Colposcopy of the Vagina
VAIN
and
Vaginal Cancer

Meggan Zsemlye MD
Disclosures

I have no conflicts of interest.

Images
1. From the personal collection of Candy Tedeschi, RN,NP

Special thanks to Candy Tedeschi, RN, NP for use of her slides
Objectives

◆ Colposcopic examination of the vagina.
◆ Epidemiology of VAIN and vaginal cancer.
◆ Risk factors for VAIN and vaginal cancer.
◆ Colposcopy of VAIN and vaginal cancer.
◆ Treatment of VAIN and vaginal cancer.
Why examine the vagina?

- Abnormal Pap
  - Following hysterectomy with history of CIN 2,3 or cancer
  - Abnormal Pap but cervical colposcopy negative
  - Persistent abnormal cytology after treatment for CIN

- Palpable or unexplained visible lesion

- In-utero DES exposure

- Multifocal disease of the lower genital tract
  - CIN, VIN, VAIN often seen together
Vaginal colposcopy

- Use largest speculum that is comfortable
- Examine cervix first
- Requires liberal use of dilute acetic acid – reapply as needed
- More difficult and time consuming than examining cervix
Acetowhite effects in the vagina

- Be patient - let the dilute acetic acid take effect – reapply as needed
- Rugae can obscure lesions
- Effects less pronounced than cervix
Vaginal Colposcopy

- Hook helpful for examining vaginal rugae
- Lateral vaginal angles ("dog ears") after hysterectomy
  - Narrow endocervical speculum
  - Dental mirror
  - Moistened cotton swab with dilute acetic acid
Hook or cotton swab for examination of dog ears
Lugol’s iodine staining

• Useful for evaluating vagina
• ASK ABOUT IODINE ALLERGIES
• Apply but wipe off excess
• Very drying
• Stain entire length but most areas of abnormality will be in upper vagina
Lugol’s Solution

- Close and slowly rotate speculum blades
- Non-glycogenated tissue non-staining
- Neoplasia most common anterior and posterior walls
- Nonspecific test; could be benign or cancer

Candice Tedeschi, RN, NP

VAIN 3 after hysterectomy
• If no lesion seen on cervix to explain abnormal cytology - look at vagina
• Lugol solution can delineate lesions otherwise missed with colposcopy

VAIN 3

Candice Tedeschi NP
Vaginal Biopsy

Biopsy all but most obvious low-grade lesions

• Generally no need for anesthesia in upper vagina
  – Test first
  – Middle and lower vagina very sensitive

• Need needle extender or dental syringe with long needle to reach upper vagina

• Important - **SHARP** biopsy punch

• Small biopsies 1.5-3mm depth (no glands)

• Bleeding minimal – Monsels, silver nitrate or pressure
Needle extenders can be as long as dental syringes
VAIN, Vaginal Neoplasia

- True incidence VAIN unknown
  - 0.2-0.3 cases/100,000
  - Aho reports that 78% VAIN regresses, 13% persists and 9-10% progresses
  - 0.91% incidence of VAIN after hysterectomy for high-grade CIN

- Primary cancer of vagina rare
  - About 1% of all gyn malignancies

Am Cancer Society: Cancer Facts and Figures 2013
Epidemiology VAIN 2,3 and Vaginal Cancers

- Age range for VAIN 35-55 years age
- Age range for vaginal cancer 15-20 years later
  - 50% cases > age 70
- Current CIN 3 or prior cervical cancer important risk factors for vaginal cancer
- HPV infection a necessary co-factor
- SCC of vagina most common; vaginal melanomas increased mortality

Vaginal Cancer

• NCI estimates in 2013
  – 2890 new cases vaginal cancers
  – 840 deaths
• Vaginal cancer incidence ~0.7/100,000 women

NCI Incidence of Mortality 2013
SEER.cancer.gov/faststats accessed June 5, 2011
Vaginal Cancer Cell Types

- Metastatic disease most common—endometrium, cervix, ovary
- Squamous cell
- Adenocarcinoma
- Melanoma
- Sarcoma
Vaginal Neoplasia: Risk Factors

- Risk factors similar to CIN
  - High risk HPV related (type 16 most common)
  - Immunosuppressed
  - History of CIN or VIN
  - Post hysterectomy for cervical neoplasia
  - Smoking
  - DES exposure in utero

Zeligs KP et al, Obstet Gynecol 2013;122:1223
Smith JS et al. Obstet Gynecol 2009;113:917
Sherman JF et al. Gynecol Oncol 2008;110:396
VAIN Terminology

- LSIL (VAIN 1) - benign proliferation HPV
- HSIL (VAIN 2,3) - true cancer precursor

- Risk of VAIN 3 becoming cancerous is less than CIN 3
Natural history of VAIN

- Study of 127 military women with low-grade and high-grade VAIN diagnosis
- Mean age 47.4 and followed 12-169 months
- Treatment arm and monitor only arm
- Overall 89% demonstrated normalization
- No progression to cancer
- Low-grade VAIN was 6 months longer to normal than high-grade VAIN

Age of Diagnosis for VAIN

Perrutta M et al. JLGTD 2013;17:1:23-27
How is VAIN diagnosed?

