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Case 1. Vaginitis

Maya is a healthy 31 year old woman who calls your office about requesting treatment for vaginal discharge and itching that she has had for 3 days. She says this feels just like the yeast infection she had a few years ago, but to be sure she did a home test, Fem-V, which she says indicated this is a yeast infection. What things might you consider when discussing OTC treatment for Maya?

The three most common causes of vaginitis are:

Bacterial Vaginosis (22-50% of symptomatic women): Replacement of normal lactobacilli in the vagina by anaerobic bacteria, most commonly *G. vaginalis*. Diagnosis is most commonly made clinically using the Amsel criteria, met when three of the following are present: vaginal pH > 4.5, positive whiff test, milky homogenous discharge, and presence of clue cells on microscopic examination.

Vulvovaginal candidiasis (17-39% of symptomatic women): Caused by *C. Albicans*, other candida species, or yeasts. Further classified as uncomplicated (infrequent infections, mild to moderate symptoms, healthy host) or complicated (recurrent infections, severe symptoms, nonalbicans candida). Diagnosis made with wet prep or culture. Vaginal pH typically normal (4 to 4.5).

Trichomoniasis (4-35% of symptomatic women): Caused by *T. vaginalis*, which is transmitted sexually. Vaginal pH usually >4.5.

- Home tests for vaginitis (Fem-V, Vagisense) generally measure pH and dilution of vaginal discharge. A positive test generally indicates a pH > 4.5 thus increasing suspicion for BV or trichomonas.
- Only 11% of women with no prior diagnosis and 34.5% of women with a prior diagnosis of vulvovaginal candidiasis can accurately self-diagnose.
- Still, in compliant patients with confirmed previous episodes with same symptoms, short OTC course reasonable over the phone.
- Important to clinically evaluate patients who are at high risk for sexually transmitted infection.
- Women who have persistent symptoms after OTC treatment or recurrence of symptoms within 2 months after OTC treatment should be clinically evaluated.
- OTC antifungals are oil based and can weaken condoms and diaphragms.

Maya tries an OTC topical anti-fungal and calls you back 5 days later with continued symptoms which have not improved. You ask her to come into the office. On exam, she has thin, homogenous, milky discharge. What is best practice for correct collection and preparation of a wet mount?

Specimen collection:

- Collect specimen from the posterior fornix, vaginal walls, or other locations where pooling is noted.
- Use pH paper to measure pH of undiluted discharge
- Place sample in test tube with 0.5mL of normal saline
- Sample should be kept at room temperature and examined within 2 hours of collection

Slide preparation:

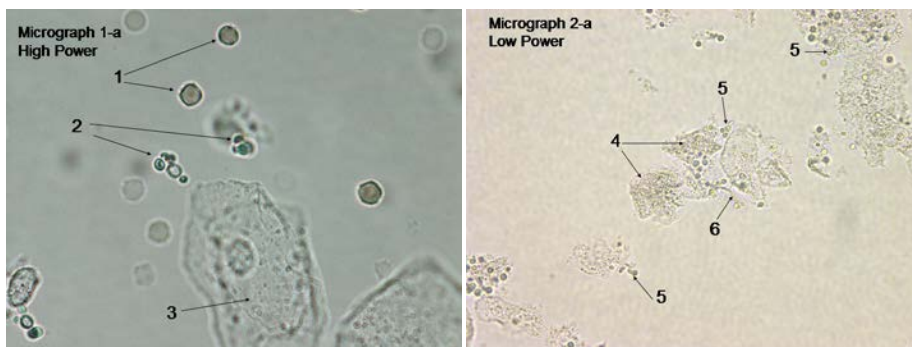
- Vigorously mix swab in and out of saline making sure to collect all the material adhering to the side of the tube.
- Remove the swab from the saline and depress onto a clean, dry microscope slide expressing a small amount of fluid.
- Coverslip the saline sample and examine under microscope.
- After examining the saline sample, prepare KOH slide by adding a drop of 10% KOH to the test tube. Prepare slide in same fashion as above.
- The “whiff test” is performed prior to coverslipping the KOH preparation. It is positive if there is a fishy odor of vaginal discharge before or after the addition of KOH.

