

## Lecture 2

# Candida infection, Trichomonas vaginalis, Bacterial vaginosis



*Microbiology team 430*

Done By:

Ibrahim Alfaris

Hanan Alrabiah

Aos Aboabat

Khawlah Alothman

Hatim Alansari

Ghadeer Alwuhayed

Hanan Alsalman

## ***Introduction***

- **Vulvovaginitis, vulvitis, and vaginitis:** Are general terms that refer to the inflammation of the vagina and/or vulva.
- **Lactobacilli:** is a Normal flora present in the vagina and the GIT. Any **changes in the vaginal acidity or disturb of the normal bacteria in the vagina may predispose to an infection.**

### **VAGINOSIS/VAGINITIS**

- Most common reason for patient visit to OB/GYN.
- Three primary infections in order of prevalence: Bacterial vaginosis , Candidiasis ,Trichomoniasis

#### **History:**

- General gynecological history
- Menstrual history
- Pregnancy
- Sexual Hx
- Contraception
- Sexual relationship
- Prior infection
- General medical Hx
  - Allergies
  - DM
  - Malignancies
  - Immunodeficiency
- Medication OCP, steroids, douches
- Symptoms

#### **Causes of vulvovaginitis:**

- **Bacterial: Bacterial vaginosis** (40%)
- **Fungal: Candida vulvovaginitis** (25%)
- **Parasitic: trichomonal vulvovaginitis** (25%)
- Low estrogen levels (atrophic vaginitis)
- Allergic or irritation or injury response from spermicidal products, condoms, soaps, and bubble bath called “contact vulvovaginitis”.

## Bacterial Vaginosis

- **Most common** of vaginal syndromes and its due to change in the balance of normal vaginal bacteria .
- Very high numbers of bacteria such as: Gardnerella vaginalis, Mycoplasma hominis, Bacteroides species, and Mobiluncus species.
- In contrast, **Lactobacillus bacteria** are in **very low numbers or completely absent**.

Very IMP because it may leads to infertility and affect the pregnancy outcome as complication.

### Clinical Features:

- Itching and burning.
- **Fishy-smelling** (especially after sexual intercourse and menses) thin, milky-white or gray vaginal discharge.

### Obstetrics Complication:

- Preterm delivery
- Premature rupture of membranes
- Amniotic fluid infection
- Chorioamnionitis (inflammation of the fetal membranes)
- Postpartum endometritis (infection of the endometrium during pregnancy)
- Premature labor
- Low birth weight

### GYN Complication:

- Pelvic inflammatory disease (PID)
- Postabortal pelvic inflammatory disease
- Posthysterectomy infections (after removing the uterus)
- Mucopurulent cervicitis (inflammation of the cervix)
- Endometritis
- Increased risk of HIV/STD



## Diagnosis

- Related symptoms and sexual history.
- Examination of introitus
- Speculum examination.
- **Vaginal swab.**

## Office Diagnostics for Vaginitis

- Empiric diagnoses often inaccurate.
- Need for rapid, accurate and inexpensive diagnostic tests.

## Clinical diagnosis of BV:

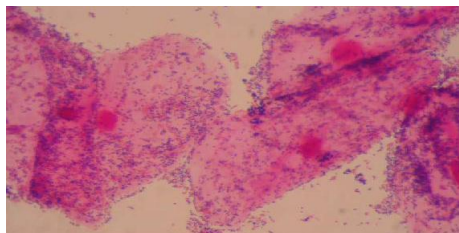
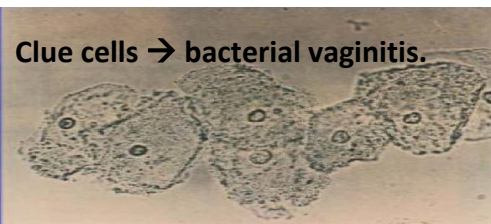
- ❖ 3 out of 4 of these criteria.
  1. **PH greater than 4.5**
  2. Positive Whiff test
  3. Any **clue cells**
  4. Homogenous discharge.

## Office-based tests for vaginitis: (very easy and not expensive and can be done regularly)

- ❖ Microscopy
- ❖ PH measurement
- ❖ Whiff amine test

Gram stain diagnosis	PH test	KOH "whiff" test	Wet mount
<ul style="list-style-type: none"><li>• Predominance of lactobacilli = normal.</li><li>• <b>Mixed small gram-positive and gram-negative rods ± curved rods = BV.</b></li></ul>	<ul style="list-style-type: none"><li>• PH indicator strips: pH 3.5 - 7.0</li><li>• <b>PH&gt;4.5 indicates abnormality (i.e. BV- Trichomonas- or menstrual blood).</b></li></ul>	<ul style="list-style-type: none"><li>• KOH alkalizes amines produced by anaerobic bacteria-<b>results in a sharp "fishy odor"</b></li><li>• "Several drops of a (KOH) added to a vaginal discharge to see whether a strong fishy odor is produced"</li></ul>	<ul style="list-style-type: none"><li>• Vaginal secretion sample from the anterior fornix and lateral wall</li><li>• <b>Clue cells "indicate BV", yeast, trichomonas, WBC, bacteria.</b></li></ul>

Clue cells → bacterial vaginitis.



