Vulvovaginal Diseases: Test Your Knowledge on a Variety of Interesting Conditions

Hope K. Haefner, MD
Professor
Michigan Medicine
November 19, 2018

Disclosures/Conflicts of Interest
Hope K. Haefner, MD

• None
Learning Objectives

At the conclusion of this activity, the participant should be able to:

1. Identify the clinical features of various vulvovaginal conditions
2. Gain treatment insights for nonneoplastic epithelial disorders of the vulva
3. Become familiar with a variety of treatments for skin diseases

Additional Information

https://medicine.umich.edu/dept/obgyn/patient-care-services/womens-health-library/center-vulvar-diseases/resources-providers

or search Google for

Resources for Providers University of Michigan
1/15/2018

Many women experience discomfort or pain near the vulva, including vulvodynia, which can occur on the skin of the vulva or upon intercourse with a normal appearing vulva. It is a burning, stinging irritation. Some patients are unable to accept sexual penetration due to muscle spasms and tenderness. Other conditions associated with vulvar pain include:

- Lichen sclerosus or lichen planus—chronic inflammatory skin disorders
- Vulvar intraepithelial neoplasia—precancerous condition, often associated with a virus, the human papilloma virus (HPV)
- Hidradenitis suppurativa—a disease of the anal area and vulva, with pus filled pockets of fluid
- Bartholin cysts—fluid filled cysts at the base of the entranceway

During your first visit to the center, you will see a physician or nurse practitioner for diagnosis and development of a treatment plan. Throughout treatment, you will meet with experts from various disciplines to best meet your specific needs.

In addition to medical treatment, we also offer many patients additional services, which may help with your condition, including sex therapy and physical therapy.

Health Library:
- Vulvodynia
- Patient Education Booklet
- Resources for Providers

Contact Information:
Austin, TX, ACOG - April 2018
- Vulvar Diseases: What Do You Know? (PPT PDF)
- Vulvar Diseases - What Do You Know? Handout (PDF)
- Your Diagnosis Is? (PPT PDF)
- Your Diagnosis Is? Handout (PDF)
- Lichen Planus Surgery (video)

Chicago, Advocate Lutheran Grand Rounds - August 2018
- Management of Complex Vulvovaginal Conditions (PPT PDF)
- Your Diagnosis Is (PDF)
- Severe Itch Scratch Cycle Tips (PDF)

Michigan, Resident CORE - September 2018
- Common Conditions Seen By The OBGYN (PPT PDF)
- Vulvar Diseases: What Do You Know? (PPT PDF)

Make Your Selection

A  B

C  D
Gross and histologic images
Test Format
The image shown represents which vulvar condition?

- A Erosive lichen planus
- B Paget disease
- C Eczematous dermatitis
- D None of the above
A 65 y.o. G4P3 complains of vulvar itching and burning. A biopsy is performed.
Your Diagnosis Is?

A. Psoriasis
B. Lichen sclerosus
C. Lichen simplex chronicus
D. Herpes

LICHEN SIMPLEX CHRONICUS (LSC) = SQUAMOUS CELL HYPERPLASIA

End stage of the itch-scratch cycle

Other names— neurodermatitis, hyperplastic dystrophy
The common causes of postmenopausal vulvar itching include all except:

A. Atrophic vulvovaginitis
B. Lichen sclerosus
C. Candidiasis
D. Contact dermatitis

Diagnosing Lichen Simplex Chronicus

Clinical
Biopsy to R/O underlying condition
Culture for secondary infection
  - Yeast and bacteria
Consider patch testing
What treatment should not be used for vulvar itching?

A. Clobetasol 0.05% ointment
B. Oral amitriptyline
C. 20% benzocaine
D. Tacrolimus ointment
Lichen Simplex Chronicus

Symptoms
- Relentless pruritus
- Long-term itching (months - years)
- Itch develops into burning pain
- Worse with heat, stress, periods and tight synthetic underwear
- Worsens during the night

Treatments for LSC
- Vulvar Care Measures to Stop the Itch-Scratch –Itch Cycle
- Rule out infection as precipitating or driving factor
- Steroids (prednisone 40 mg po q am x 5 days, then 20 mg po q am x 10 days)
- Oral cephalosporin as anti-inflammatory
- Sedation (hydroxyzine or amitriptyline)
- Patient education
STOP WIRE BRUSHES
Severe Itch Scratch Itch Cycle Tips

1. Night time deep sleep with Elavil 25 mg po qhs 2 hr before bedtime; if needed can increase by 10 to 25 mg increments weekly, not to exceed 150 mg po qhs Can also use neurontin (see protocol). Can also use atarax.