Tips for wet prep interpretation:

Differentiation of cellular elements by size:

Approximate diameter of cellular elements typically seen in wet mount analysis:

- Nucleus of squamous epithelial cell: 15 microns
- Trichomonas: 20 microns
- White blood cell: 15 microns
- Red Blood Cell: 6-8 microns
- Yeast cell: 5-7 microns



- 1- Red Blood Cell
- 2- Yeast Cell
- 3- Squamous Eptithelial Cell, not a clue cell
- 4- Clue cell
- 5- Yeast Cell
- 6- Pseudohyphae

Bacterial Vaginosis:

- Clue cells : vaginal epithelial cells studded with adherent coccobacilli
- At least 20% of epithelial cells on wet mount should be clue cells for positive diagnosis

Trichomoniasis:

- Diagnosis requires presence of motile trichomonads
- Trichomonad motion is jerky and spinning
- Organisms remain motile for 10-20 minutes after collection of the sample
- Usually increase in PMNs in addition to trichomonads

Candidiasis:

- Budding yeast, pseudohyphae, and hyphae

When is culture indicated in the diagnosis of vaginitis?

- The sensitivity of microscopy is approximately 50% compared with gold standard with gram stain (BV), NAAT (trichomoniasis) or culture (yeast)
- Self-treatment before evaluation makes it difficult to visualize yeast on microscopy.
- Obtain culture when clinical suspicion is high but microscopy negative
- Obtain culture when recurrent or difficult to diagnose symptoms

You return to the exam room to let Maya know that, based on your clinical exam and wet prep impression, you think she has bacterial vaginosis. Maya is wondering if BV is an STD and if her partner should be treated. How do you counsel her?

- BV is associated with multiple sexual partners (male or female), a new sexual partner, lack of condom use, douching, and lack of vaginal lactobacilli.
- Women who have never been sexually active rarely affected.
- Routine treatment of sex partners not recommended.

What are Maya's options for treatment?

Recommended Regimens:

- Metronidazole 500 mg orally twice a day OR
- Metronidazole gel 0.75%, one full applicator (5g) intravaginally, once daily for 5 days OR
- Clindamycin cream 2%, one applicator (5g) intravaginally at bedtime for 7 days

Alternative regimens include oral Tinidazole for 2 or 5 day course, oral Clindamycin, or Clindamycin intravaginal ovules. Some studies have evaluated intravaginal lactobacillus, but not currently recommended as adjunct. More to come on use of lactobacillus for prevention.

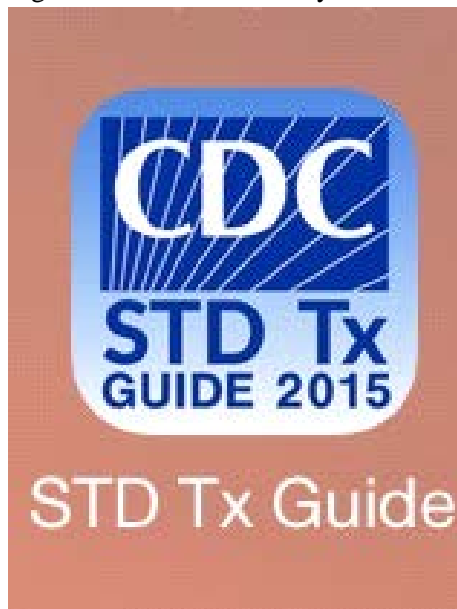
- Treatment recommended for all symptomatic women.
- Besides symptomatic relief, potential benefits of treatment include reduction in risk of acquiring chlamydia, gonorrhea, trichomonas, HIV, and HSV type 2.
- Clindamycin cream is oil-based and might weaken condoms or diaphragms for 5 days after use

Are there currently any recommendations about treatment/suppression of persistent or recurrent BV?

More than 50% of women treated for BV will have a recurrence within 12 months.

