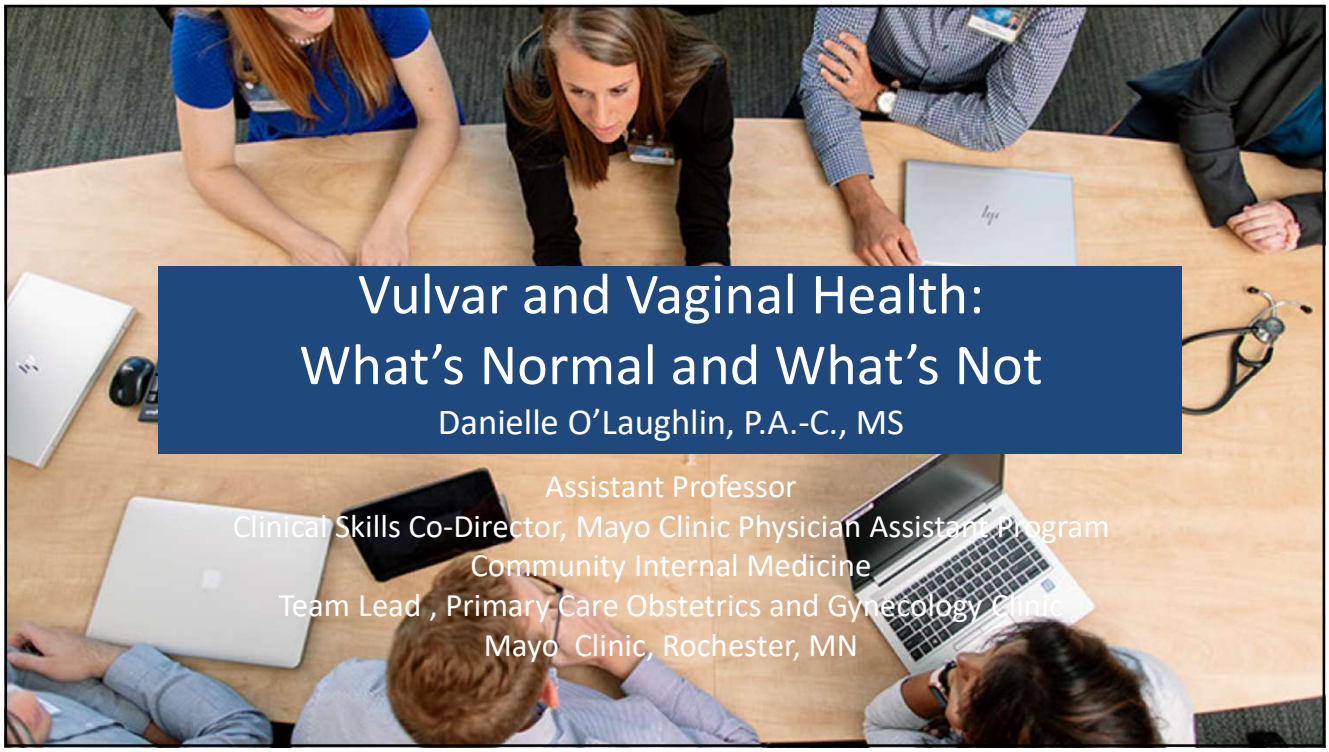

Vulvar and Vaginal Health: What's Normal and What's Not

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- No Disclosures

2

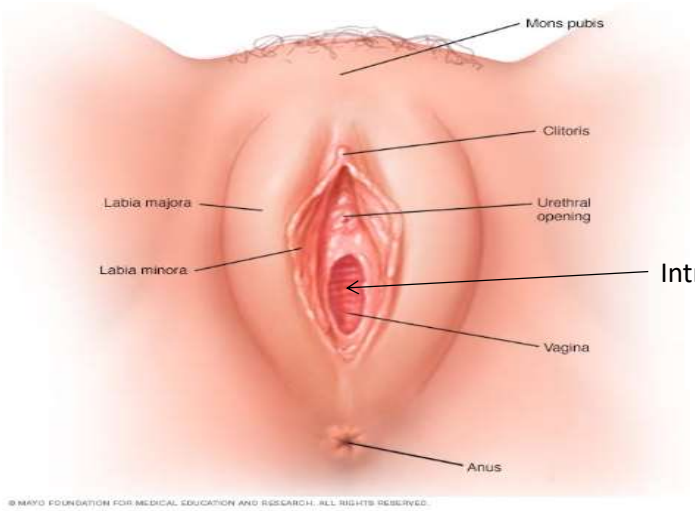
Objectives

At the end of this presentation, members will be able to:

- Describe normal vulvar and vaginal anatomy and symptoms
- Summarize recommendations for vulvar and vaginal health
- Compare and contrast various pathologic conditions of the vulva and vagina