2. Medrol dose pack vs prednisone 40 mg po q am x 5 then 20 mg po q am x 10 . If those fail consider triamcinolone 1 mg/kg up to 80 mg IM using a 1.5 inch needle in buttock (gluteus muscle); repeat in 1 to 2 months if necessary, up to 3 times. There are rarely any problems with depression or emotional instability. It does take 48 hours to start working and it can cause irregular periods with spotting for the next month. The injection must be given into the muscle.

3. Cefadroxil 500 mg po bid x 10 days (to treat secondary inflammation)

4. Consider fluconazole 150 mg po weekly x 2 to 3 weeks
35 y.o. woman complains of severe burning on entire vulva

- She is unable to have intercourse
- She is unable to wear pants
Using the Current Terminology, Your Diagnosis Is?

A. Localized vulvodynia
B. Generalized vulvodynia
C. Vulvar dysethesia
D. Somatoparaphrenia - delusion where one suddenly denies ownership of a limb or an entire side of one's body
Localized

Pain noted in red/pink area below
Definition of Vulvodynia

Chronic discomfort
Burning
Stinging
Irritation
Rawness

2015 Consensus terminology and classification of persistent vulvar pain

Jacob Bornstein MD, MPA, Andrew Goldstein MD, and Deborah Coady MD
for the consensus vulvar pain terminology committee

From the International Society for the Study of Vulvovaginal Disease (ISSVD),
the International Society for the Study of Women’s Sexual Health (ISSWSH),
and the International Pelvic Pain Society (IPPS)

Support from the National Vulvodynia Association
2015 Consensus Terminology and Classification of Persistent Vulvar Pain and Vulvodynia

A. Vulvar pain caused by a specific disorder*
  • Infectious (eg, recurrent candidiasis, herpes)
  • Inflammatory (eg, lichen sclerosis, lichen planus, immunobullous disorders)
  • Neoplastic (eg, Paget disease, squamous cell carcinoma)
  • Neurologic (eg, postherpetic neuralgia, nerve compression or injury, neuroma)
  • Trauma (eg, female genital cutting, obstetric)
  • Iatrogenic (eg, postoperative, chemotherapy, radiation)
  • Hormonal deficiencies (eg, genitourinary syndrome of menopause [vulvovaginal atrophy], lactational amenorrhea)

B. Vulvodynia—Vulvar pain of at least 3 months’ duration, without clear identifiable cause, which may have potential associated factors

The following are the descriptors:
  • Localized (eg, vestibulodynia, clitorodynia) or Generalized or Mixed (Localized and Generalized)
  • Provoked (eg, insertional, contact) or Spontaneous or Mixed (Provoked and Spontaneous)
  • Onset (primary or secondary)
  • Temporal pattern (intermittent, persistent, constant, immediate, delayed)

* Women may have both

Appendix:

Potential Factors Associated with Vulvodynia*

• Comorbidities and other pain syndromes (e.g., painful bladder syndrome, fibromyalgia, irritable bowel syndrome, temporomandibular disorder; level of evidence 2)
• Genetics (level of evidence 2)
• Hormonal factors (e.g., pharmacologically induced; level of evidence 2)
• Inflammation (level of evidence 2)
• Musculoskeletal (e.g., pelvic muscle overactivity, myofascial, biomechanical; level of evidence 2)
• Neurologic mechanisms
  • Central (spine, brain; level of evidence 2)
  • Peripheral: neuroproliferation (level of evidence 2)
• Psychosocial factors (e.g., mood, interpersonal, coping, role, sexual function; level of evidence 2)
• Structural defects (e.g., perineal descent; level of evidence 3)

a The factors are ranked by alphabetical order.
Not tender; no area of vulva described as area of burning

Alternative diagnosis
Vaginal Lubricants

- Replens
- Astroglide
- KY Liquid
- Probe
- Slippery stuff
- Jo Premium
- ... etc.
Vulvodynia-Compounded Therapies for:

Pain

- Amitriptyline 2%/Baclofen 2%- apply 1/2ml once to three times daily.
- Gabapentin 5-10%
- Loperamide 0.5-5%
- Carbamazepine 2-5%
- Phenytoin 2-5%
- Doxepin 2-5%
- Ketamine 5-10% (excellent for hyperalgesia and allodynia)

