History sometimes is important like risk factors and does she take contraceptives or antibiotics and focus on if shes pregnant because of complications
- ❖ Bacterial vaginosis gram stain only clue cells and no bacillus
- ❖ Candida irritation pruritis thick curdy whitey like cottage cheese
- ❖ Culture we use only if patient not responding to treatment or immunocompromised patient
- ❖ Usually we treat embirical but sometimes resistant so we do susceptibility test

| Clinical syndrome | Etiology | Treatment |
|--|--|--|
| Bacterial vaginosis Malodorous vaginal discharge, pH >4.5 Whiff test +ve KOH 10% | Etiology unclear: associated with lack of lactobacillus, Gardenella vaginalis mobiluncus, Prevotella sp., Nygen score, clue cells | Metronidazole Tinidazole |
| Trichomoniasis Copious foamy, frothy, greenish whitish or yellow discharge, pH >4.5 Treat sexual partners | Trichomonas vaginalis, WM motile flagellated protozoa, GS, EIA | Metronidazole Tinidazole |
| Candidiasis Pruritus, thick cheesy curdy whitish discharge, pH <4.5 | Candida albicans 80-90%. C. Glabrata, C. tropicalis | Oral azole: Fluconazole Itraconazole |



MCQs - SAQ

| | | | |
|---|---|---|-----------------------------------|
| Q1 - Which one of the following is a risk factor to get candidiasis? | | | |
| A) Antiviral therapy | B) Pregnancy | C) Anemia | D) All of the above |
| Q2 - A patient present with milky white or gray vaginal discharge. What is the the sample you send? | | | |
| A) Urine | B) CSF | C) Smear swab | D) All of the above |
| Q3 - All of the following are clinical features of Bacterial Vaginosis, except? | | | |
| A) Fishy-smelling | B) Dysuria and dyspareunia | C) grey or milky white or vaginal discharge | D) satellite lesions |
| Q4 - Which of the following statements are incorrect regarding Trichomoniasis? | | | |
| A) Viral sexual transmitted disease | B) It causes premature rupture of membranes | C) It causes low birth weight | D) Sexually-transmitted parasites |
| Q5 - Which one of the following is the best method to diagnose Bacterial Vaginosis? | | | |
| A) PCR | B) Culture | C) Serology | D) Gram stain |

A1:B A2:C A3:D A4:A A5:D

1

Patient came to the clinic with a frothy yellow green discharge and rash

Q: What is the causative organism?

A: *Trichomonas vaginalis*

2

Enumerate the clinical features presented in a patient with candidiasis

A: Slide 9



TEAM 443
MICROBIOLOGY



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Any future corrections will be in the editing file, so please check it
frequently