- Explain the etiology and risks factors of vulvar and vaginal conditions
- Summarize the symptoms, physical exam findings, diagnosis and treatment of vulvar and vaginal conditions
- Apply evidence-based medicine to case-based learning scenarios

3

Anatomy of the Vulva



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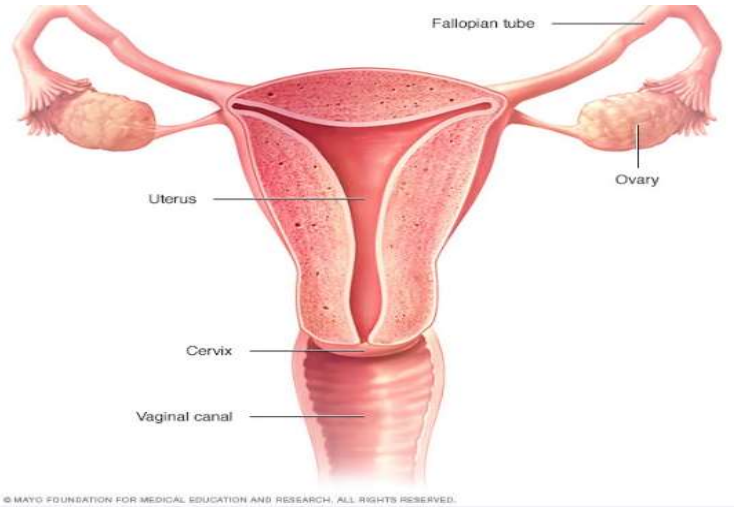
Anatomy of the Vagina



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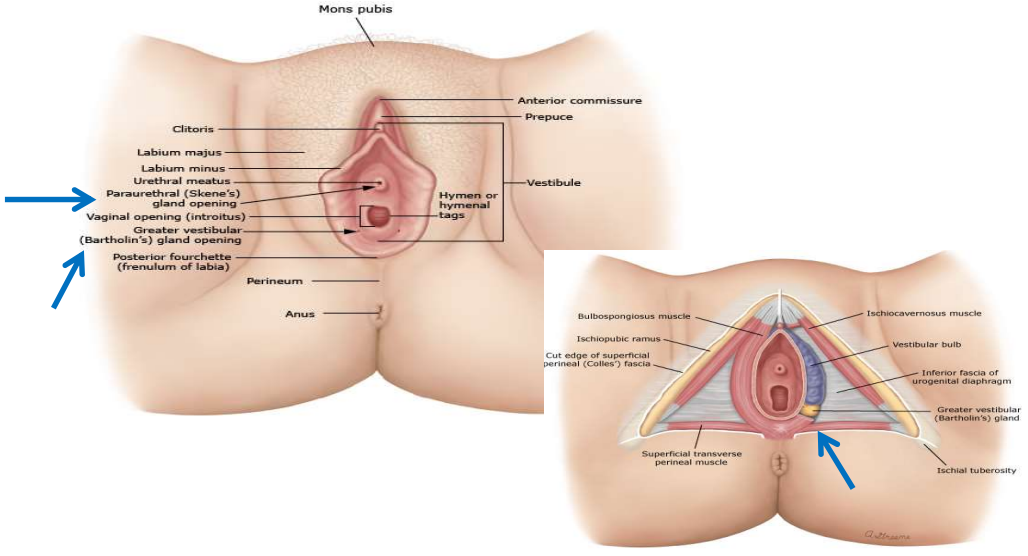
Glands of the Vulva and Vagina