Muscle Spasm

- Diazepam Suppository- start at 5mg per vagina qhs, may increase to 20mg qhs.
- Belladonna 15mg/
  Ketoprofen 0.1%/ lidocaine 2%/ Tetracaine 0.5% in topical pluronic gel

Topical Anesthetics

- 5% Lidocaine (Xylocaine®) ointment safe, effective short-term symptom relief for vestibulodynia (pre-intercourse). LMX 4% cream
  - Benzocaine (Vagisil®) not recommended; it is a sensitizing agent, causing rebound vasodilation and pain
- Doxepin (Zonalon®)
- Topical amitriptyline 2% with baclofen 2% in WWB (water washable base)- squirt ½ cc from syringe onto finger and apply to affected area WWB. Apply qhs with increase not to exceed tid
- Topical ketamine 2%, topical gabapentin 6%, topical baclofen 2% in WWB. Apply qhs with increase not to exceed tid
Vulvodynia-Compounded Therapies (Hormone)

- May 30, 2018 FDA approved Imvexxy (bioidentical 17 beta estradiol estrogen vaginal insert) for treatment of moderate to severe dyspareunia
- November 17, 2016 FDA approved Intrarosa (Prasterone /DHEA) for treatment of dyspareunia
- February 26, 2013 FDA approved Osphena (ospemifene) (SERM)

- Estriol 0.25mg/gm 60gm use 1-2gm vaginally qd x 7d then 2-3 times/week
- Estradiol 0.1mg/gm+progesterone 10mg/gm (same as above)
- Testosterone 0.25mg-5mg/gm
- DHEA Vaginal Supp 5-10mg
  - May be avail commercially in phase III trial for vaginal dryness

Oral Medications
She is 5 foot 4 inches and 300 pounds. She is concerned about the potential weight gain with tricyclics. She cannot remember to take anything more than twice a day. What would you consider for her pain?

A. Amitriptyline  
B. Gabapentin  
C. Topiramate  
D. Percocet
14 year old presents with dysuria. Felt ill past 2 days: mild fever, headache, malaise. PMH – healthy Not sexually active

What test do you not order?
A. HSV culture
B. HSV PCR
C. Bacterial culture
D. Biopsy

**Evaluation Vulvar Aphthae**

Thorough history and physical – eye, oral, genital

*Rule out HSV* (further testing if indicated)

For Acute Prodrome if indicated
- CBC, diff
- Serology for HSV, HIV, EBV, syphilis, CMV, Mycoplasma pneumoniae
- Influenza – swab PCR
- For Strep – throat swab and antistreptolysin O titer

For recurrent ulcers – consider GI investigation for inflammatory bowel disease and celiac disease

Diagnosis of exclusion - etiology often not found

Biopsy Needed Only If persistent
Follow-up 48 hours later

HSV, viral studies negative

Initial Tx – comfort care, acyclovir, +/- prednisone
Vulvar Aphthous Ulcers

“Canker Sores” on the Vulva

Can be acute, chronic +/- recurrent - more commonly acute

- Average age is 14 (9–19) yrs
- Sudden onset
- Usually multiple, painful, well demarcated punched-out ulcers
- Size: most <1cm; can be 1–3 cm
- Prodrome – flu-like with mild fever, headache, malaise
- Duration 1–3 weeks, can last months
- One episode, less common recurrent
- Past history of oral aphthae – canker sores
- Rarely Behcet’s in North America

Vulvar Aphthae – Management

- **Pain control** – topical, systemic
- **Prednisone** – 40 – 60 mg each morning until pain resolves
  (3–5 days, then ½ dose 3–5 days)
  - ultrapotent corticosteroid
- **Educate** – Most often a one-time event, can recur
  - If not controlled – recurrent:
    - Intralesional triamcinolone 5–10 mg/ml
    - Doxycycline 50–100 mg daily
    - Colchicine 0.6 mg bid-tid if tolerated
    - Dapsone 50–150 mg per day
    - Pentoxyfylline
    - Cyclosporine
    - Thalidomide
Case Presentation

A 49y.o. G4P2 presents with chronic vulvar pruritus and irritation. Her vaginal pH is 4.0. She has had 4 other identical episodes this year (culture positive for Candida).