- Most diagnosed on colposcopy for abnormal Pap (>80%)
- Colposcopy of the vagina after diagnosis of other anogenital lesions
- Lesion found on pelvic exam
- >90% asymptomatic but may report postcoital bleeding or unusual vaginal discharge

Dodge et al. Gyn Oncology 2001;83:363-369
Zeligs K et al. Obstet and Gynecol 2013;122:1223
Characteristics of VAIN

- Color
  - Varying shades of white
  - Appears in all degrees of abnormality
- Margins/surface contour
  - Flat to slightly raised
- Vessel pattern
  - Absent in low grade
  - Punctuation more common than mosaicism
- Lugol’s pattern
  - Picks up lesions in rugae

Indraccolo U et al. JLGTD:16:2:75-79
Colposcopy VAIN 1

- HPV induced
- Vagina good reservoir
- Raised
- Acetowhite
- MULTIFOCAL
Multifocal disease
Colposcopy VAIN 1

- Condyloma acuminata
- Diffuse tiny punctate spots
- Small non-staining asperities
- Flat warts
- 30% women with vulvar condyloma have vaginal condyloma

Candice Tedeschi NP
Treatment VAIN 1

- No management guidelines for VAIN at ASCCP Consensus Conference
- Progression risk smaller than CIN1 - be conservative
- Treatment of all low grade disease almost impossible

Candice Tedeschi NP
Treat or not to treat

<table>
<thead>
<tr>
<th></th>
<th>total</th>
<th>VAIN 1</th>
<th>VAIN 2,3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural history group:</td>
<td>74</td>
<td>60</td>
<td>14</td>
</tr>
<tr>
<td>Normalization</td>
<td>64</td>
<td>51</td>
<td>13</td>
</tr>
<tr>
<td>Persistence</td>
<td>7</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Progression</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Recurrence</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Treatment group:</td>
<td>53</td>
<td>15</td>
<td>38</td>
</tr>
<tr>
<td>Normalization</td>
<td>49</td>
<td>13</td>
<td>36</td>
</tr>
<tr>
<td>Persistence</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Progression</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Recurrence</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Low-grade SIL (VAIN 1)

- Be conservative
  - Minor grade lesions, particularly in young women resolve spontaneously
  - Be mindful of reproductive function in young women
- Most resolve over about 15 months
- Ok to watch but treatment is acceptable

Zeligs K et al. Obstet & Gynecol 2013;122:1223-1230
Colposcopy of HSIL (VAIN 3)

- Potential cancer precursor
- Focal or multifocal
- VAIN 1,2 more multifocal
- Mosaic rarely seen; difficult to tell low grade from high
- Biopsy anything not obviously low grade
Colposcopy of VAIN 2,3

Margins/contour
- Well circumscribed
- Regular
- Smooth
- Elevated or flat
- Peeling edges

Color
- Acetic acid effect longer to develop and more subtle
- Fairly opaque

Apgar, Brotzman, Spitzer;
Colposcopy-Principles and Practice
Colposcopy of VAIN 2,3

- **Vascular pattern**
  - Develop late in neoplastic process
  - Fine to coarse PN
  - Mosaic rare
  - Coarse caliber vessels suspicious for cancer

- **Hyperkeratosis & leukoplakia**

Candice Tedeschi NP
VAIN 3 with pessary ulcer

Apgar, Brotzman, Spitzer:
Colposcopy Principles and Practice
Treatment VAIN 2,3

- Success depends on modalities available, skill and experience of clinician
- Treatments influenced by
  - Number, size, and location of lesions
  - Patient age, health status
  - Previous treatments modalities
  - Patient preferences
  - Reliability of patient follow up

Treatment of High-grade VAIN

Treatment options

- Laser vaporization
  - CO2 laser; very effective
    - 69-87.5% success but 32-33% recurrence
  - Avoid in vault due to higher risk of recurrence
  - Good for young women
  - Best for multifocal disease or recurrent disease