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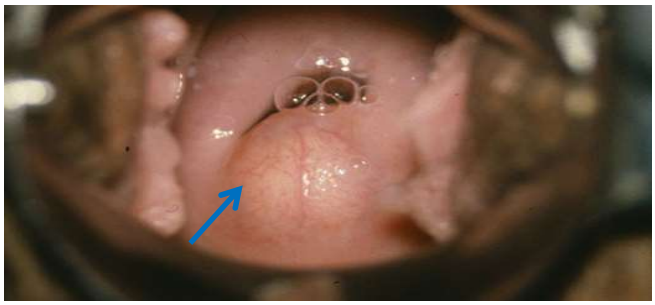
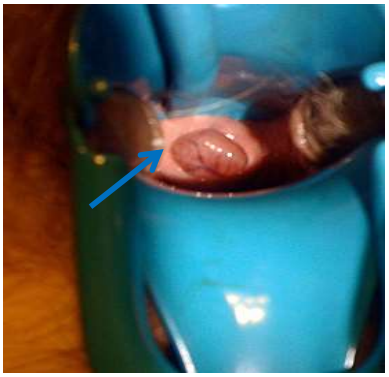
Cysts/Polyps of the Cervix/Endocervix



Nabothian cyst

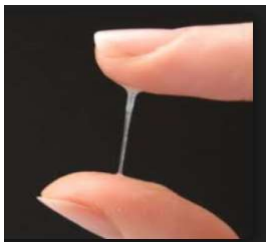


Endocervical polyp

7

Vulvar and Vaginal Symptoms

- *Lactobacillus* predominant
- Normal vaginal pH is 3.5-4.5
- Normal discharge:
  - Physiologic
    - Average woman has 2-3 Tbsp/day
    - Transparent to white, thick, odorless
  - Hormonal
    - Spinnbarkeit near ovulation
      - Increased volume, thicker
      - Stringy, stretchy, whitened
    - Contraception
    - Menopause



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Vulvar and Vaginal Symptoms

- Abnormal discharge:
  - Change in color, odor or amount
  - Vulvar/vaginal redness or itching
  - Bleeding between periods, after intercourse or menopause
  - Mass or bulge
  - Pain with intercourse

9

Vulvar and Vaginal Care

- Wash with warm water ONLY
  - NO SOAP
- Use mineral oil or Vaseline if itching
- Use non irritating lubricants
- Avoid shaving and douching
- Wear wide, white, cotton underwear
  - Wash in very hot water
  - Use ½ laundry soap, double rinse, do NOT hand wash
  - Avoid thong underwear
  - Sleep without underwear, wear loose clothing
- Avoid sex for 1+ week if symptoms of pain/infection

10

Vulvar and Vaginal Care

- Avoid irritants/allergens:
  - Soaps
  - Pads/tampons
  - Shaving
  - Oral sex
  - Spermicides
  - Lubricants
  - Underwear
  - Sprays
  - Dyes/fragrances
  - Soap in underwear
  - Softeners/bleaches
  - Bubble baths
  - Shampoo
  - Hot tubs/chlorine
  - OTCs, scripts
  - Over cleansing

11

Vulvar and Vaginal Care

- Be sexually responsible
- Get vaccinated
  - HPV and Hep B
- Do Kegel exercises
- Know you medications
- Limit alcohol and avoid tobacco
  - Decreases sexual function/arousal