- Metronidazole gel twice weekly for 4-6 months has been shown to reduce BV recurrences, but benefit may not persist after stopping therapy.
- Some data suggest using intravaginal boric acid as adjunct therapy. Studied dose is 600 mg intravaginal boric acid daily for 21 days after 7 day treatment with metronidazole or tinidazole. If patient appears clinically in remission after course of boric acid, immediately begin above metronidazole gel suppressive treatment and continue for 4-6 months.
- Boric acid vaginal suppositories can be made at home with gelatin capsules. To do this, size 0 gelatin capsules can be purchased over-the-counter and filled with as much boric acid powder (not crystals) as they can hold. These can then be placed in the vagina as suppositories.
- Boric acid can cause death if consumed orally. It is also marketed as ant and roach killer.

There's an app for that! This app available for free from the CDC contains treatment for all types of vaginitis as well as sexually transmitted infections.



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Case 2. Abnormal Uterine Bleeding

Marie is a 39 year old woman who comes to see you because her menses have gotten heavier and longer over the last six months. She is otherwise healthy. What initial evaluation does she need?

Abnormal uterine bleeding can be separated into three categories which have different evaluation and management strategies:

- 1) Premenopausal ovulatory bleeding: Cyclic bleeding occurring every 24-35 days which is excessively heavy or lasts greater than seven days. This is also called menorrhagia or heavy menstrual bleeding.
- 2) Premenopausal anovulatory bleeding: Bleeding at irregular intervals, regardless of menstrual volume.
- 3) Postmenopausal uterine bleeding: Any uterine bleeding one year or more after cessation of menses.

Premenopausal ovulatory bleeding

Women with ovulatory bleeding are more likely to have an underlying bleeding disorder or structural uterine abnormality, though 50% of women with menorrhagia will have no discernible cause. Women with one or fewer risks factors for endometrial cancer have only a 1% chance of progressing to endometrial cancer.

Initial work up should include:

- History and physical including bimanual exam
- Labs: pregnancy test, TSH, and CBC
- Screen for bleeding disorder if risk factors (adolescent, advanced liver disease, FHx bleeding d/o, or h/o excessive bleeding with surgery, dental work, pregnancy)
- Imaging: Transvaginal ultrasound to assess for polyps or fibroids

Marie's exam, labs and ultrasound are normal. She would like to use a progestin IUD to treat her bleeding. When is endometrial sampling indicated?

- Two or more risk factors for endometrial cancer (age >45, obesity, nulliparity, infertility, diabetes, long-term unopposed estrogen use, tamoxifen use)
- No response to 3-6 months of medical therapy (NSAIDs, levonorgestrel-containing IUD, or cyclic medroxyprogesterone acetate 21 days/month, tranexamic acid)

Rose, age 23, is concerned because her periods have become irregular, occurring every 5 to 10 weeks for the last year. What initial evaluation does she need?

Premenopausal anovulatory bleeding

- Women with anovulatory bleeding often have underlying conditions which affect the hypothalamic-pituitary-ovarian axis. These include PCOS, obesity, diabetes, hyperprolactinemia, thyroid dysfunction, or antiepileptic and antipsychotic use.
- Start by checking urine pregnancy, TSH, prolactin, (consider FSH if hot flashes)

Rose's initial labs are all normal. When is endometrial sampling indicated?

- No response to medical therapy (Combined oral contraceptives or cyclic medroxyprogesterone acetate 10-14 days/month)
- Age > 35 with recurrent anovulation
- Suspected perimenopausal women with increased menstrual volume, intermenstrual bleeding or post-coital bleeding
- Women with risk factors for endometrial cancer

When would you consider an ultrasound in a woman with anovulatory bleeding?

- If endometrial biopsy is normal and no response to medical therapy

Delphine, age 62, is worried because she has seen some pink spotting on two occasions over the last three months. What initial evaluation does she need?

Postmenopausal uterine bleeding

- Any postmenopausal uterine bleeding is abnormal and merits evaluation with either ultrasound or endometrial biopsy.
- If endometrial thickness on transvaginal ultrasound is equal to or less 4mm endometrial sampling is not required unless the bleeding persists.

Delphine has a transvaginal ultrasound which shows an endometrial stripe of 3mm. She returns 5 months later with another episode of spotting. What do you do now?

