437 Team: Obstetrics and Gynecology

Lower Genital Tract Infection

Objectives:

- Formulate a differential diagnosis for vulvovaginitis.
- Interpret a wet mount microscopic examination.
- Describe the variety of dermatologic disorders of the vulva.
- Discuss the steps in the evaluation and management of a patient with Vulvovaginal symptoms.

References:

- Kaplan USMLE step 2 CK - Obstetrics and Gynecology
- Online Meded videos
- Team 435

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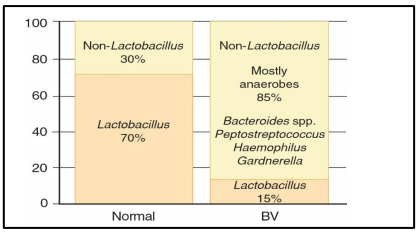
Color index: Important | Notes | Meded | Video-Case

Editing file link

Bacterial Vaginosis

Organisms :

The normal predominant lactobacilli are replaced by microorganisms: **Gardnerella vaginalis**, genital mycoplasmas and vaginal anaerobic bacteria, including Prevotella, Bacteroides, and Mobiluncus species . imbalance between lactobacilli "Normal aerobic" & anaerobic organisms



Change in Vaginal Flora with Bacterial Vaginosis

General info:

-It's the **most common** (50%) cause of vaginal complaints in the US
- It is not a true infection, but rather an alteration in concentrations of normal vaginal bacteria.
- Bacterial vaginosis is **not** sexually transmitted, but rather is associated with sexual activity.

Risk Factors :

Postmenopausal women because of low levels of estrogena, new sexual partner, smoking, intrauterine device (IUD) use and frequent douching.

Clinical Features:

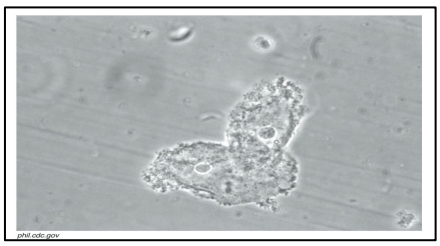
- Thin white discharge with "fishy" odor especially after intercourse, why? Semen is alkaline"
- Neither itching or burning

Speculum Examination :

- **Thin, grayish-white discharge**.
-Copious
- No vaginal inflammation
- A positive **"whiff" test** is elicited when potassium hydroxide (KOH) is placed on the discharge, releasing a fishy odor.
- Vaginal pH is elevated **>4.5**

Microscopic Examination (Wet Mount) :

- **Clue cells** are seen on a saline preparation.
- These are normal vaginal epithelial cells with the normally sharp cell borders obscured by increased numbers of anaerobic bacteria.
- WBCs are rarely seen



Wet Mount of classic clue cells bacterial vaginosis showing the **stippled borders** of the cell
The dots are bacterial vaginosis
You might have this in the exam

Management:

Oral or vaginal **metronidazole** or clindamycin.

Trichomonas Vaginitis

Organisms :

Trichomoniasis vaginalis is a flagellated pear-shaped protozoan **(T. vaginalis)** that can reside asymptomatically in male seminal fluid.

General info:

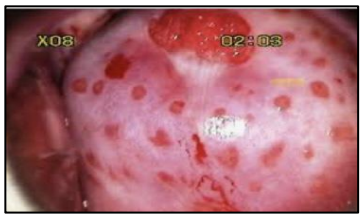
- Most common cause of vaginal complaint worldwide
- Second most common common STD in the US
- facilitate HIV transmission
-Survive in Swimming pool & hot tub
- Association with PID and Endometritis
- Patient with Trichomonas Vaginitis should screen for other STIs "N.gonorrhoeae, C.trachomatis, HIV, Syphilis"

Clinical Features:

Vaginal **yellow frothy** discharge with a **"musty" odor** associated with **itching**, **burning**, and **pain** with intercourse.

Speculum Examination :

- **Frothy & green discharge.**
- The epithelium is frequently edematous and inflamed.
- Strawberry cervix (cervical erythema)
- Vaginal pH is elevated **>4.5**



Microscopic Examination (Wet Mount) :

- **Actively motile trichomonads** on a saline preparation.
- WBCs are seen.
- If wet mount is inconclusive → culture

characteristic wet mount finding of the trichomonas organism with characteristics flagella.

