Vulvar Infections and Infestations

Bethanee J. Schlosser, MD, PhD
bschloss@nm.org
Women's Skin Health Program
Vulvar Mucosal Specialty Clinic
Northwestern University
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Disclosure of Relationships with Industry
Elorac, Galderma: Investigator, Fees to Institution
Decision Support in Medicine, UpToDate®: Author, Honoraria
Allergan: Advisory Board, Speaker, Honoraria

Off-label use of medication will be discussed.

Generating a Differential Diagnosis

PRURITUS
• Inflammatory
• Infectious
• Neoplastic
• Physiologic

PAIN
• Inflammatory
• Infectious
• Neoplastic

ABNORMAL VAGINAL DISCHARGE
• Inflammatory
• Infectious
• Neoplastic

The Itchy Red Vulva
• 50% pre-pubertal girls diagnosed with candidiasis
• 55% treated with antifungals unsuccessfully

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>PRE-pubertal (n=38) Mean age 5.9yr (2-12yr)</th>
<th>POST-pubertal (n=68) Mean age 32.7yr (13-56yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. albicans (causal)</td>
<td>0 (0%)</td>
<td>34 (50%)</td>
</tr>
<tr>
<td>C. albicans (colonization)</td>
<td>2 (5%)</td>
<td>3 (4%)</td>
</tr>
<tr>
<td>S. aureus</td>
<td>1 (2.5%)</td>
<td>2 (3%)</td>
</tr>
<tr>
<td>Group A streptococcus</td>
<td>4 (10%)</td>
<td>0</td>
</tr>
<tr>
<td>H. influenzae</td>
<td>3 (7.5%)</td>
<td>0</td>
</tr>
<tr>
<td>Gardnerella</td>
<td>0</td>
<td>1 (1.5%)</td>
</tr>
</tbody>
</table>

The Itchy Red Vulva

PRE-pubertal (n=38) Mean age 5.9yr (2-12yr) POST-pubertal (n=68) Mean age 32.7yr (13-56yr)

Vulvovaginal Candidiasis

- Exquisitely common in post-pubertal females
- 70-75% at least 1 episode in lifetime
  - 40-50% at least 1 recurrence
- 5-8% women have recurrent candidiasis (≥ 4/year)
- ~$1 billion per year in US (OTC meds)
- Recurrent = ≥ 4 episodes per year

VVC Pathogenesis

- 20% colonization rate (asymptomatic)
- Genetically susceptible host
- Hypersensitivity reaction
  - Vagina-specific issue; systemic immunity normal
- Estrogen = essential
  - Glycogen expression at vaginal epithelium
  - $E_2$-dependent squamous differentiation

VVC Risk Factors


Clinical Presentation

- Pruritus
- Cyclical premenstrual exacerbation (nil with menses)
- Pain, dysuria, dyspareunia
- Erythema
- Edema
- Fissuring
- Adherent discharge (pseudomembranes)
- Erosion/ulcer (consider DM)

Vaginal Discharge Evaluation: KOH Microscopy

- Pseudohyphae
  - Doubly refractile
  - Tapering at ends
  - Branching
  - No box cars
- Budding yeast – bowling pins
- Low sensitivity (40-70%)

Microbiology

- 85-95% azole-sensitive *Candida albicans*
- 5-15% non-albicans Candida spp.
  - Most common: *Candida glabrata*
    - Non-dimorphic (budding only)
    - Increasing prevalence over time
    - Incidence with immunosuppression, broad-spectrum antifungal use
- Antifungal susceptibility testing available
**VVC Treatment**

- **Acute episode:**
  - If +KOH, no culture necessary
  - Fluconazole 150mg po x 1
  - Fluconazole 150mg po q72h x 2-3 doses
  - Boric acid 600mg gelatin capsule PV qhs for 14 days*

- **Recurrent:**
  - Obtain culture
  - Fluconazole 150mg q72h x 3 doses
  - Itraconazole 200mg po BID x 3 doses

- **Test of cure with repeat culture**

**VVC Suppressive Therapy**

- Fluconazole 100-200mg po qweek x 6 months
- Itraconazole 100-200mg/day x 6 months

- Cessation of therapy at 6 months
  - 40-50% full clinical remission
  - 50% recur with +culture in 3-4 months without triggering event
  - Reinitiate chronic suppression for 6-12 months
  - Check LFTs every 6 months

*CDC 2015 STD Treatment Guidelines.