12

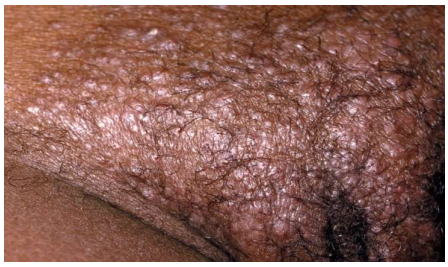
Case 1

- A 47 y/o G0P0 sexually active female presents with 1 week of “bumps.” She describes intermittent itching/irritation.
- PMH: Major depression, recurrent, mild; exercise-induced asthma; eczema; Chlamydia treated X1
- Medications: sertraline, levonorgestrel IUC, prn albuterol
- Vital signs: WNL

13

Case 1

- On exam you see the following, what is your diagnosis?
  A. Condyloma acuminate (warts)
  B. Genital herpes
  C. Molluscum contagiosum
  D. Lichen simplex chronicus
  E. Lichen planus
  F. Folliculitis
  G. Vulvar intraepithelial neoplasia (VIN)
  H. Paget's disease



14

Let’s discuss further…

15

Vulvar Conditions

- Condyloma acuminate (warts)
- Genital herpes
- Molluscum contagiosum
- Candidiasis
- Lichen: sclerosis, simplex chronicus, planus

16

Condyloma acuminate (warts)

- Caused by HPV
  - HPV types:
    - High risk: 16, 18, 31, 33 and 35
    - Low risk: **6 and 11** (most common cause)
    - 40+ strains that affect the genital area
- Risk factors:
  - Sexual activity
  - Cesarean transmission to baby
  - Rapid growth in pregnancy and immunosuppression
  - Smoking

17

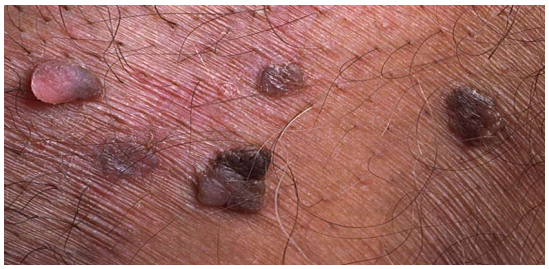
Condyloma acuminate

- Transmission:
  - Direct contact
  - Autoinoculation
  - Fomite transfer
- Incubation months to years
- Symptoms:
  - Asymptomatic
  - Itching
  - Bleeding
  - Dyspareunia

18

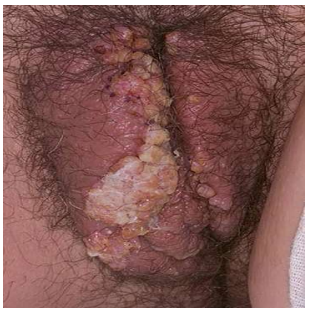
Condyloma acuminate

- Physical exam:
  - Solitary or clusters
  - Flesh-colored, pink, salmon red, white, gray or various shades of brown
  - Lesions 1-5 mm
  - Lesion types:
    - 1) Acuminate
    - 2) Papular
    - 3) Flat



19

Condyloma acuminate



- Diagnosis:
  - Clinical assessment
  - Biopsy if concern for pre-cancer/cancer
  - Dermoscopy
- Prevention:
  - Condom use
  - Offer STI screening
  - Partner notification
  - 9-valent HPV vaccine protects against HPV types 6, 11, 16, 18, 31, 33, 45, 52 and 58
  - Follow Pap smear guidelines

20

Condyloma acuminate

- Home Treatment:
  - Podophyllotoxin (0.15% cream or 0.5% solution) bid for 3 days, followed by 5 rest days for 3-6 weeks
    - Contraindicated in pregnancy
    - Avoid sexual activity during treatment
  - Imiquimod (5% cream) 3 times a week at hs and wash with water in the morning until clearance for up to 16 weeks
  - Other options: Sinecatechins (10% ointment); 5-fluorouricil (5% cream); Cidofovir (1% gel), retinoids, sodium nitrite 6% with citric acid 9%