Management:

- **Oral metronidazole** for both the patient and her sexual partner.
- Vaginal metronidazole gel has a **50% failure rate.**
  Metallic taste is side effect of metronidazole

Candida Vaginitis

Organisms :

Candida albicans 90%
Candida glabrata
Candida tropicalis

General info:

- The **2nd most common** vaginal complaints in the US.
- Not sexually transmitted
- Seen in **non** sexually active patients.

Risk Factors :

DM, systemic antibiotics, pregnancy, obesity, & decreased immunity, steroid
Anything keeps vagina moist & warm; Tight clothes or habitual use of pantiliner

Clinical Features:

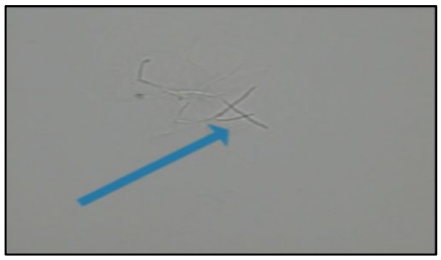
- Itching, **burning**, and pain with intercourse.
-Thick white discharge , usually odorless

Speculum Examination :

- **Crudy & white discharge.**
- The epithelium is frequently edematous and inflamed.
- Vaginal pH is normal **<4.5**
- Discharge is adherent to vaginal wall and has no odor

Microscopic Examination (Wet Mount) :

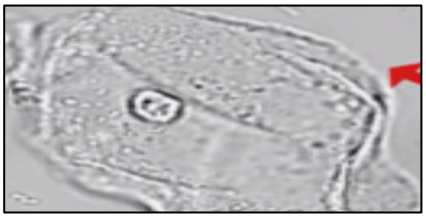
- **Pseudohyphae** , candidiasis & yeast on a KOH prep.
- WBCs are frequently seen.



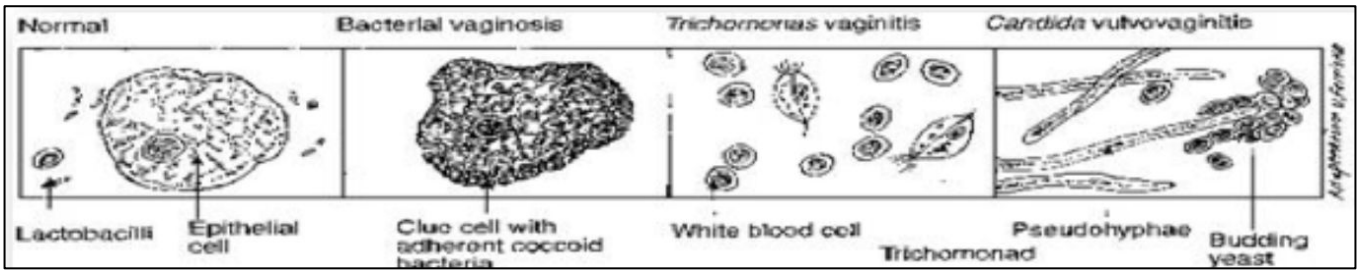
Wet mount slide shows a characteristic body hyphae of vulvovaginal candidiasis or yeast, it is often helpful to add some potassium hydroxide to the slide to better visualized the yeast

Management:

- A single oral dose of **fluconazole** or a vaginal “azole” cream.
All antifungal drugs end with azol

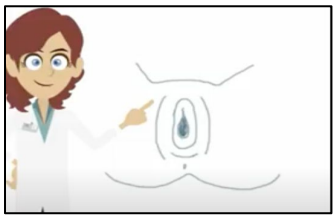


Wet Mount of normal vaginal showing **smooth border of the cell.**



Wet Mount of Bacterial Vaginosis, Trichomonas Vaginitis and Candida Vaginitis.

Anatomy Review :



Vulva = labia majora, labia minora, vestibule and perineum are outside and vagina is inside.

Itching

- Many patients presenting with vaginitis symptoms will also have associated vulvar itching complaining.
- Many patients assume that itching = yeast but this is definitely not the case.
- Report of 200 new patients to a vulvar specialty clinic, the etiology of itching vulva was:-
  - Contact dermatitis 20%
  - Recurrent yeast 20%
  - Lichen sclerosus/ Lichen simplex 11% -Bacterial vaginosis 7%
  - Vulvar vestibulitis 13%
  - Atrophic vaginitis 13%

Common vulvar irritants

- **Causes:**
  - Shampoo and body washes
  - Creative underwear; 100% cotton is the best
  - Maxi pads and pantiliners.
- **Itch/scratch cycle**: if the itching not getting better with topical steroid or not seems to make sense then a biopsy should be performed.
- **Biopsy:** Evaluate for dysplasia and cancer and can also diagnose benign vulvar conditions.