<table>
<thead>
<tr>
<th></th>
<th>pH (3.0-4.5)</th>
<th>WBC</th>
<th>Parasbasals</th>
<th>Features</th>
<th>Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>3.0-4.5</td>
<td>Few or none</td>
<td>no</td>
<td>NL lactobacilli</td>
<td>Creamy, mucous, white</td>
</tr>
<tr>
<td>Yeast</td>
<td>3.0-4.5</td>
<td>no</td>
<td>no</td>
<td>Hyphae Spores (400x)</td>
<td>Curdy</td>
</tr>
<tr>
<td>Bacterial Vaginosis</td>
<td>&gt;5.0</td>
<td>No to small</td>
<td>no</td>
<td>Clue Cell</td>
<td>Yellow, grey w/ odor</td>
</tr>
<tr>
<td>(Amsel Criteria)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trichomoniasis</td>
<td>&gt;5.0</td>
<td>yes</td>
<td>maybe</td>
<td>Motile trich</td>
<td>Green, yellow, bubbly</td>
</tr>
<tr>
<td>DIV</td>
<td>&gt;5.0</td>
<td>yes</td>
<td>yes</td>
<td>Mixed bacteria, absent or reduced lacto</td>
<td>yellow</td>
</tr>
<tr>
<td>Atrophic Vaginitis</td>
<td>&gt;5.0</td>
<td>likely</td>
<td>yes</td>
<td>Scant cells, few bacteria</td>
<td>Scant, dry</td>
</tr>
</tbody>
</table>
Culture Positive for Candida Glabrata

- Low vaginal virulence
- Rarely causes symptoms, even when identified by culture
  - 50% of the time non-albicans yeast is an innocent bystander and is not causing the patient’s symptoms
  - Nyirjesy 2016
- Exclude other co-existent causes of symptoms and only then treat for C. glabrata
Other Antifungals
Boric Acid

- Puratronic, 99.99995% (metals basic)
- Formula
  \[ \text{H}_3\text{BO}_3 \]
- Formula Weight
  61.83
- Form
  Crystalline Powder
- Melting Point
  170.9°C
- Merck Number
  11,1336
Boric Acid Capsule or Suppository PER VAGINA

Fill 0-gel capsule halfway (600 mg)
- For treatment of acute infection; insert *per vagina* qhs x 14 days
- For prevention of recurrence; insert *per vagina* twice weekly

KEEP AWAY FROM CHILDREN
CONTRAINDICATED IN PREGNANCY
Does she qualify for the diagnosis of recurrent Candida?

A. Yes
B. No
Yeast/Candida iphone App

Contributors

Michael S. M. Lanham, MD
Hope K. Haefner, MD
Paul Nyirjesy, MD
Jack D. Sobel, MD
Lynette J. Margesson, MD
Libby Edwards, MD
Duane W. Newton, PhD
Colleen K. Stockdale, MD, MS
Yeast Culture/Speciation Results

Candida albicans
Candida glabrata
Candida parapsilosis
Candida tropicalis
Candida lusitaniae
Trichosporon
Saccharomyces cerevisiae
Candida kefyr
Candida dubliniensis

There are limited data on some of the treatment regimens. The compounded medications generally are suggestions to consider when other agents are not working. The compounded medications are generally used for resistant strains of Candida.
Yeast Culture/Speciation Results

- Candida albicans
- Candida glabrata
- Candida parapsilosis
- Candida tropicalis
- Candida lusitaniae
- Trichosporon
- Saccharomyces cerevisiae
- Candida kefyr
- Candida dubliniensis

There are limited data on some of the treatment regimens. The compounded medications generally are suggestions to consider when other agents are not working. The compounded medications are generally used for resistant strains of Candida.

Candida lusitaniae

Topical creams can be irritating; vaginal tablets or suppositories may be less irritating. One-day products may be more irritating than longer-use products.

Ketoconazole is not included in this list due to the availability of more efficacious and less toxic medications.

Use as directed by package labeling. All pharmacies may not carry all products. The creams and suppositories are often oil-based and might weaken latex condoms and diaphragms.

**Oral**

Fluconazole

Additional information on drug interactions with fluconazole can be obtained in the CDC Guidelines [http://www.cdc.gov/std/2015/candidiasis.htm](http://www.cdc.gov/std/2015/candidiasis.htm)

In pregnancy, fluconazole is not to be used, instead use topical creams for treatment.

**Recurrence**

- 150 mg oral tablet every 3 days for three times, then 100 mg orally weekly for up to six months
- At times, other dosing may be required such as 100 mg oral tablet every 3 days for three times (day 1,4, and 7), then 100 mg orally weekly for up to six months; or 200 mg oral tablet every 3 days for 3 times (day 1,4, and 7) then 200 mg orally weekly for up to six months.