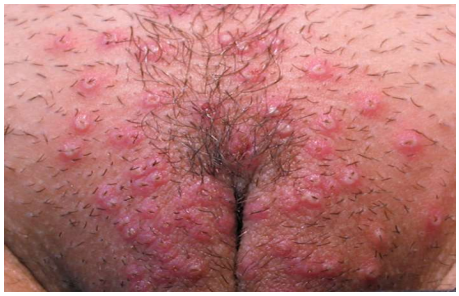
21

Condyloma acuminate

- Outpatient Treatment:
  - Cryotherapy: 2 freeze-thaw cycles, can be performed in weekly intervals
  - Trichloroacetic acid (80-90% solution) – weekly application
    - Safe in pregnancy
    - Sodium bicarbonate can be used in case of accidental excessive application
  - Other options: Bleomycin injected into warts, electrosurgery/scissors excision/curettage/YAG or carbon dioxide laser, formal surgery, intralesional or systemic interferon, photodynamic therapy with 5-aminolevulanic acid (ALA)

Genital Herpes

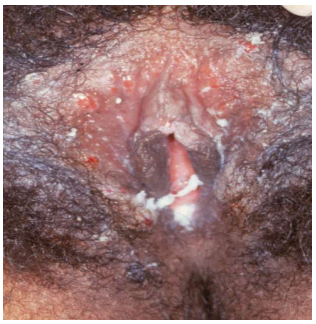
- Caused by herpes simplex virus (HSV)
  - HSV-1
  - HSV-2 (most cases)
- Risk factors:
  - Sexual activity



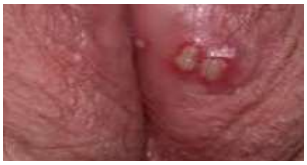
23

Genital Herpes

- Symptoms and physical exam:
  - Asymptomatic
  - Genital ulcers
  - Headache
  - Dysuria
  - Fever
  - Lymphadenopathy



- Diagnosis:
  - PCR test for lesions
  - Serology for non lesions (HSV1 and HSV2)



24

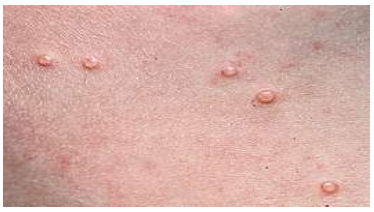
Genital Herpes

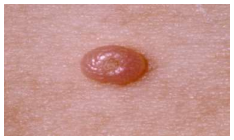
- Treatment:
  - **Acyclovir** 400 mg po tid for 7–10 days
  - **Acyclovir** 200 mg po 5X a day for 7–10 days
  - **Famciclovir** 250 mg po tid for 7–10 days
  - **Valacyclovir** 1 g po bid for 7–10 days
- Treatment can be extended if healing is incomplete after 10 days

25

Molluscum contagiosum

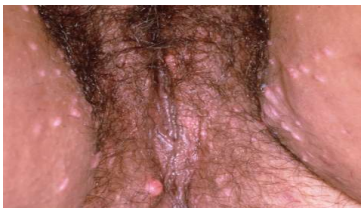
- Caused by a DNA poxvirus
- Risk factors:
  - Skin to skin contact, autoinoculation, sexual transmission, swimming pools via fomites
  - Consider immunodeficiency (HIV) with widespread disease (5-18%)





26

Molluscum contagiosum



- Symptoms:
  - Asymptomatic
  - Surrounding irritation or itching
- Physical exam:
  - Smooth, firm papules with a central umbilication
  - Most common on the mons pubis, genitalia, perineum, inner thigh, lower abdomen
  - Papules may persist for months up to 2 years

27

Molluscum contagiosum

- Diagnosis:
  - Clinical
  - Freezing with liquid nitrogen increases visibility of umbilication
  - Light microscopy of an extracted central core can confirm molluscum bodies/Henderson-Paterson bodies
  - Wright's stain or methylene blue
  - Skin biopsy