Benign vulvar conditions

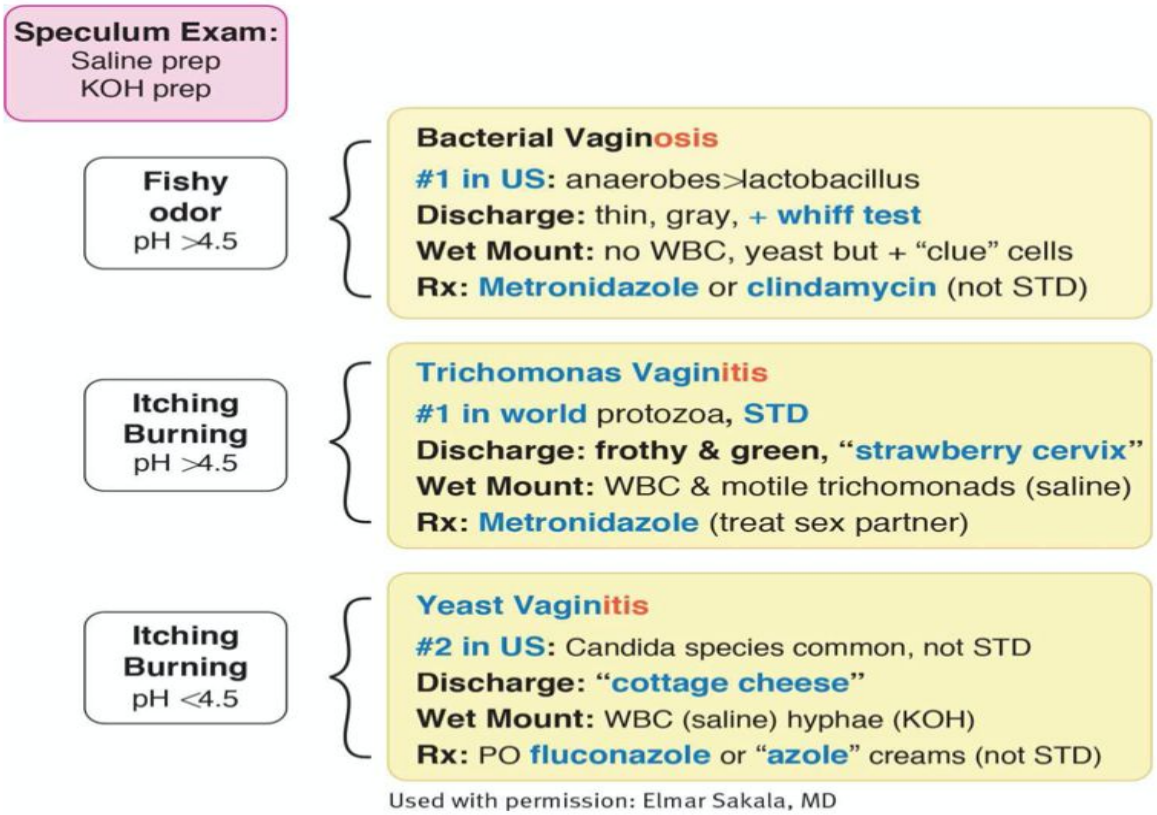
	Lichen sclerosus	Lichen planus	Lichen simplex chronicus
Definition	Benign chronic dermatological condition characterized by: -marked inflammation. -epithelial thinning. -distinct dermal changes.	Rare inflammatory skin condition that can affect the skin, oral cavity, vulva and vagina.	Skin changes that occur with itch/scratch cycle
Signs	Crinkled skin, L.minora atrophy, constriction of V.orifice, adhesions, ecchymoses & fissures.		Contact dermatitis, erythema of labia majora.
Symptoms	Patient will experience vulvar itching and burning.	Women can experience chronic vulvar burning and itching, insertional dyspareunia, profuse vaginal discharge	
Treatment	Topical corticosteroids	corticosteroids	Topical corticosteroids, counseling on how to avoid skin irritants, breaking the itch/scratch cycle.
Notes	Patient with lichen sclerosus at increased risk of squamous cell carcinoma of the vulva.	Note that lichen planus can affect both vulva and vaginawhereas lichen sclerosus can affect only vulva.	itch/scratch cycle: -scratching -mechanical irritation -epidermal thickening and inflammatory. -cell infiltrate.