If fluconazole cannot be used, (liver disease, Steven's-Johnson syndrome, or side effects such as headaches or nausea) consider:
- Boric acid
- Maintenance creams for recurrent yeast

Itraconazole

In pregnancy, itraconazole is not to be used, instead use topical creams for treatment.

100 mg oral tablet daily for 2 weeks, then twice weekly for up to 6 months.

**Topical**

Clotrimazole

- Clotrimazole 1% vaginal cream: 1 applicatorful per vagina nightly for 7 nights
- Clotrimazole 2% vaginal cream: 1 applicatorful per vagina nightly for 3 nights
- Clotrimazole 7 day suppository/insert (100 mg per dose): One suppository/insert per vagina nightly for 7 nights
Miconazole
- Miconazole 7 day cream 2% (100 mg per dose)
  - One applicatorful per vagina nightly for 7 nights
- Miconazole 7 day cream 2% (100 mg per dose) plus miconazole nitrate cream 2%
  - One applicatorful per vagina nightly for 7 nights
  - Miconazole nitrate 2% cream to the vulva twice a day for up to 14 days
- Miconazole 3 day cream, suppository, ovule 4% (200 mg per dose)
  - One applicatorful, suppository or ovule per vagina nightly for 3 nights
- Miconazole 3 day cream, suppository, ovule 4% (200 mg per dose) plus miconazole nitrate cream 2%
  - One applicatorful, suppository or ovule per vagina nightly for 3 nights
  - Miconazole nitrate 2% cream to the vulva twice a day for up to 14 days
- Miconazole 1 day insert (ovule) (1200 mg per dose) plus miconazole nitrate cream 2%
  - One insert (ovule) per vagina for one day or night
  - Miconazole nitrate cream 2% cream to the vulva twice a day for up to 14 days
- Miconazole nitrate topical 2% cream to the vulva twice a day for up to 14 days

For some recurrent infections, consider using Miconazole 2% vaginal cream: 1 applicatorful per vagina nightly for 14 nights, followed by 1 applicatorful twice weekly for up to six months.

Compounded

Boric acid suppositories

In pregnancy, boric acid is not to be used, instead use maintenance creams for recurrent yeast.

Vaginal boric acid suppositories 600 mg per vagina for 14 nights; If recurrent, consider suppression after re-treatment with twice weekly boric acid 600 mg per vagina.

Boric acid capsules can be FATAL if swallowed/taken orally.
Case Presentation

38 y.o. G1P1, with clitoral mass increasing in size for the past 28 years

- Enlargement at clitoral location noted at her last delivery 3 years ago

- Past workup by an endocrinologist included a MRI of her adrenals/kidneys and a testosterone work up which were negative
S100 Confirmatory Staining

Your Diagnosis Is?

A. Sarcoma
B. Lipoma
C. Plexiform schwannoma
D. Normal clitoral tissue
<table>
<thead>
<tr>
<th>ISSVD 1986</th>
<th>ISSVD 2004</th>
<th>LAST 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIN 1</td>
<td>Flat condyloma or HPV effect</td>
<td><strong>Low Grade</strong></td>
</tr>
<tr>
<td>VIN 2</td>
<td>VIN, usual type</td>
<td><strong>High Grade</strong></td>
</tr>
<tr>
<td></td>
<td>a. VIN, warty type</td>
<td></td>
</tr>
<tr>
<td>VIN 3</td>
<td>b. VIN, basaloid type</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. VIN, mixed (warty/basaloid) type</td>
<td></td>
</tr>
<tr>
<td>Differentiated VIN</td>
<td>VIN, differentiated type</td>
<td>???</td>
</tr>
</tbody>
</table>

### 2015 ISSVD Terminology of Vulvar Squamous Intraepithelial Lesions

- Low grade squamous intraepithelial lesion (Flat condyloma or HPV effect)
- High grade squamous intraepithelial lesion (VIN usual type)
- Intraepithelial neoplasia, differentiated-type
Lichen Sclerosus and VIN Differentiated V-to-Y Flaps

V-to-Y Flaps
22-year-old G0 with severe, generalized, erosive skin and mucosal eruption

She is diagnosed with Steven’s Johnson syndrome

Your service is consulted for suggestions on management recommendations (vulvovaginal)
Your management includes:

(3 main needs)

Daily vaginal dilation

Intravaginal steroids if vagina involved

Topical steroids to vulva
17-year-old G0 with severe, generalized, erosive skin and mucosal eruption

- She had just started treatment for recent onset of seizures (phenytoin)
- Rapid onset of a diffuse maculopapular purple rash
- In 24 hours she had severe malaise, fever and blistering on skin (40% of BSA) and genital area with dysuria
Your Diagnosis Is?