28

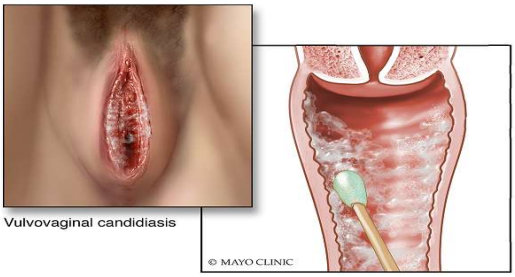
Molluscum contagiosum

- Treatment:
  - Self-limited in immunocompetent
    - Avoid communal bathing/sharing towels
    - Avoid shaving (can cause autoinoculation)
    - Consider screening for other STDs
  - First-line Therapies:
    - Cryotherapy applied for 6-10 seconds
    - Curettage
    - Podophyllotoxin 0.5%
      - BID for 3 consecutive days per week; continued for up to 4 weeks
  - Other therapies: Imiquimod, potassium hydroxide, salicylic acid, topical retinoids, Cantharidin (generally not used on the genitals)

29

Candidiasis vaginitis

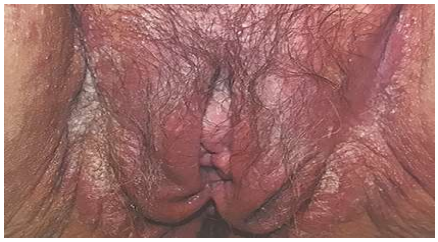
- Caused by a fungus (most common *Candida albicans*)
  - Can affect vulva and vagina
- Risk factors:
  - Change in vaginal pH
  - OCPs
  - Pregnancy
  - DM
  - Antibiotics
- Common during the reproductive years
  - 50% will have 2+ infections

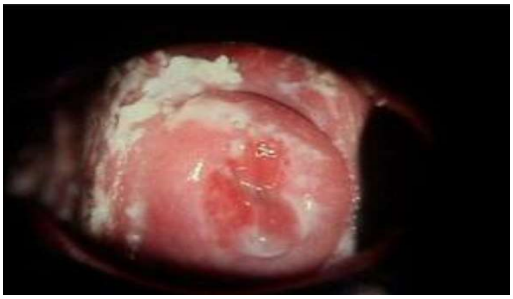


30

Candidiasis vaginitis

- Symptoms:
  - Thin to thick white discharge
  - Itching
  - Irritation
  - Soreness
  - Burning
  - External dysuria
  - Dyspareunia
- Physical exam:
  - Vulvar redness
  - Swelling of labia
  - Excoriations of vulva
  - Fissures
  - White discharge

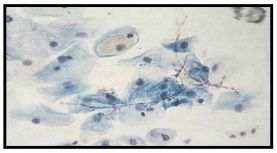




31

Candidiasis vaginitis

- Diagnosis:
  - Vaginal pH <4.5
  - Positive spores and hyphae on KOH prep (shish-kabob look; spores singly or in clusters)
  - Positive candida culture
    - *Candida albicans, glabrata or parapsilosis*



32

Candidiasis vaginitis

- OTC treatment:
  - Butoconazole 2% cream 5 g intravaginally for 3 days
  - Clotrimazole 1% cream 5 g intravaginally for 7–14 day OR 2% for 3 days
  - Miconazole 2% cream 5 g intravaginally for 7 days OR 4% for 3 days
  - Miconazole 100 mg vaginal suppository, one suppository for 7 days OR 200 mg for 3 days OR 1,200 mg for 1 day
  - Tioconazole 6.5% ointment 5 g intravaginally in a single application

33

Candidiasis vaginitis

- Prescription treatment:
  - Butoconazole 2% cream (single dose bioadhesive product) 5 g intravaginally for 1 day
  - Nystatin 100,000-unit vaginal tab, one tab for 14 days
  - Terconazole 0.4% cream 5 g intravaginally for 7 days
    Or 0.8% for 3 days
  - Terconazole 80 mg vaginal suppository, one suppository for 3 days
  - Fluconazole 150 mg po tablet, one tab in single dose