Summary

Kay Words in the Exam

Bacterial Vaginosis → fishy odor
Yeast /Candida Vaginitis → itching
Trichomonas Vaginitis → high amount of discharge

Wet mount: A dry speculum will be placed in the vagina and specimen of vaginal discharge will swapped, Be careful not to get cervical mucus which is all to the Ph of the specimen.
Normal vaginal pH is **3.8 - 4.5** .
pH<4.5= yeast
pH>4.5+ BV or Trichomoniasis



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Teaching case (video case)

A **20** year-old female college student comes to see you because of a **persistent vaginal discharge.** She is also interested in discussing contraceptive options. She and her boyfriend have been **sexually active** for 6 months. They use condoms "most of the time," but she is interested in using something with a lower failure rate for birth control. She has regular menses and no significant past medical or gynecologic history. She describes her vaginal discharge as yellowish and also notes mild vulvar irritation. On physical exam, she has normal external female genitalia without lesions or erythema, a **gray/yellow discharge on the vaginal walls and pooled in the posterior fornix**. Her cervix is grossly normal but bleeds easily with manipulation. The bimanual exam is unremarkable.

Questions

1- What is your differential diagnosis?

- Bacterial Vaginosis.
- Trichomoniasis (Trichomonasvaginalis). • Candidiasis.
- Gonorrhea. Infection of the cervix
- Chlamydia Infection of the cervix

2- What tests are currently available to help in the diagnosis of these disorders?

- **Wet mount.** MCQ: what the percentage of clue cell you should see in the slide to diagnose with bacterial vaginosis? 20% of the slide
- **Vaginal pH**
- **Whiff Test** performed by adding several drops of 10% **potassium hydroxide** to a sample of vaginal discharge. A strong fishy odor is indicative of a positive test result.
- **Vaginal Culture**.
- **PCR** Tests are available for gonorrhea, chlamydia, candida, and trichomoniasis.
- Rapid tests for enzyme activity for bacterial vaginosis, trichomoniasis and candida are available.
- **DNA or antigens** testing is available for trichomoniasis, gonorrhea and chlamydia.
- **Vaginal Gram Stain** for Nugent Scoring of the bacterial flora can be helpful in identifying bacterial vaginosis(this scoring system assigns a value to different bacterial morphotypes seen on Gram stain of vaginal secretions).

3- What test findings would suggest trichomoniasis?

- Vaginal pH greater than 4.5
- Flagellated motile trichomonas on saline microscopy
- Positive vaginal culture
- OSOM Trichomonas Rapid Test (tests for trichomonas antigens)

4- What two findings can be used to diagnose vulvovaginalcandidiasis?

- Blastospores and pseudohyphae on saline or KOH wet mount
- Positive vaginal culture

5- What are Amsel's Criteria for the diagnosis of Bacterial Vaginosis?

- Abnormal gray vaginal discharge
- Vaginal pH greater than 4.5
- Positive amine test = Fishy odor
- More than 20% of epithelial cells are clue cells

6- The patient is diagnosed with trichomoniasis. What is your treatment plan for this patient?

- Treatment with a 2 gram single oral dose of metronidazole or 500 mg oral metronidazole twice daily for 7 days; an alternate treatment can be Tinidazole 2g single oral dose.
- Sexual partner must be treated simultaneously and treatment of both partners should be completed before resumption of sexual activity
- Side effects of metronidazole treatment including a disulfiram-like reaction (drowsiness, headache, and a metallic or garlic taste in the mouth) should be discussed with the patient and patient should be encouraged to abstain from alcohol during and for 24 hours after treatment with metronidazole

7- What are the additional reproductive health issues you would want to discuss with this patient?

- STI protection
- Contraception. Although this patient desires a contraceptive method that has a higher efficacy rate than condoms, you should discuss the need for condom use for protection from STIs.
- Screening of others STD

8- Would you recommend screening for additional sexually transmitted infections in this patient and if so, how?

• Yes, with serologic testing for hepatitis B, syphilis, HIV and cervical cultures for gonorrhea and chlamydia