- Laser excision
  - Provides specimen
  - Higher cure rates

Gurumurth M et al. JLGTMD 2012;16:3:306-312
Treatment of High-grade VAIN

Treatment options

- **Surgical excision**
  - Wide local excision
    - Success rate 66-83%
  - Partial or total vaginectomy
    - Low recurrence rate 12%
    - Preferred method for upper vagina and unifocal disease
  - Hysterectomy and vaginectomy

Gurumurth M et al. JLGTVD 2012:15;3:306-312
Treatment of high-grade VAIN

Treatment options

- 5-FU rarely used anymore
  - Used to treat extensive or multifocal disease
  - Too many adverse effects
- Cryotherapy not recommended due to imprecise depth of destruction
Treatment of high-grade VAIN

- Imiquimod cream 5%
  - Considered investigational
  - Effective in small series of women with multifocal VAIN 2,3 with total or partial response 50-86%
  - Recurrence rates up to 37%

Vaginal Cancer

- 85% squamous origin
  - Primary
  - Direct spread or metastasis

- Vaginal cancer rare in women < 50

Apgar, Spitzer, Brotzman: Colposcopy Principles and Practice

Eifel P Cancer: Principles & Practice of Oncology 2008
Vaginal cancer: Squamous origin

- Colposcopic features
  - Atypical vessels - bizarre, wide intracapillary distance
  - Ulcerations
  - Irregular topography
  - Friability

Apgar, Brotzman, Spitzer: Colposcopy Principles and Practice
Vaginal Carcinoma: Squamous origin

- 40% arise in upper vagina
- 10% arise from hx prior cervical cancer
- 73% had prior hysterectomy but only 22% had prior CIN
- Oncogenic HPV
- Symptoms
  - Often asymptomatic
  - Bleeding
  - Vaginal discharge - malodorous, blood tinged

Gunderson C et al.
JLGT D 2013:17:409-13

Apgar, Brotzman, Spitzer:
Colposcopy Principles and Practice
Vaginal Cancer: Adenocarcinoma

- 5-10% adenocarcinoma
- Mostly clear cell adenocarcinoma - associated with DES exposure in utero
- Rarely sarcomas and melanomas

Candice Tedeschi, NP
Vaginal Cancer: Adenocarcinoma

- Primary or metastatic
  - Metastasis from endocervix, endometrium or distant sites (breast, ovary or bowel)
- Occurs primarily 50’s and older
- Colposcopic feature - atypical vessels in early lesions
Treatment of vaginal cancer

- Refer to gyn oncologist
- Treatment usually radiation, chemoradiation surgery or combo
Pap testing after Hysterectomy

- 663 vag cuff Paps needed to find one VAIN
- 2066 women followed after hyst for avg 89mo
  - 3% had VAIN, 0 had cancer
- Risk of Pap abnormality after hyst = 1%
  - Most abnormal screens, even HPV+, are false positive, i.e., don’t reflect precancer
- DES exposed women, immunosuppressed women or history of CIN 2+ continue screening.

## Risk of VAIN and Vaginal Cancer after Hysterectomy

<table>
<thead>
<tr>
<th>Follow-up after hysterectomy with benign cervix</th>
<th>Follow-up after hysterectomy with CIN 3 on cervix</th>
</tr>
</thead>
<tbody>
<tr>
<td>• $N = 6543$</td>
<td>• $N = 5,043$</td>
</tr>
<tr>
<td>• 1.8% abnormal cytology</td>
<td>• 14.1% abnormal cytology</td>
</tr>
<tr>
<td>• 0.12% VAIN on biopsy</td>
<td>• 1.7% VAIN on biopsy</td>
</tr>
<tr>
<td>• No cancers</td>
<td>• One cancer diagnosed</td>
</tr>
<tr>
<td></td>
<td>• 3 years after hysterectomy</td>
</tr>
</tbody>
</table>

Pooled data from 19 studies

How long should women be screened after VAIN diagnosis?

- No consensus guidelines
- Consider
  - Younger women develop VAIN
  - Older women develop vaginal cancer
- Zeligs suggests long term follow-up with annual cytology and colposcopy
- Frega reported +HPV testing more predictive than cytology for recurrence or persistence

What is Risk of Vaginal or Cervical Cancer after Treatment for CIN

- Swedish study of women previously treated for CIN 1958-2008
- Risk elevates after age 60 with continued accelerated risk as age
- Higher for women >50 at age of treatment or more recent treatment
- Risk persists >25 years
- Need for surveillance with cytology into “old age”

Conclusions

- Colposcopy of vagina can be challenging
- Vaginal abnormalities usually upper vagina and often multifocal
- Vagina should be examined briefly with every colposcopic exam
  - CPT 57452 Colposcopy of the cervix including upper/adjacent vagina
  - CPT 57420 Colposcopy of the entire vagina, with cervix if present