Overview

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, spermicides, latex)
- Hypoestrogenic states (peri/post-menopausal, post-partum, lactation)
- Phase of menstrual cycle
  - Candida – often premenstrual;
  - Trichomomas – during/after menses
- Systemic illness (eg. diabetes, immunosuppression)

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, spermicides, latex)
- Hypoestrogenic states (peri/post-menopausal, post-partum, lactation)
- Phase of menstrual cycle
  - Candida – often premenstrual;
  - Trichomomas – during/after menses
- Systemic illness (eg. diabetes, immunosuppression)

Table 1.

<table>
<thead>
<tr>
<th>Pathophysiology</th>
<th>Physiological</th>
<th>Candida Vulvovaginosis</th>
<th>Bacterial Vaginosis (BV)</th>
<th>Trichomonas Vaginitis (TV)</th>
<th>Atrophic Vaginitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal vaginal discharge = 1-4mL/day</td>
<td>Candida albicans (90%)</td>
<td>Gardnerella vaginalis, mycoplasma hominis, anaerobic bacteria</td>
<td>Trichomonas vaginalis (Tv)</td>
<td>Pelvic exam normal in &gt;90% OR Inflammatory signs present on exam</td>
<td>Vaginal soreness, dryness, dyspareunia, pruritis, burning leucorrhea, spotting as well as irritative urinary symptoms</td>
</tr>
<tr>
<td>Changes cyclically</td>
<td>Candida glabrata (&lt;5%)</td>
<td>Thin yellow/grey discharge that coats the vagina</td>
<td>Pear-shaped, motile protozoa</td>
<td>Pelvic exam normal in &gt;90% OR Inflammatory signs present on exam</td>
<td>Pale, atrophic vulvar skin, loss of labial fullness, loss of rugae, +/− stenosis or labial fusion. If inflamed, may alternately be erythema, petechiae, ecchymoses</td>
</tr>
<tr>
<td>Can ↑ with contraceptive use (e.g. NuvaRing)</td>
<td>Candida tropicalis (&lt;5%)</td>
<td>Collect samples from anterior or lateral vaginal wall</td>
<td>Humans are sole reservoir Sexually transmitted, with ↑ susceptibility to other STIs (e.g. HIV)</td>
<td>+/− small rounded parabasal &amp; intermediate cells, ↓ superficial cells</td>
<td></td>
</tr>
</tbody>
</table>

Symptoms

- None or mild
- Pruritus
- Burning
- Dyspareunia
- Dysuria

>50% asymptomatic “Fishy” malodorous discharge Sometimes itching

Discharge, fishy odour, vulvar pruritus, dysuria

Signs

- White or transparent, thin or thick & odorless
- “Flocculent” = liquid base with flecks of solid material
- White, curd-like or “cottage cheese” discharge, mostly odorless

Thin yellow/grey discharge that coats the vagina

Pelvic exam normal in >90% OR Inflammatory signs present on exam

“Strawberry cervix” seen in <2%

- White, curd-like or “cottage cheese” discharge, mostly odorless

Collect samples from anterior or lateral vaginal wall

“Strawberry cervix” seen in <2%

- White, curd-like or “cottage cheese” discharge, mostly odorless

Collect samples from anterior or lateral vaginal wall

“Strawberry cervix” seen in <2%

- Normal epithelial cells; lactobacilli
- Budding yeast/ pseudohyphae seen on KOH wet prep
- Clue cells, coccoid bacteria, no ↑WBCs, Gram stain (gold standard)
- 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

Vaginal pH

- 3.5-4.5
- 3.5-4.5
- 4.5
- >5.0
- >5.0

Investigations:

- KOH “whiff” test negative
- KOH “whiff” test negative
- KOH “whiff” test +ve (70-80% cases)
- KOH “whiff” test +ve
- KOH “whiff” test +ve

- 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

“Armst'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

Top 3 causes for infectious Vaginitis = Bacterial Vaginosis, Candidal Vaginosis, Trichomonal Vaginosis (see Table 1)

Less common causes: Cervicitis (Chlamydia/Gonorhrea), 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
<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Candida Vaginitis</th>
<th>Bacterial Vaginosis</th>
<th>Trichomonas Vaginitis</th>
<th>Atrophic Vaginitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservative Management</td>
<td>Minimize risk factors: uncontrolled diabetes, HIV, antibiotics, receptive oral sex, coital frequency</td>
<td>No need to treat partners</td>
<td>Treat partners</td>
<td>Vaginal Vaginitis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Do not need to treat asymptomatic, non-pregnant female if no gynecology procedure planned</td>
<td>Avoid sexual contact until 7 days after medical Rx complete Treat even if asymptomatic!</td>
<td></td>
</tr>
</tbody>
</table>
| Pharmacological Rx | Infra vaginal (select examples):  
→ Clotrimazole  
-1% cream infra vaginal x 6d  
-2% cream infra vaginal x 3d  
-200mg vaginal tablet x 3d  
→ 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 infra vaginal x 3d (Dual Pak)  
-0.4% cream 1 applicator pv od x 7d  
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 x 7d  
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 (disulfiram-like reaction)  
Recurrent BV (>3 episodes/yr):  
a) Induction regime of metronidazole 500mg PO bid OR metronidazole gel 0.75% one applicator PV x 10-14d  
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  
Intra vaginal metronidazole gel is NOT effective in treating trichomoniasis  
Avoid alcohol for 24hr after tx with metronidazole (disulfiram-like reaction)  
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) | Low dose vaginal estrogen replacement therapy recommended based on efficacy and ↓ risk of systemic effects  
Intra vaginal 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  
- Estrins – 2mg q12wks (releases 6–9ug of estradiol daily) |

Clinical Pearls
- “Self-swabs” performed by patients are as sensitive as those performed in office and may improve screening rates & intervals²  
- 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