EVAL OF VAGINAL DISCHARGE

FLAME LECTURE: 161

DIANE RHEE 10.12.19

LEARNING OBJECTIVES

- Understand normal vaginal discharge characteristics
- Formulate a differential diagnosis for vulvovaginitis
- Interpret a wet mount microscopic evaluation
- Discuss the steps in the evaluation and management of a patient with vulvovaginal symptoms
- Prerequisites:
  - NONE
- See also – for closely related topics
  - FLAME LECTURE 162-172: FLAMEs on vaginal discharge and sexually transmitted infections

NORMAL CHARACTERISTICS

- White or transparent, thick or thin, and mostly odorless
- There can be a normal increase in discharge with higher estrogen states (pregnancy, use of estrogen-progestin contraceptives, 2 weeks before period)[3]
- pH 4.0-4.5
  - Epithelium of the vagina is rich in glycogen which lactobacilli use to convert glucose into lactic acid
  - Acidity helps maintain normal flora and inhibits growth of pathogenic organisms
- 1-4mL fluid daily

3. Sobel, J. D. (2016). *Uptodate.*.

DIFFERENTIAL DIAGNOSIS OF ABNORMAL VAGINAL DISCHARGE

Common Causes:

- Infectious Vaginitis
  - Most common cause of abnormal discharge
  - Accounts for 90% of vaginitis:
    - Bacterial Vaginosis (BV)
    - Vulvovaginal candidiasis
    - Trichomoniasis
- Cervicitis
  - STIs: gonorrhea, chlamydia

Uncommon Causes:

- Noninfectious
  - Atrophic vaginitis
  - Foreign body (eg, retained tampon or condom)
  - Irritants and allergens (eg, vaginal washes or douches)
  - Fistula
  - Rarer causes: systemic disorders (eg, rheumatoid arthritis and systemic lupus)[4]

4. Spence, D., & Melville, C. (2007). *Bmj,*

HISTORY

- Changes in quantity, color, consistency, and odor of discharge?
  - Bacterial vaginosis: malodorous, thin, grey
  - Vaginal candidiasis: scant, thick, white, odorless, curd-like
  - Trichomoniasis: purulent, malodorous
- Burning, irritation, pain or discomfort?
  - Candida vulvovaginitis: pruritus and soreness
  - Bacterial vaginosis: minimal inflammation and irritating symptoms
- Pruritus?
  - General pruritus suggestive of diffuse process such as infection, allergy, or dermatosis
  - Persistent/chronic focal pruritus suggestive of localized process such as neoplasia or malignancy
- Vaginal Bleeding?
  - Due to erosive causes or uterine source

2. Sobel, J. D. UpToDate. 2016.

HISTORY

- Dysuria or dyspareunia?
  - Suggestive of infection, allergy, vulvovaginal atrophy
- Timing of symptoms?
  - Candidal vulvovaginitis typically occurs in the premenstrual period
  - Trichomoniasis and BV often occur immediately after menstrual period
  - STIs occur soon after intercourse
- Estrogen status?
  - Atrophic vaginitis: Low estrogen (menopause, postpartum, anti-estrogenic drugs)
  - Increased physiologic vaginal discharge in high estrogen states
- Sexual History?
  - New partners, number of partners
  - Contraceptive use[2]

2. Sobel, J. D. UpToDate. 2016.

PHYSICAL EXAM
VULVAR EXAM

- *Normal vulva*: typically seen with BV
- *Erythema, edema or fissures*: candidiasis, trichomonas, dermatitis
- *Atrophic changes*: atrophic vaginitis
- *Changes in vulvovaginal architecture*: chronic inflammatory process like lichen sclerosus
- *Pain with application of pressure from cotton swab*: inflammatory process like candidiasis, dermatosis, or vulvodynia

PHYSICAL EXAM (CONT'D)

STERILE SPECULUM & BIMANUAL EXAM

- *Vagina*:
  - Foreign body
  - Vaginal warts when extensive can be associated with discharge
  - Granulation tissue can indicate discharge from a surgical site infection
  - Necrotic or inflammatory changes are signs of malignancy
- *Vaginal discharge*
  - Trichomoniasis: greenish yellow purulent discharge
  - Candidiasis: thick, white, adherent, "cottage cheese-like" discharge
  - BV: thin, homogenous, "fishy smelling" gray discharge
- *Cervix*:
  - Cervical erythema, friability suggests cervicitis
  - Ectropion: presence of endocervical glandular tissue on exocervix causing increased volume of normal vaginal discharge
- *Bimanual exam*:
  - Pelvic or cervical motion tenderness: evaluate for PID
  - Adnexal mass: cyst or malignancy[2]

