VAGINITIS

Resident Author: Emily Callery, MD
Faculty Advisor: Dr. Lana Kiehn, MD, CCFP
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Family & Community Medicine
UNIVERSITY OF TORONTO

Overview[1,2]

Vaginitis is defined as inflammation of the vaginal mucosa and/or the vulvar skin (vulvovaginitis) due to a change in the balance of the normal vaginal flora. It is one of the most common gynecological complaints in primary care, with up to 1/3 of women experiencing symptoms of vaginitis at some point in their life. Common etiological factors for vaginitis include:

- Infection (90%)
- Antibiotics
- Sexual activity
- Hx of STIs
- Contraceptives
- Foreign bodies
- Hygiene products
- Irritants & Allergens (scented soaps, spermacides, latex)
- Hypoestrogenic states (peri/post-menopausal, post-partum, lactation)
- Phase of menstrual cycle
  - Candida – often premenstrual; Trichomonas – during/after menses
- Systemic illness (eg. diabetes, immunosuppression)

Table 1.	Physiological	Candida Vulvovaginosis	Bacterial Vaginosis (BV)	Trichomonas Vaginitis (TV)	Atrophic Vaginitis
Pathophysiology	Normal vaginal discharge = 1-4mL/day Changes cyclically Can ↑ with contraceptive use (e.g. NuvaRing)	*Candida albicans (90%)* *Candida glabrata (<5%)* *Candida tropicalis (<5%)*	*Gardnerella vaginalis, mycoplasma hominis,* anaerobic bacteria (Not an STI but associated with sexual activity)	*Trichomonas vaginalis (Tv)* Pear-shaped, motile protozoa Humans are sole reservoir Sexually transmitted, with ↑ susceptibility to other STIs (e.g. HIV) Adheres to the vagina, urethra or perivaginal glands	↓ estrogen levels leads to decline in lactobacilli, and rise in pH, thin epithelium w ↓elasticity. ↑ susceptibility to trauma & infection
Symptoms	None or mild	Pruritus Burning Dyspareunia Dysuria	>50% asymptomatic "Fishy" malodorous discharge Sometimes itching	Discharge, fishy odour, vulvar pruritus, dysuria	Vaginal soreness, dryness, dyspareunia, pruritus, burning leucorrhea, spotting as well as irritative urinary symptoms
Signs	White or transparent, thin or thick & odorless "Flocculent" = liquid base with flecks of solid material	White, curd-like or "cottage cheese" discharge, mostly odourless	Thin yellow/grey discharge that coats the vagina Collect samples from anterior or lateral vaginal wall	Pelvic exam normal in >90% OR Inflammatory signs present on exam Thin green-yellow, frothy discharge adherent to vagina "Strawberry cervix" seen in <2%	Pale, atrophic vulvar skin, loss of labial fullness, loss of ruggae, +/- stenosis or labial fusion. If inflamed, may alternately be erythema, petechiae, ecchymoses
Vaginal pH	3.5-4.5	3.5-4.5	>4.5	5.0-6.0	>5.0
Investigations:	KOH "whiff" test negative	KOH "whiff" test negative	KOH "whiff" test +ve (70-80% cases)	KOH "whiff" test sometimes +ve	KOH "whiff" test negative
- Microscopy	Normal epithelial cells; lactobacilli	Budding yeast/ pseudohyphae seen on KOH wet prep	Clue cells, coccoid bacteria, no ↑WBCs, Gram stain (gold standard)	Motile Trichomonads present on saline wet mount; WBC >10hpf	Increased WBC; wet mount may show ↑ small rounded parabasal & intermediate cells, ↓superficial cells
- Other		Culture needed only for refractory/recurrent vulvovaginal candidiasis	"Amstel's Clinical Criteria" – 3 of: 1) homogenous thin white/grey discharge, 2) clue cells, 3) vaginal pH >4.5, or 4) positive whiff test [sensitivity=92%, specificity=77%]	Culture or NAAT if microscopy is non-diagnostic (relying on wet-mount alone will miss 40-50%)	Serum hormones not normally helpful Pap smear can confirm urogenital atrophy TVUS not routinely indicated

Diagnostic Considerations[3,4,6]

Top 3 causes for infectious Vaginitis = **Bacterial Vaginosis, Candidal Vaginosis, Trichomonal Vaginosis (see Table 1)**
Less common causes: Cervicitis (Chlamydia/Gonorrhea), foreign body, irritants/allergen, atrophic vaginitis, physiologic secretions
Rare causes: GAS infection, Behcet's syndrome, desquamative inflammatory vaginitis, lichen planus, pemphigus vulgaris, cicatrical pemphigoid, dysplasia/cancer

Management[5,6,7,8] (Table 2.)