**Vulvar Fissures and Group B β-hemolytic Streptococcus**

- Retrospective observational study
- Vulvar pain
- Failed to improve with treatment for dermatosis
- No inflammatory vaginitis

- Fissures in 16, fissure culture +GBS in 6 (37.5%)
- Only improved with antimicrobial treatment directed against GBS


**Tinea Genitalis**

- Superficial fungal infection
- **Dermatophyte**
  - *Trichophyton rubrum*
  - *Trichophyton interdigitale* (formerly *T. mentagrophytes*)
  - *Epidermophyton floccosum*
- Autoinoculation from feet, nails
- Sexual transmission


**Tinea Genitalis**

- Proximal medial thighs
- Mons pubis
- Labia majora (scrotum spared in males)
- Buttocks

- Well-demarcated, erythematous annular plaques
- Serpiginous borders with scale
- Papules, pustules → follicular involvement
Tinea Genitalis

- Clinical DDx:
  - Psoriasis
  - Seborrheic dermatitis
  - Eczema
  - Erythrasma
  - Intertrigo
  - Candidiasis
  - Contact dermatitis
  - Paget’s disease

Tinea Genitalis: Treatment

- Mild, localized
  - Topical azole cream BID (fungistatic)
  - Topical terbinafine, naftifine cream qday (fungicidal)
  - Topical ciclopirox cream, shampoo
  - Nystatin has NO role in dermatophyte infection

- More extensive, follicular involvement
  - Terbinafine 250mg po qday x 2 wks
  - Fluconazole 150-200mg po qwk x 2-4 wks
  - Itraconazole 200mg po qday x 1 wks
  - Ketoconazole 200mg po qday x 2 wks

Scabies

- Parasitic infestation by Sarcoptes scabiei mite
- 300 million annual cases globally
- Risk for transmission of Staphylococcus

Scabies: Patient Treatment

- Topicals:
  - 2 treatments, 1 week apart
  - All skin from neck down, overnight incubation
  - +face, scalp for infants, elderly

- Itch may last 2-4 weeks after adequate treatment
  - "Post-scabetic" itch, dermatitis
  - Hypersensitivity response to dead mites
**Scabies: Patient Treatment**

<table>
<thead>
<tr>
<th>Guidelines</th>
<th>Recommended Regimens</th>
<th>Alternatives</th>
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<tr>
<td>CDC (Division of Sexually Transmitted Diseases Prevention, 2016)</td>
<td>Permethrin: Apply once for 6-10 hours</td>
<td>Lindane: Apply once for 6 hours</td>
</tr>
<tr>
<td>European (World Health Organization/International Union against Sexually Transmitted Infections, 2016)</td>
<td>Permethrin: Apply once for 6-10 hours</td>
<td>Permethrin: Apply for 2-3 consecutive days</td>
</tr>
<tr>
<td>United Nations (Clinical Effectiveness Group, British Association for Sexual Health and HIV, 2016)</td>
<td>Permethrin: Apply for 4-6 hours</td>
<td>Ivermectin: 200 mg/kg on day 1 and 2 weeks later</td>
</tr>
</tbody>
</table>

- Launder all clothing, linens used within 1 week of onset, entire duration of symptoms
  - Wash in hot water
  - Dry in high heat
- Seal non-washable items in bags for ≥ 3 days
  - Off body, mites survive 72 hours
- Treat ALL symptomatic contacts

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**Scabies: Environment Treatment**

**Reactive Nonsexually Related Acute Genital Ulceration**

Acute vulvar ulcers of the nonsexual female
Lipschutz ulcers
Ulcus vulvae acutum

- Young females (adolescence, early 20s)
- Acute onset, painful vulvar aphthae
- Acute febrile illness
  - Group A streptococcal pharyngitis
  - Acute EBV infection
  - Acute CMV infection
  - Acute Mycoplasma infection
  - Influenza A
  - Paratyphoid fever

**Vulvar Aphthae**

- Primary idiopathic (85-90%)
- Secondary (10-15%)
  - Drugs (cytotoxic, NSAIDs)
  - Bowel disease (Crohn’s, UC, celiac disease)
  - Infections (EBV, Mycoplasma, HIV, Yersinia)
  - Behçet’s disease
  - Myeloproliferative disease, cyclic neutropenia, leukemia
  - Sweet’s syndrome (acute febrile neutrophilic dermatosis)

**Take Home Points**

- A wide variety of infections can affect the vulva.
- Epidemiology of vulvar infections varies with menarchal status.
- Infectious etiologies should always be considered for patients presenting with vulvar pruritus and/or pain.