Vaginal and Vulvar Colposcopy

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Ann Arbor, Michigan, USA
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Learning Objectives
After this presentation the participant will:

- Gain tips on vulvoscopy and the diagnosis of low grade squamous intraepithelial lesions (LSIL) and high grade squamous intraepithelial lesions (HSIL) of the vulva
- Become familiar with the diagnosis and treatment of low grade squamous intraepithelial lesions (LSIL) and high grade squamous intraepithelial lesions (HSIL) of the vagina
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
Many women experience different forms of vulvar pain, including vulvodynia. Vulvodynia is pain on the lips 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—a precancerous condition, often associated with a virus, the human papilloma virus (HPV)
- Hidradenitis suppurativa—a disease of the armpits 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 connect many patients to additional services, which may help with your condition, including sex therapy and physical therapy.

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

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**Contact Information:**
15th World Congress on Menopause, Prague, September, 2016
- Vulvodynia Causes and Management (PPT PDF)

IPPS Meeting, Chicago, October, 2016
- Disorders Associated with Vulvar Pain (PPT PDF)

Vanderbilt, Nashville, February, 2017
- The Latest in Vulvar Dermatoses (PPT PDF)
- The Latest in Vulvar Dermatoses - Handout (PDF)
- Your Diagnosis Is (PPT PDF)
- Your Diagnosis Is - Handout (PDF)
- Current State of Vulvodynia (PPT PDF)
- Current State of Vulvodynia - Handout (PDF)

ASCCP/IFCCP, April, 2017
- Cases: Your Diagnosis Is (PPT PDF)
- Cases: Your Diagnosis Is - Handout (PDF)

ISSVD Houston, March, 2017
- Your Diagnosis Is (PPT PDF)
- Your Diagnosis Is - Handout (PDF)
HPV

Non-enveloped double stranded DNA virus

Genome of 8000 base pairs encoding 2 protein types

Late proteins: L1 and L2 (from viral capsid)
EXPRESSED ONLY DURING INITIAL INFECTION

Involved in packaging of the virus

Early proteins: E 1, 2, 4, 5, 6, 7
EXPRESSED THROUGHOUT ITS LIFE CYCLE

Regulate the replication of viral DNA
Anogenital HPV Infection

- Over 180 HPV types; approximately 40 infect the anogenital region
- Anogenital HPV are divided in two groups
  - Low risk: HPV 6,11 (32,43,57, etc.)
  - High risk: HPV 16,18 (31, 33, 35, 45, 51, 52,etc.)
- Many HPV infections are not associated with visible lesions; long latency is possible
- Incidence has been gradually rising over the last 50 years
  - But it is now falling (however, only in younger individuals) due to vaccine protection
Phylogenetic Tree: Anogenital HPV Types

Low-risk HPV types

High-risk HPV types

<table>
<thead>
<tr>
<th>Little or no oncogenic potential (low risk)</th>
<th>Significant oncogenic Potential (high risk)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Usually present as raised, acuminate, verrucous lesions but may also be flat non-pigmented papillomas</td>
<td>- Almost always flat warts</td>
</tr>
<tr>
<td>- 2/3 of external genital warts</td>
<td>- 1/3 of external genital warts</td>
</tr>
</tbody>
</table>
The Role of HPV in Vulvar Precancers

From a study of 241 women in Germany, diagnosed with lower genital tract dysplastic lesions. 
<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></td>
</tr>
<tr>
<td>VIN 2</td>
<td>VIN, usual type</td>
<td>HSIL</td>
</tr>
<tr>
<td></td>
<td>a. VIN, warty type</td>
<td></td>
</tr>
<tr>
<td></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>VIN 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differentiated VIN</td>
<td>VIN, differentiated type</td>
<td>LSIL</td>
</tr>
</tbody>
</table>
Symptoms

Most - completely asymptomatic
Itching or burning
Irritation
Dyspareunia
Colposcopy
Other Means of Magnification (for vulva)
Colposcopic Techniques