34

Candidiasis vaginitis

- Treatment considerations:
  - Pregnancy
    - 7 day topical agent
  - Compromised host
    - 7-14 day topical therapy
  - Partner treatment not recommended

35

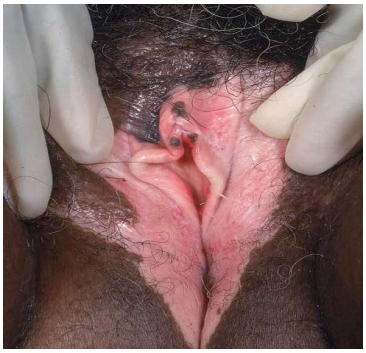
Lichen sclerosis

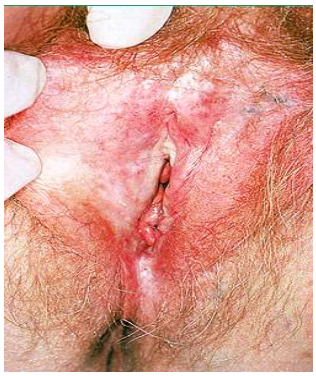
- Caused by a chronic inflammatory disorder; most likely auto-immune
  - Affects 1 in 70
  - Peak onset: postmenopausal (avg age at dx 51)
    - Pre-pubertal (15%)
- Risk factors: other auto-immune disorders (thyroid, alopecia areata, vitiligo, pernicious anemia, DM, SLE, lichen planus), genetic, hormonal
- 2-6% chance of developing squamous cell carcinoma of the vulva (may co-exist with VIN)

36

Lichen sclerosis

- Symptoms:
  - Asymptomatic
  - Itching
  - Pain
  - Dyspareunia





37

Lichen sclerosis

- Physical exam:
  - Whitened, thin areas of skin
  - Hemorrhage
  - Scarring (narrowing of the vaginal opening, destruction of the labia minora, clitoris scarred over -phimosis)
  - NO vaginal involvement
- Diagnosis:
  - Vulvar biopsy

38

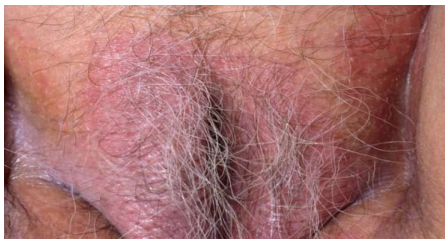
Lichen sclerosis

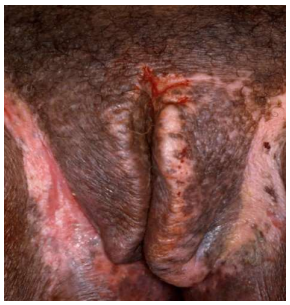
- Treatment:
  - Clobetasol propionate 0.05% ointment applied qd until active disease has resolved
    - After improvement decrease to 1-3/week
  - Topical estrogen
  - Follow up in 2-3 months
  - Biopsy non-healing ulcerations

39

Lichen simplex chronicus (LSC) (squamous cell hyperplasia)

- Caused by chronic rubbing/ scratching results in thickened skin
- Most common in middle aged to elderly
- Risk factors:
  - Atopic dermatitis
  - Other pruritic skin conditions
  - Psychologic factor