DIAGNOSTIC TOOLS
PH TESTS

- Steps:
  - Swab vaginal sidewall and roll onto pH paper
- Bacterial vaginosis: pH>4.5
- Trichomoniasis: pH 5-6
- Candida vulvovaginitis: pH 4-4.5
- Premenarchal and postmenopausal women: pH ≥4.7[2]

2. Sobel, J. D. UpToDate. 2016.

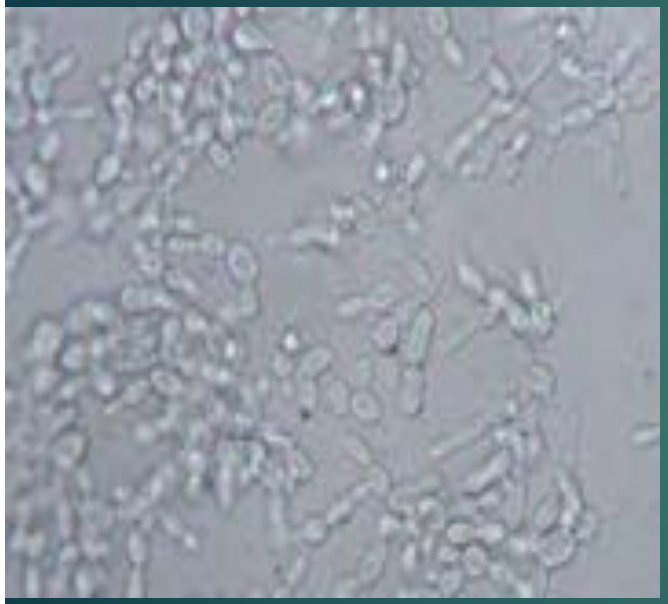
DIAGNOSTIC TOOLS
MICROSCOPY

- Steps:
  - Sample of vaginal discharge obtained with cotton swab and smeared onto a slide
  - Evaluate under microscope with saline or KOH
- KOH wet mount
  - KOH destroys cellular elements thus helpful for identifying hyphae and budding yeast for candida
  - Amine test
    - Smelling the slide immediately after applying KOH is useful for detecting the fishy odor of BV

DIAGNOSTIC TOOLS
MICROSCOPY (CONT'D)

- Saline wet mount:
  - Normal vaginal discharge: predominance of squamous epithelial cells, rare polymorphonuclear leukocytes (PMNs), and *Lactobacillus*
  - Candida vulvovaginitis: candidal buds and hyphae
  - Trichomoniasis: motile trichomonads
  - Bacterial vaginosis: epithelial cells studded with adherent coccobacilli (clue cells)
  - Cervicitis or noninfectious or inflammatory vaginitis: excess PMNs
  - Vaginal atrophy: presence of parabasal epithelial cells
- If microscopy is non-diagnostic or unavailable use NAAT[2]

MICROSCOPY FINDINGS



Candida hyphae

Clue cells

Motile Trichomonads

CONSIDER CERVICITS

- ¼ of specimens positive for BV or Candida vulvovaginitis tested positive for concomitant STI (Neisseria gonnorhoeae, Chlamydia trachomatis, or Trichomonas vaginalis)[6]
- Consider testing for GC or CT in any woman with:
  - New or multiple sexual partners
  - Symptomatic sexual partner
  - Unexplained cervical or vaginal discharge that contains high number of PMNs
- Clinical presentation:
  - Purulent or mucopurulent vaginal discharge
  - Intermenstrual or post-coital bleeding[1]

1. Powell A.M. UptoDate. 2019.

6. .Van Der Pol, B et al. Clinical Infectious Diseases. 2018.

IMPORTANT LINKS / REFERENCES

1. Powell, A. M., & Nyirjesy, P. Acute cervicitis. September, 19.
2. Sobel, J. D. (2016). Approach to women with symptoms of vaginitis. *UpToDate. August*, *19*.
3. Sobel, J. D. (2016). Patient education: Vaginal discharge in adult women (Beyond the Basics). *Uptodate. com*.
4. Spence, D., & Melville, C. (2007). Vaginal discharge. *Bmj*, *335*(7630), 1147-1151.
5. Spong CY, Obstet Gynecol 2011
6. Van Der Pol, B., Daniel, G., Kodsi, S., Paradis, S., & Cooper, C. K. (2018). Molecular-based testing for sexually transmitted infections using samples previously collected for vaginitis diagnosis. *Clinical Infectious Diseases*, *68*(3), 375-381.