- 3% to 5% acetic acid
- Soak initially for 3-5 minutes
- Use copious amounts
- Reapply often
- Avoid using in presence of breaks in epithelium or inflammation
Signs

No typical gross appearance

*Need a high index of suspicion!*
HSIL of the Vulva
Note the raised, whitened, irregular surface

M Sideri, MD collection
Red HSIL can be Confused with Paget’s or Lichen Planus
Concerning Colposcopic Features of HSIL (VIN)

• Areas of ulceration
• Focal nodules
• Atypical vessels
Local Anesthesia-2 major Classes – Amides and Esters

<table>
<thead>
<tr>
<th>Generic/trade names</th>
<th>Concentration available (%)</th>
<th>Onset (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amides (hepatic metabolism)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lidocaine (Xylocaine)</td>
<td>0.5, 1.0, 2.0</td>
<td>5</td>
</tr>
<tr>
<td>Bupivacaine (Marcaine, Sensocaine)</td>
<td>0.25, 0.05, 0.75</td>
<td>8</td>
</tr>
<tr>
<td><strong>Esters (plasma metabolism)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procaine (Novocaine)</td>
<td>0.5, 1.0, 2.0</td>
<td>5</td>
</tr>
</tbody>
</table>

Diphenhydramine 1% may be used - 1-2 cc (25 mg/ml) solution with 1-4 cc normal saline
Local Anesthesia

Epinephrine doubles duration of action, decreases blood loss

• Traditionally, do not use epinephrine in fingers, toes, earlobes, nose, clitoris, and penis
  • True complications are rare
Local Anesthesia

True allergies are rare

- Vasovagal symptoms are common
- May be allergic to methylparaben
Local Anesthesia

Local anesthetic for a shave or punch is an intradermal injection.

Courtesy Dr. E.J. Mayeaux, Jr.
Punch biopsy

Cleanse:
iodine, hibiclens, chlorhexadine

Anesthesia

Biopsy

• Keyes punch
  • 3-6 mm diameter dermatologic instruments (usually 4 mm)

• Fine suture (3.0 or 4.0 Vicryl Rapide) vs. Monsel’s vs. silver nitrate
Vulvar Punch Biopsy
Vulvar Punch Biopsy
Punch Biopsy

Adequate for dx of most skin tumors
  • OK for Melanoma dx
  • Consider underlying structures
  • Include most clinically suspicious area(s)

There is no evidence that biopsy increases the risk of disease progression
Lift With Suture
Cervical biopsy instruments can also be used for vulvar biopsy.
Vulvar biopsy

Pre-operative Diagnosis: ***

Post-operative Diagnosis: ***

Indications: ***

Procedure: vulvar skin punch biopsy

Procedure Details

A time-out was completed verifying correct patient, procedure, site, positioning, and implant(s) or special equipment.

The (right or left) labium *** was prepped and draped in an aseptic fashion. The **** was anesthetized with {0.5 - 10 cc}cc of 1% strength lidocaine (with or without epinephrine). The specimen(s) were placed in formalin and sent to pathology. {silver nitrate, monsel’s, 4-0 vicryl suture} applied with good hemostasis. Post-procedural instructions were given to the patient, and she expressed understanding.

EBL: ***mL

Findings:
***

Condition: Stable
Complications: ***
Post-biopsy Care

Loose clothing

No soap to the vulva

Wash with water frequently

Warm water soaks, cool gel packs

Avoid steroid ointments to the biopsy site

Healing time usually 1-2 weeks
Complications

Infection
Separation/Poor healing
Bleeding
Persistent pain
In Office Wide Local Excision for Diagnosis

- Langer’s lines
Laying-out the Excision

• Make closures parallel to the lines of lesser skin tension (Langer’s lines)

• ? Plan closure before cutting

• Beware of tension
  – Need flap for closure?