- Gram -ve bacilli → anaerobes caused bacterial vaginosis
- No lactobacilli are seen

## Candidiasis

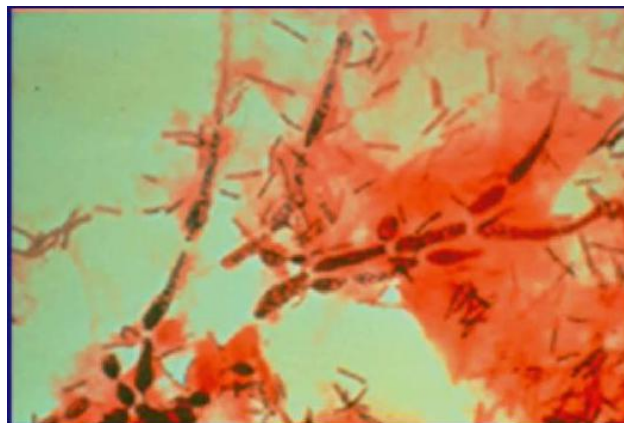
- Overgrowth of a normal inhabitant of the vagina.
- Predisposing factors: Pregnancy, DM, Immunocompromized conditions, antibacterial treatment. (low immunity)
- Clinical Presentation: **Irritation, pruritis, soreness, painful sexual intercourse burring on passing urine** , and a thick, **curdy, white (like cottage cheese) vaginal discharge.**

### Diagnosis of VVC (vulvovaginal candidiasis):

- Wet prep “**wet mount**” to see clumps of **pseudohyphae**.
- Budding yeast and no pseudohyphae in patients with *C glabrata*.
- KOH prep helpful but not always necessary.

### Vaginal Yeast Cultures:

- Probably not routinely indicated - many women are colonized with *Candida*
- Must correlate with patient signs and symptoms
- For recurrent infections culture and susceptibility testing may be helpful



## Trichomoniasis

- Sexually transmitted **parasite**
- Trichomonas is the most prevalent **non-viral sexually transmitted disease (STD)** agent.

### Clinical Features:

- Vaginal discharge, pruritis in females, but may be asymptomatic.
- Painful urination
- Painful sexual intercourse
- **A yellow-green to gray, sometimes frothy, vaginal discharge.**
- The discharge is characteristically **malodorous smelling**
- ❑ **Males** usually asymptomatic, but can cause **Non-gonococcal urethritis**.

### Complications:

- Trichomonas associated with:
  - Premature rupture of membranes
  - **Preterm labor and birth**
  - Low birth weight
  - **Increased transmission of other STDs including HIV**

### ❖ Methods of Diagnosis:

- Trichomonas Wet Prep
- Trichomonas-Pap Smear
- **Culture is considered the gold standard for the diagnosis of trichomoniasis. Its disadvantages include cost and prolonged time before diagnosis**

### ❖ Other Methods of Diagnosis:

- EIA
  - ✓ Sensitivity 91.6%
  - ✓ Specificity 97.7%
- DNA Probe



## Summary

- Changes in the vaginal acidity or disturb of the normal bacteria (**Lactobacilli**) in the vagina may predispose to an infection such as (vaginitis)
- Causes of vulvovaginitis can be either: Bacterial vaginosis or Fungal “Candida” or parasitic “trichomonal” and it could be due to low estrogen levels or allergic reaction.
- **Bacterial Vaginosis:**

It is presented with:

- **Very high numbers of bacteria (such as: Gardnerella vaginalis) with low numbers or absence of Lactobacillus bacteria.**
- **Fishy-smelling with thin, milky-white or gray vaginal discharge.**
- **Can be diagnosed by many tests like:**
  - 1- Gram stain under the microscope and find mixed small gram +ve and gram -ve rods ± curved rods.
  - 2- PH test where **PH is >4.5** indicates abnormality.
  - 3- **KOH "whiff" test will produce "fishy odor"**
  - 4- Wet mount taken from anterior fornix and lateral wall of vagina and look for: **Clue cells**
- **Candidiasis:**
  - It is presented with **irritation**, pruritis, soreness, painful sexual intercourse burring on passing urine and **a thick, curdy, white (like cottage cheese) vaginal discharge**
  - In the diagnosis of candidiasis we **do wet prep to see clumps of pseudohyphae. (Budding yeast and no pseudohyphae in patients with C glabrata).**
- **Trichomoniasis:**
  - It is presented with vaginal discharge, pruritis in females, but may be asymptomatic. Painful urination, Painful sexual intercourse, **a yellow-green to gray sometimes frothy vaginal discharge. The discharge is characteristically malodorous smelling.**
  - Trichomonas associated with: Premature rupture of membranes , preterm labor and birth , low birth weight , **Increased transmission of other STDs (HIV)**
  - Can be diagnosed by: Wet Prep, Pap smear. Although **Culture is considered the gold standard for the diagnoses of trichomoniasis but it is expansive and take time.**