A. Staph scalded skin syndrome
B. Steven’s Johnson syndrome
C. Graft vs. host disease
D. Toxic epidermal necrolysis

Toxic Epidermal Necrolysis (TEN)

A serious, life-threatening allergic skin rash

Clinical:
- Severe pain
- Diffuse sloughing of skin and mucous membranes
- Severe conjunctivitis, stomatitis, esophagitis, bronchitis, vulvovaginitis
Definitions

• SJS is the less severe condition- <10 percent of the body surface
  – Mucous membranes are affected in over 90 percent of patients, usually at two or more distinct sites (ocular, oral, and genital)

• TEN involves detachment of >30 percent of the body surface area
  – Mucous membranes are also involved in over 90 percent of patients

• SJS/TEN overlap describes patients with skin detachment of 10 to 30 percent of body surface area
Etiologies

Drugs (limited to first 8 weeks)

- Allopurinol
- Aromatic anticonvulsants (lamotrigine)
- Antibacterial sulfonamides
- Nevirapine
- Oxicam nonsteroidal anti-inflammatory drugs (NSAIDs)

In children

- antimicrobials- sulfonamides
- anticonvulsants- phenobarbital, carbamazepine and lamotrigine
Etiologies

• Infection
  – *Mycoplasma pneumoniae* infection is the next most common trigger

• Other
  Rarely reported and debatable causes of SJS/TEN include vaccinations, systemic diseases, contrast medium, external chemical exposure, herbal medicines, and foods

Differential Diagnosis
Steven’s Johnson/TEN

• Erythema multiforme
• Erythroderma and erythematous drug eruptions
• Acute generalized exanthematous pustulosis
• Generalized bullous fixed drug eruption
• Phototoxic eruptions
• Staphylococcal scalded skin syndrome
• Paraneoplastic pemphigus
• Linear IgA
Mortality with TEN is:

A. 10%
B. 20%
C. 30%
D. 40%

Summary
Stevens-Johnson Syndrome or Toxic Epidermal Necrolysis

• Examine the vulva and vagina (narrow speculum)
• If vagina involved, or disease close to vagina, start on daily vaginal dilation
  – The dilator does not need to be left in for an extended period of time with each dilation
• If the vulva is involved, start on clobetasol 0.05% ointment qhs
• If the vagina is involved, start patient on 50 mg hydrocortisone (ii 25 mg suppositories qhs (insert after dilation done)

• The patient should continue daily vaginal dilation for 2 months (or longer if the vagina is not healed by 2 months)
• Arrange follow up 2 weeks after patient is discharged
Desquamative Inflammatory Vaginitis (DIV)

- Occurs in 8% of women presenting to a specialty clinic with chronic vaginitis symptoms
- More frequent in Caucasians
- Peak occurrence in perimenopause
- Diagnosis of exclusion

PH and Wet Mount Findings

- Vaginal pH greater than 4.5
- Purulent vaginal discharge
  - (PMNs/epith > 1:1 in at least 4 hpfs on wet prep)
- Increase parabasal cells (>10% total)
- Loss of normal vaginal lactobacilli

<table>
<thead>
<tr>
<th>PH and Wet Mount Features</th>
<th>pH (3.0-4.5)</th>
<th>WBC</th>
<th>Parabasals</th>
<th>Features</th>
<th>Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>3.0-4.5</td>
<td>Few or none</td>
<td>no</td>
<td>NI lactobacilli</td>
<td>Creamy, mucous, white</td>
</tr>
<tr>
<td>Yeast</td>
<td>3.0-4.5</td>
<td>no</td>
<td>no</td>
<td>Hyphae Spores (400x)</td>
<td>Curdy</td>
</tr>
<tr>
<td>Bacterial Vaginosis</td>
<td>&gt;5.0</td>
<td>No to small</td>
<td>no</td>
<td>Clue Cell</td>
<td>Yellow, grey w/ odor</td>
</tr>
<tr>
<td>(Amsel Criteria)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trichomoniasis</td>
<td>&gt;5.0</td>
<td>yes</td>
<td>maybe</td>
<td>Motile trich</td>
<td>Green, yellow, bubbly</td>
</tr>
<tr>
<td>DIV</td>
<td>&gt;5.0</td>
<td>yes</td>
<td>yes</td>
<td>Mixed bacteria, absent or reduced lacto</td>
<td>yellow</td>
</tr>
<tr>
<td>Atrophic Vaginitis</td>
<td>&gt;5.0</td>
<td>likely</td>
<td>yes</td>
<td>Scant cells, few bacteria</td>
<td>Scant, dry</td>
</tr>
</tbody>
</table>
An important condition to rule out when considering DIV is:

A. Gonorrhea  
B. Syphilis  
C. Mobiluncus  
D. Trichomonas
What other conditions have a similar appearance to DIV?

Inflammatory Vulvovaginitis

- Atrophic vaginitis
- Erosive lichen planus
- Pemphigus vulgaris
- Behçet’s disease
- Collagen vascular diseases
- Traumatic
  - Foreign body, vesicovaginal fistulae
- Allergic vaginitis
- Chemical vaginitis
- Infection
  - Group A Streptococcus, Trichomonas
  - Cervicitis Degenerating leiomyoma or endometrial polyp
- Idiopathic
**? Etiologies ?**

Proposed etiologies
- Immune mediated (autoimmune)
  (response to anti-inflammatory)
- Kallikrein-related peptidase
- Genetic link
- Bacterial infection

---

**DIV Treatment**


Up-to-date by Sobel J (slightly different regimen)
### DIV

#### Therapy Options Clindamycin
(Adapted from Reichman and Sobel 2014)

- Clindamycin 2% cream 5(g)
  - one applicator intravaginally qhs x 3 weeks
  - (consider 2 x per week x 2 months)
  - Longer suppression time may be required

- Clindamycin 200 mg vaginal suppository qhs x 3 weeks
  - (consider 2 x per week x 2 months)
  - Longer suppression time may be required

### DIV

#### Therapy Options Hydrocortisone
(Adapted from Reichman and Sobel 2014)

- Intravaginal hydrocortisone suppositories 25 mg intravaginal bid for 3 weeks (consider 3 x per week x 2 months)
  - Longer suppression may be required

- Intravaginal hydrocortisone cream 300 to 500 mg intravaginal qhs for 3 weeks (consider 2 x per week x 2 months for maintenance therapy)
  - Longer suppression may be required
**DIV Other Options**

Combine clindamycin cream and hydrocortisone suppositories.

1 applicatorful of 2% clindamycin cream and 25 mg hydrocortisone nightly x 14 or every other night x 14

---

**DIV Other Options**

Compound a high dose intravaginal corticosteroid and 2% clindamycin* (variety of regimens)

Hydrocortisone 100 mg/gram in clindamycin in 2% emollient cream base. Insert 3 to 5 gram (applicator full) (300 to 500 mg active drug) per vagina every other night x 14 doses. Consider taper.

* This needs to be made at a compounding pharmacy.
DIV Other Options

If not working, reconsider the diagnosis!
(has estrogen been addressed?)

• May need to add estrogen


Erosive Lichen Planus
Lichen Planus (LP)

- Affects the genital skin and mucous membranes producing vaginal scarring
- Can result in complete closure of the vagina
- Can also result in esophageal strictures
Presentation, Diagnosis, and Management of Esophageal Lichen Planus: A Series of Six Cases

- Approximately 80 cases since first report in 1982
- Female to male ratios 5:1


Lichen Planus (LP)

- Surgery for lichen planus (lysis of vulvovaginal adhesions) consists of opening the vagina under anesthesia, followed by long term vaginal dilation and intravaginal steroids
Other Treatments Lichen Planus (and Lichen Sclerosus)

- Hydrodissection with reverse V plasty technique
- Cryosurgery
- Ultrasound therapy
- Use of split thickness skin grafts or full thickness skin grafts
- Release of urethral strictures (oral mucosa grafts)
- Use of acellular human dermal allograft
- Role of adipose derived mesenchymal cells and platelet rich plasma in tissue regeneration
- Stem cell lift
Soft Type Backer Rods

- Ideal for irregular joints, particularly where free flowing and self leveling sealants are employed
- Google
Lysis of Vulvovaginal Adhesions in Lichen Planus