• Consider distortion of nearby features
Clinical Pitfalls of Vulvar Colposcopy

- Acetowhiteness is nonspecific
- Marked acetowhite changes in up to 65% of normal women
- Excessive keratin can obscure vascular changes
- Normal anatomic variants – like vestibular papillae – often confused with HPV on colposcopy and histology
Prior to HPV Vaccines
Increasing Incidence of HSIL

- Heightened awareness of neoplasia
- Increased tendency to perform biopsies
- Commonly associated with other lower genital tract neoplasias (anus, vagina, cervix) and/or carcinomas
- More women are being diagnosed at a younger age
Risk Factors for HSIL

- History of HPV (vulva, vagina, cervix)
- Early age of onset of sexual intercourse
- Multiple lifetime sexual partners
- Cigarette smoking

Immunosuppression

- Pregnancy
- HIV
- Autoimmune connective tissue disorders
- Diabetes
- Transplant recipient
- Chronic hepatitis
- Chemotherapy
HSIL of Anus
Anal Intraepithelial Neoplasia (AIN 2,3)
<table>
<thead>
<tr>
<th>2015 ISSVD Terminology of Vulvar Squamous Intraepithelial Lesions</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSI L of the vulva (vulvar LSIL, flat condyloma, or HPV effect)</td>
</tr>
<tr>
<td>HSI L of the vulva (vulvar HSI L, VIN usual type)</td>
</tr>
<tr>
<td>DVIN</td>
</tr>
</tbody>
</table>
VIN differentiated

T Wright, MD
Differentiated VIN is diagnosed infrequently compared to HSIL

Differentiated VIN 4%

HSIL 96%

(of solitary lesions)

European Journal of Cancer. 2009;45: 851-856
# Histopathology of HSIL

## Associations with cancer:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSIL</td>
<td>5 - 20%</td>
</tr>
<tr>
<td>Differentiated VIN</td>
<td>45% &gt; 95%</td>
</tr>
</tbody>
</table>
## Treatments

<table>
<thead>
<tr>
<th>HSIL</th>
<th>VIN differentiated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser (non hair bearing areas)</td>
<td>Excision</td>
</tr>
<tr>
<td>Wide local excision (hair bearing areas)</td>
<td></td>
</tr>
<tr>
<td>Imiquimod (off label use)</td>
<td></td>
</tr>
</tbody>
</table>
LSIL and HSIL of the Vagina

Introduction

HPV common cause

Field effect: ↑ risk of multiple lower genital tract squamous neoplasias

Multi-focal distribution common

May be primary or exist adjacent to cervical or vulvar neoplasia
**LSIL and HSIL of the Vagina**

- Fortunately, vaginal epithelium is a *less favorable target* for HPV than cervix, so vaginal precancer is less common than cervical precancer, just as vaginal cancer is much less common than cervical cancer.
- Vaginal cancer accounts for only 1-2% of female genital tract malignancies.
- 20% of patients with vaginal cancer have a prior history invasive cervical cancer; 7% have a prior history of cervical HSIL.

Risk factors HSIL Vagina

- Risk factors similar to HSIL cervix
  - History of Cervical Cancer, HSIL of cervix or vulva
  - Multiple partners (>5)
  - Early age of first coitus
  - High Risk HPV related (HPV 16 most common)
  - Immunosuppressed
  - Smoking
  - DES exposure in-utero
    - Daling JR et al. Gynecol Oncol 2002;84:263
    - Sherman JF et al. Gynecol Oncol 2008;110:396
Vaginal Precancers

- Incidence 0.2-200 per 100,000
- Location- most common in upper 1/3 (80%); middle (4%); lower (4%)
- Often multifocal (61%)

Vaginal Colposcopy Indications

- Abnormal Pap post-hysterectomy
- Any Pap test unexplained by cervical colposcopy or ECC
- Palpable or unexplained grossly visible vaginal lesion
- Cervical neoplasia in the immunosuppressed patient
- Monitoring women with a history of in utero DES exposure
Colposcopic Evaluation of Vagina