Diagnosis	Candida Vaginitis	Bacterial Vaginosis	Trichomonas Vaginitis	Atrophic Vaginitis
Conservative Management	Minimize risk factors: uncontrolled diabetes, HIV, antibiotics, receptive oral sex, coital frequency	No need to treat partners Do not *need* to treat asymptomatic, non-pregnant female if no gyne procedure planned	Treat partners Avoid sexual contact until 7 days after medical Rx complete Treat even if asymptomatic!	Vaginal lubricants: • KY gel • Moisturizing vaginal gel (Replens) • Encourage regular sexual activity (or masturbation)
Pharmacological Rx	Intravaginal (select examples): → Clotrimazole -1% cream intravaginal x 6d -2% cream intravaginal x 3d -200mg vaginal tab x3d → Butoconazole -2% cream single application → Miconazole -100mg ovule x 7d -400mg ovule x 4d -1200mg ovule x 1d → Terconazole -80mg ovule od plus 0.8% cream intravaginal x 3d (Dual Pak) -0.4% cream 1 applicator pv od x7d Oral: Fluconazole 150mg PO single tablet Pregnancy: topical anti-fungal agents are the treatment of choice, PO azoles not recommended Recurrent CV (>4 episodes annually): a)Induction regime of fluconazole 150mg PO once every 72h x 3 doses b)Maintenance regime of fluconazole 150mg PO once / wk x 6mo *Insufficient evidence for probiotics*	1st Line: Metronidazole 500mg PO bid x 7d Metronidazole gel 0.75% 1 applicator (5g) intravaginally x 5d Alternative/Allergy: Clindamycin 300mg PO bid x 7d Clindamycin cream 2%, 5g pv od x7d Same 1st line safe in pregnancy, but may want to use PV instead of PO in T1/T2 Avoid alcohol for 24hr after tx with metronidazole (disulfram-like reaction) Recurrent BV (>3 episodes/yr): a) Induction regime of metronidazole 500mg PO bid OR metronidazole gel 0.75% one applicator PV x10-14d b) Maintenance therapy of metronidazole gel PV twice/wk x 4-6mo	1st Line: Metronidazole 2g PO single dose OR Metronidazole 500mg PO bid x 7d Same 1st line safe in all trimesters of pregnancy Intravaginal metronidazole gel is NOT effective in treating trichomoniasis Avoid alcohol for 24hr after tx with metronidazole (disulfram-like reaction)	Low dose vaginal estrogen replacement therapy recommended based on efficacy and ↓ risk of systemic effects Intravaginal Estrogens: Includes creams, pessaries, tablets & rings* • Premarin - conjugated estrogen cream. 0.5-2g cream vaginally. • Administer cyclically, e.g., 3 wk on and 1 wk off, at the lowest dose for a short term; intermittent therapy may also be used • Vagifem - 10ug tablet pv OD x 2 weeks then twice/wk • Estring – 2mg q12wks (releases 6-9ug of estradiol daily) Progestins are generally not required with lower doses of vaginal estrogen Oral Estrogens / Transdermal Estrogens: -Use in women who also complain of other symptoms of menopause (i.e. hot flashes, dysphoria) -May still require concurrent local Rx (10-25%) -Combination HRT required if uterus present (Ca risk with unopposed estrogen)

Clinical Pearls

- "Self-swabs" performed by patients are as sensitive as those performed in office and may improve screening rates & intervals[7]
- Access to OTC antifungals has led to overtreatment of vaginal candidiasis
- Tv is considered an STI and unlike Chlamydia, prevalence does not decrease in women >25; Tv also affects the vagina so post-hysterectomy still at risk
- 80% of women don't report atrophic symptoms; considered part of "normal aging"
- Remember to consider atrophic vaginitis in lactating women

Summary

The main steps in the evaluation and treatment of women with vaginitis are:

- Obtain a detailed history and perform a physical examination including pelvic exam
- Common clinical presentation includes change in discharge (odour, colour or volume), pruritus, irritation, erythema, dyspareunia, spotting and/or dysuria

References can be found online at http://www.dfcm.utoronto.ca/programs/postgraduateprograme/One_Pager_Project_References.htm