- Patients with normal initial evaluation but persistent bleeding should have further histologic evaluation:
 - If ultrasound has been performed initially then an endometrial biopsy is recommended.
 - If an endometrial biopsy was performed initially the patient should then be referred for hysteroscopy and D&C.

Abnormal Uterine Bleeding Key Points:

- 1) Differentiate between ovulatory, anovulatory and postmenopausal bleeding
- 2) Ovulatory bleeding:
 - Rule out bleeding disorder and structural causes (start with TSH, CBC, and TVUS)
 - Endometrial biopsy if risk factors for endometrial cancer or failed medical therapy
- 3) Anovulatory bleeding:
 - Start with pregnancy test, TSH, prolactin
 - Endometrial biopsy if age >35, risk factors for endometrial cancer or failed medical therapy
 - TVUS if failed medical therapy and normal endometrial biopsy
- 4) Postmenopausal bleeding:
 - Start with either endometrial biopsy or TVUS
 - Pursue further histology if endometrial stripe >4mm, abnormal endometrial biopsy result or persistent bleeding

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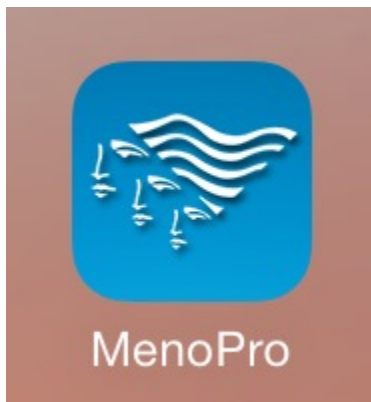
Case 3. Postmenopausal Vaginal Atrophy

Sarah is a 63 year old female presenting with vaginal dryness and discomfort with intercourse. She has no history of breast or uterine cancer. Your exam is consistent with vaginal atrophy without evidence of any infection. What options are available to Sarah for treatment?

- Vaginal lubricants can be applied to vaginal introitus before intercourse. Examples: K-Y Jelly, Astroglide, K-Y Silk-E, Slippery Stuff, Just Like Me
- Vaginal moisturizers intended to trap moisture and provide long-term relief of dryness. Can be applied to inside of vagina several times weekly. Examples: Replens and K-Y Liquebeads
- Insufficient data to support herbal remedies /soy products for treatment of vaginal symptoms

- Ospemifene – Estrogen agonist/antagonist so has tissue selective. Improves vaginal atrophy without stimulating endometrium. FDA approved for treating moderate-to-severe dyspareunia in postmenopausal women. Dose is 60mg PO BID.
- Systemic hormone replacement therapy effective for vaginal symptoms of menopause but carries
- Vaginal estrogen therapy safe and effective and comes in three forms: vaginal creams (use 2-3 nights weekly), vaginal estradiol tablet (use twice weekly) or vaginal estradiol ring (change every 3 months).
- Short term vaginal estrogen may be option for women with history of breast or uterine cancer
- Consider vaginal dilators, pelvic floor exercises

There's also an App for this! MenoPro is a free app from the North American Menopause Society with information and algorithm for providers and patients about treatment options for menopausal symptoms.



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American College of Obstetricians and Gynecologists (ACOG). Committee on Practice Bulletins—Gynecology. Practice Bulletin no. 141: Management of Menopausal Symptoms. *Obstet Gynecol.* 2014 Jan;123(1):202-16.

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Case 4. Emergency Contraception Updates

Maria, a 36 year old healthy woman, calls your office asking where she can get the morning after pill. What else do you need to know?

There are currently three forms of emergency contraceptive (EC) available in the US: 1) the Copper IUD, 2) levonorgestrel pills and 3) ulipristal acetate pills. When advising your patient on EC you need to consider the following factors: time since unprotected intercourse, patient's BMI, and availability and acceptance of the copper IUD.

Levonorgestrel pills (such as Plan B®, One-Step® and Next Choice®) become less effective over time following unprotected intercourse. Levonorgestrel EC's efficacy decreases with high BMI as well. For women with a BMI over 26, levonorgestrel EC is no better than placebo.