- Surgical lysis of adhesions
  - Goal
    - Improve urine flow, decrease risk of UTI
    - Allow intercourse, reduce dyspareunia
  - Best if disease controlled (koebnerization)
  - Results
    - N=22, 11 patients who underwent surgery for vulvovaginal adhesions and 11 age matched controls
    - 6 months to 6 years post-lysis of adhesions
    - 91% satisfied with procedure
    - 75% of patients with decreased urinary difficulties
    - 55% able to have intercourse
    - 50% continued to fear pain
  - Post op dilator 48-72 hours, long term dilation and steroids

### Postoperative management recommendations

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Dosing</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intravaginal corticosteroids</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrocortisone 100 mg/g in</td>
<td>300 mg (1 g) per vagina QHS</td>
<td>First week postoperatively</td>
</tr>
<tr>
<td>emollient cream base</td>
<td>400 mg (1 g) per vagina QHS</td>
<td>Second week postoperatively</td>
</tr>
<tr>
<td></td>
<td>500 mg (1 g) per vagina QHS</td>
<td>Third week postoperatively</td>
</tr>
<tr>
<td></td>
<td>400 mg (1 g) per vagina QHS</td>
<td>Fourth week postoperatively</td>
</tr>
<tr>
<td></td>
<td>300 mg (1 g) per vagina QHS</td>
<td>Fifth week postoperatively</td>
</tr>
<tr>
<td></td>
<td>200 mg (1 g) per vagina QHS</td>
<td>Sixth week postoperatively</td>
</tr>
<tr>
<td></td>
<td>100 mg (1 g) per vagina QHS</td>
<td>Starting week 7, indefinitely*</td>
</tr>
<tr>
<td>Dilators</td>
<td>Largest size tolerated</td>
<td>QHS for 20–25 min for 6 mm (with silicone lubricant); then consider daily dilation with a water-soluble lubricant in the shower (dilator placed into vagina and immediately removed to prevent adhesion formation).</td>
</tr>
</tbody>
</table>

* Depending on disease activity, patients may eventually decrease to 50 mg hydrocortisone suppositories nightly per vagina if tolerated and have ≥ 5 mg hydrocortisone suppositories nightly per vagina. The long-term goal is stable hydrocortisone suppositories 2–3 times per week. A medical-grade dilator set is acceptable.

Note: Surgical management of intrauterine adhesions due to labor trauma. Am J Obstet Gynecol 2018.
# Lubricants

<table>
<thead>
<tr>
<th>Water Based</th>
<th>Silicone based</th>
<th>Hypoallergenic</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Astroglide</td>
<td>• Astroglide X</td>
<td>• Good Clean Love</td>
</tr>
<tr>
<td>• Astroglide Gel Just Like Me</td>
<td>• Gun Oil</td>
<td>• Just like Me</td>
</tr>
<tr>
<td>• Astroglide Silken Secret</td>
<td>• ID Millennium</td>
<td></td>
</tr>
<tr>
<td>• K-Y Liquid Personal</td>
<td>• Jo Premium</td>
<td></td>
</tr>
<tr>
<td>• K-Y SILK-E</td>
<td>• K-Y Intrigue</td>
<td></td>
</tr>
<tr>
<td>• K-Y Ultra Gel</td>
<td>• Lubrin (Suppository)</td>
<td></td>
</tr>
<tr>
<td>• Liquid Silk</td>
<td>• Pink Silicone</td>
<td></td>
</tr>
<tr>
<td>• Me Again</td>
<td>• Pjur silicone</td>
<td></td>
</tr>
<tr>
<td>• Pink Water</td>
<td>• Sliquid Silver</td>
<td></td>
</tr>
<tr>
<td>• Pjur Water Based</td>
<td>• Wet Platinum Premium</td>
<td></td>
</tr>
<tr>
<td>• Pre-Seed</td>
<td>• Lubricant</td>
<td></td>
</tr>
<tr>
<td>• Probe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Slippery Stuff Gel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Sliquid H20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Sweet seduction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• System Jo H20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*UPDATE*
Moisturizers

Extra Virgin Olive Oil  Luvena
Vitamin E oil  Replens
Coconut Oil  Moist Again

KY Silk-E  K-Y liquibeads
<table>
<thead>
<tr>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Assess your knowledge of vulvovaginal diseases</td>
</tr>
<tr>
<td>• Identify the clinical features of vulvovaginal diseases that may be complex; order appropriate diagnostic tests when indicated; improve patient outcomes</td>
</tr>
<tr>
<td>• Become familiar with a variety of treatments for skin diseases</td>
</tr>
</tbody>
</table>