Kaplan USMLE Step 1 prep: Woman with vaginal itching, discharge

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Staff News Writer

If you’re preparing for the United States Medical Licensing Examination® (USMLE®) Step 1 exam, you might want to know which questions are most often missed by test-prep takers. Check out this example from Kaplan Medical, and read an expert explanation of the answer. Also check out all posts in this series.

This month’s stumper

A 32-year-old woman comes to the physician because of vaginal itching and a malodorous discharge that is worse following her menses. She is sexually active with two partners and recently had unprotected sex. Pelvic examination shows erythema of the cervix and malodorous frothy yellow-green discharge present in the cervical os and vaginal vault.

Microscopic examination of vaginal secretions will most likely show which of the following?

A. Clue cells.

B. Gram-negative diplococci.

C. Motile trophozoites.

D. Obligate intracellular pathogens.

E. Yeast.
The correct answer is C.

Kaplan Medical explains why

*Trichomonas vaginalis* is a flagellated protozoan parasite that causes the sexually transmitted disease *trichomoniasis*. The vaginitis it causes is characterized as a thin frothy yellow-green, malodorous discharge. This discharge may also be thick enough to be confused with a *Candida albicans* infection and could have a greenish color. Trichomoniasis also causes a spotty reddening of the mucosa that is referred to as colpitis macularis or "strawberry cervix."

The organism can be identified as motile trophozoites in methylene blue saline mounts of vaginal fluids by its characteristic corkscrew motility. This is caused by the fact that the organism has flagella on one end, and an undulating membrane going down its side that causes it to rotate on its longitudinal axis while it moves in a single direction. The 5-nitroimidazole drugs (metronidazole or tinidazole) are the only class of drugs that have been proven to provide curative therapy of trichomoniasis. Metronidazole is considered the drug of choice for this infection.

Why the other answers are wrong

**Choice A:** Clue cells are the diagnostic clue for *bacterial vaginosis* (BV), usually due to overgrowth of the normal vaginal flora by *Gardnerella vaginalis*. BV would also have a malodorous discharge, but it would be thin and gray, not frothy and yellow-green. It is worse following menses, but is not always sexually associated. Medications include metronidazole, clindamycin oral or vaginal suppositories, as well as metronidazole vaginal gel.


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Choice B: Gram-negative diplococci describe Neisseria gonorrhoeae, which would cause a neutrophil-rich discharge and erosions of the vaginal mucosa. A Gram stain of the neutrophilic discharge would show gram-negative diplococci. Major symptoms include vaginal discharge, dysuria, intermenstrual bleeding, and dyspareunia (painful intercourse). Vaginal discharge is the most common presenting symptom of gonorrhea and is usually described as thin, purulent, and mildly odoruous. Ceftriaxone IM plus azithromycin is the treatment of choice.

Choice D: Obligate intracellular pathogens describes Chlamydia trachomatis, serotypes D-K, which would not cause such a discharge. Signs of chlamydial infection in women may include cervical friability, intermenstrual bleeding, mucopurulent cervical or vaginal discharge and urethral discharge (usually thin and mucoid). Azithromycin and doxycycline are first-line drugs for the treatment of chlamydial infection.

Choice E: Yeast is most likely Candida albicans, a common cause of vaginitis. Candida causes a white, cottage cheese-like discharge. Several antifungals are available to treat candidal infections with fluconazole being the drug of choice.

Tips to remember

- Trichomonas vaginalis is a sexually transmitted protozoan that causes a frothy, yellow-green, malodorous vaginal discharge.
- It is a flagellated protozoan and has corkscrew motility on a wet mount.

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