Ulipristal Acetate (ella®) retains full efficacy up to five days after sexual intercourse. Ulipristal EC has lower efficacy among obese women. Compared with levonorgestrel, ulipristal has a higher BMI threshold. Ulipristal retains its efficacy for women with BMI up to 35.

The **copper IUD** (Paragard®) can be inserted up to five days after unprotected intercourse, reducing the risk of pregnancy by 99%. It retains full efficacy over time and regardless of BMI and it provides ongoing contraception for up to 12 years.

You ask for Maria's height and weight and when she had unprotected intercourse. Her BMI is 29 and she had unprotected intercourse 2 nights ago. How do you counsel her?

She should be counseled that Plan B may not be effective at her weight but that the Copper IUD and ulipristal acetate are both options up until 5 days after unprotected intercourse. Ulipristal acetate requires a prescription and because it may interfere with hormonal methods of birth control Maria should be counseled to use a barrier method for the remainder of that menstrual cycle.

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Case 5. Managing Abnormal Pap Smears

Cora is a healthy 37 year old woman presenting to your clinic for an annual exam. She read in a magazine that she no longer needs a pap every year and is wondering if she needs one today. Her history is the following:

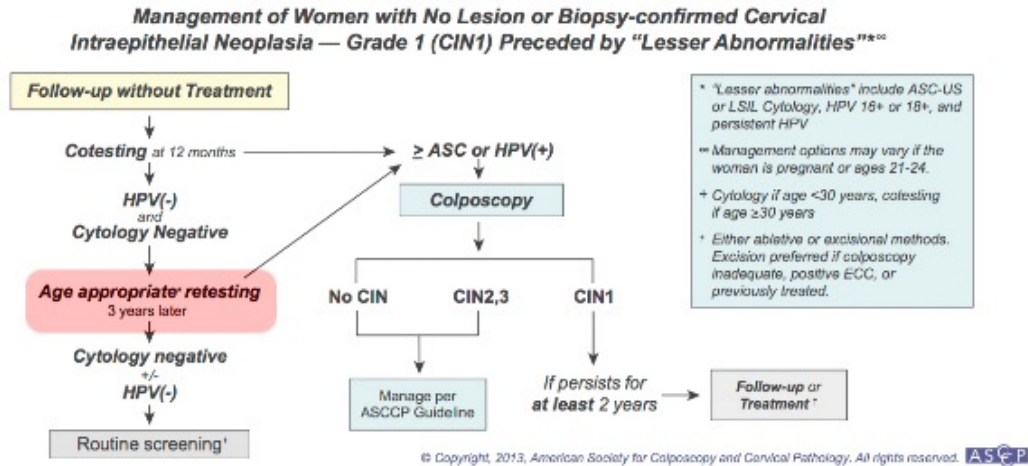
Age 35: Pap with ASCUS and +HPV followed by colposcopy with CIN1

Age 36: Pap with normal cytology and -HPV

How do you counsel Cora? Is there a quick way to find the information you need?

- Cora does not need a pap today.

- She needs repeat cotesting in three years. If that is normal, she can return to routine screening (Pap/HPV cotesting every 5 years).



Link to ASCCP guidelines:

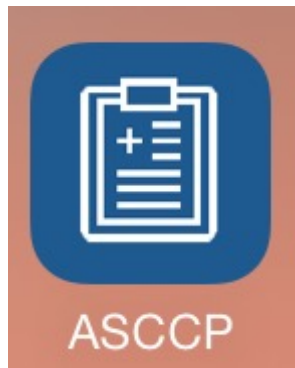
http://www.asccp.org/Portals/9/docs/ASCCP%20Management%20Guidelines_August%202014.pdf

Link to ASCCP guidelines as published in the Journal for Lower Genital Tract Disorders Journal in 2012.

Includes explanation and rationale for guidelines:

<http://www.asccp.org/Portals/9/docs/ASCCP%20Updated%20Guidelines%20-%202013.21.13.pdf>

And there’s an App for that: the ASCCP has an app with interactive algorithms for \$10.



References

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