- Carefully insert the speculum to prevent trauma
- Note and record gross lesions
- Inspect entire vagina under low mag before and after application of 3% - 5% acetic acid, and then iodine
- Rotate speculum
- Atrophic epithelium may need to be pretreated with estrogen (short course of 1 gram of estrogen daily for 3 weeks prior to repeat colposcopy)
Colposcopic Evaluation of Vagina

Bimanual pelvic exam with palpation of the vagina

Feel the vaginal apex and side-walls for lesions
LSIL of the vagina

Courtesy of Tom Wright, MD
Vaginal LSIL
Vaginal LSIL
HSIL of the vagina

Courtesy of Tom Wright, MD
HSIL L White Epithelium

RH Kaufman, MD
Prominent changes like punctuation tend to occur late in neoplastic process.
Coarse punctation = higher grade lesion
Use Green Filter
HSIL Post Lugol’s

RH Kaufman, MD
Use of hook in corners of cuff in post-hysterectomy vagina
Using ring forceps to expose angles of vaginal cuff after hysterectomy
Biopsy of the Vagina

Use of anesthesia

- Upper vagina may not require anesthesia
  - Test first
- Middle and lower vagina sensitive
- Need needle extender or dental syringe with long needle for upper vagina

Only need 1.5–3.0 mm depth (no glands)

Silver nitrate or Monsel’s for hemostasis
- Pressure may be all that is required
Difficulty of Vaginal Colposcopy

- Vaginal structure and anatomical distortions
- Can be focal, multifocal, or multicentric
- Vulva also must be examined
- Entire vagina must be assessed
- Liberal use of biopsy required
Colposcopy of Vagina Concerns

- Close proximity of upper vagina to rectum, bladder and ureters
- Occult invasion may be as high as 28%
- Recurrence common
Treatment of Vaginal HSIL

Ideal treatment not established!

Depends on modalities available
- And skill and experience of clinician

Treatment influenced by
- Number, size, and location of lesions
- Patient’s age and health status
- Reliability of patient follow-up
Vaginal HSIL Treatment (Observation Preferred for LSIL)

- Requires treatment
  - CO2 laser best for multiple lesions
  - Partial vaginectomy for solitary lesions (with or without skin grafting)
  - ? 5 FU
  - ? Imiquimod per vagina (off label use)
  - Trichloroacetic acid (off label use)
  - Radiation (rarely used)
Vaginal Precancer Treatment

- Colposcopic observation preferred with LSIL
- Cryosurgery and loop excision are poor choices due to proximity of structures and difficulty controlling depth of treatment
- Cytologic surveillance is important in follow-up
Vulvovaginal Cancers

Vulvar cancer- 4% of the gyn cancers
In 2017 it is estimated that
- 6020 women in the United States will be diagnosed with vulvar cancer
- 1150 women in the United States will die from vulvar cancer

- 90% squamous
- 5% melanoma
Vaginal Cancer

In 2014:

1,312 women in the United States were diagnosed with vaginal cancer

- 430 women in the United States died from vaginal cancer

- Age range for VaIN 35-55 years
- Age range for vaginal cancer 20 years older - 50% cases >70 years
Vaginal Cancer

- Vaginal cancer = 1% - 2% of all genital tract Ca
  - Upper 1/3 of vagina 52%
- Squamous most common (84-90%)
  - Mean age 60-65
- Adenocarcinoma (includes DES clear cell) 4-9%
- Sarcoma (young children) 2-3%
- Melanoma (postmenopausal) 1-2%
Age-Adjusted SEER Incidence of Lower Genital Tract Cancers

Cancer sites include invasive cases only unless otherwise noted.
Incidence source: SEER 9 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, and Atlanta).
Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130). Regression lines are calculated using the Joinpoint Regression Program Version 3.4.3, April 2010, National Cancer Institute.

http://seer.cancer.gov/faststats/
Follow-Up

- Recommended that patients with LSIL, HSIL and cancers receive close follow-up
Close Follow-up Long Term for HSIL of Vulva and Vagina
If in Doubt, Cut it Out