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Please read this bit first

The HPCSA and the Med Tech Society have confirmed that this clinical case study, plus your routine review of your EQA reports from Thistle QA, should be documented as a "Journal Club" activity. This means that you must record those attending for CEU purposes. Thistle will **not** issue a certificate to cover these activities, nor send out "correct" answers to the CEU questions at the end of this case study.

The Thistle QA CEU No is: **MT00025.**

Each attendee should claim **THREE** CEU points for completing this Quality Control Journal Club exercise, and retain a copy of the relevant Thistle QA Participation Certificate as proof of registration on a Thistle QA EQA.

Cycle 23 Organism 3:

Candida albicans

Candida albicans is a diploid fungus (a form of yeast), which is capable of mating but not of meiosis, and a causal agent of opportunistic oral and genital infections in humans. Systemic fungal infections have emerged as important causes of morbidity and mortality in immuno-compromised patients (e.g., AIDS, cancer chemotherapy, organ or bone marrow transplantation). In addition, hospital-related infections in patients not previously considered at risk (e.g. patients on an intensive care unit) have become a cause of major health concern.

Under normal circumstances, *C. albicans* lives in 80% of the human population with no harmful effects, although overgrowth results in candidiasis. As well as occurring in immuno-compromised individuals, candidiasis also may occur in the blood and in the genital tract. To infect host tissue, the usual unicellular yeast-like form of *Candida albicans* reacts to environmental cues and switches into an invasive, multicellular filamentous form.

The three diseases that are most commonly associated with vaginitis are bacterial vaginosis, trichomoniasis and candidiasis.

Bacterial vaginosis is the most common cause of vaginal discharge or malodour. It occurs when the normal flora of the vagina that produces Lactobacillus species is replaced with anaerobic bacteria. Bacterial vaginosis occurs more often in women who have multiple sexual partners, but it is not known if it is transmitted sexually. At this time, treatment for male sex partners is not recommended.

All women with symptomatic disease require treatment, including those who are pregnant. Studies have shown that bacterial vaginosis is associated with preterm delivery in pregnant women who are already at high risk for preterm delivery. Bacterial vaginosis is also associated with pelvic inflammatory disease, endometritis and vaginal cuff cellulitis after invasive procedures.

A seven-day course of oral metronidazole (Flagyl) is recommended for the treatment of bacterial vaginosis. In addition, intravaginal clindamycin cream (Cleocin) and metronidazole gel (Metrogel) are recommended treatments in nonpregnant women.

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Trichomoniasis is a disease associated with vaginal discharge that is caused by the protozoan Trichomonas vaginalis. Trichomoniasis is transmitted sexually, yet men usually remain asymptomatic. Trichomoniasis in women is characterized by a diffuse, malodorous, yellow-green discharge and vulvar irritation. As with bacterial vaginosis, vaginal trichomoniasis may be associated with adverse pregnancy outcomes.

Trichomoniasis is treated with oral metronidazole (Flagyl). Topical metronidazole is not recommended.

Vulvovaginal Candidiasis shows symptoms which include pruritis, vaginal discharge and, sometimes, vaginal soreness, vulvar burning, dyspareunia and external dysuria. Vulvovaginal candidiasis can occur concomitantly with an STD or following antimicrobial therapy.

A striking variety of antifungal preparations are available for topical therapy of vulvovaginal candidiasis (VC) and there does not appear to be superiority of one product over another. Topical preparations include the imidazoles (clotrimazole, econazole, fenticonazole and miconazole - available in creams, tablets and coated tampons) and the polyene antifungal nystatin; all these agents are characterized by safety in pregnancy. Single dose or short course treatment is available for the imidazoles versus 2 weeks treatment with nystatin. Cure rates are in the order of 80% and may be due to the agent not gaining access to deep seated fungi in vaginal rugae or the deep glandular crypts in the cervix.

For certain indications including recurrent infection an oral systemic agent such as ketoconazole, fluconazole or itraconazole may be used. Results are not substantially superior to topical agents and due consideration should be given to the potential toxicities and possible teratogenicity.

CPD Questions:

1. There are three diseases commonly associated with vaginitis. Discuss all three and review your own laboratory data to establish which is most common in your patient population.
2. Consider the statement above, that "*Candida albicans* reacts to environmental cues". What does this mean and how does it impact on antimicrobial therapy?