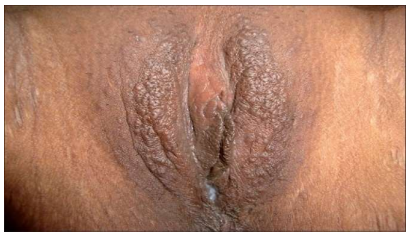


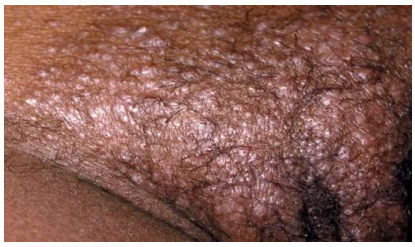


40

Lichen simplex chronicus

- Symptoms and physical exam:
  - Leathery, scaly plaques of lichenified skin
    - Normal skin markings are exaggerated
  - Plaques may be erythematous or hyper/hypopigmented
  - Co-existing papules (prurigo nodularis)
- Diagnosis:
  - Clinical (areas that can be reached)
  - Skin biopsy





41

Lichen simplex chronicus

- Treatment:
  - Break the itch-scratch cycle
    - Antihistamines, skin lubricants, emollients, barriers
  - Rule out other causes of itching
  - Pyschological evaluation/treatment
  - High-potency/superpotent topical steroid applied bid with or without occlusion
    - Clobetasol 0.05% cream
    - Betamethasone 0.05% cream
    - Consider flurandrenolide tape (corticosteroid impregnated tape) - reminder to not scratch

42

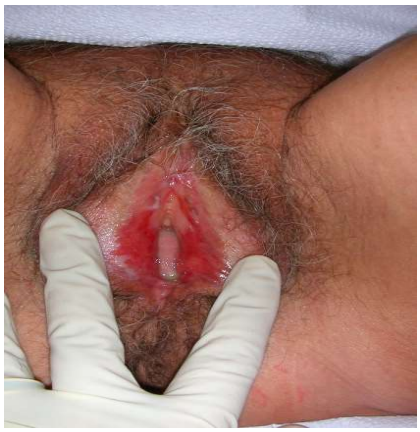
Lichen Planus

- Caused by an inflammatory, autoimmune disorder of the skin/mucous membranes
  - Affects postmenopausal (1%)
  - Typically involves mouth/oral mucosa
  - 25% with vulvovaginal involvement
- Risk factors:
  - Idiopathic
  - Drug-related

43

Lichen Planus

- Symptoms:
  - Itching
  - Burning pain
  - Bleeding after intercourse
  - Copious yellow discharge
  - Destruction of the vulvovaginal architecture



44

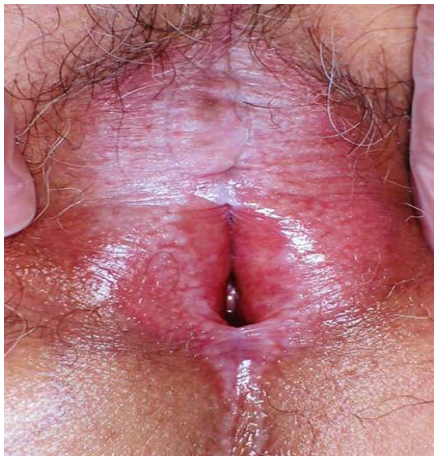
Lichen Planus

Physical exam:

- Glassy, bright red erosions and ulceration of the vulva/vagina
- White striae or border (Wickham's striae)
- Papulosquamous or hypertrophic lesions
- Scarring of the vulva
- Obliteration of the vagina (in severe cases)
- Easy tearing and bleeding

Diagnosis:

Biopsy



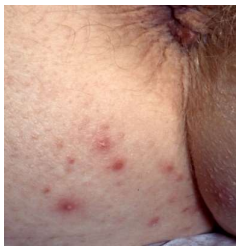
45

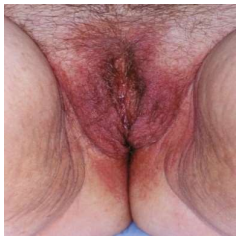
Lichen Planus

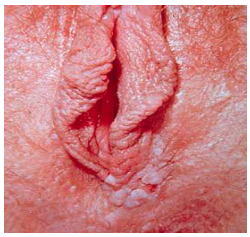
- Treatment:
  - Fluocinonide 0.05% or clobetasol propionate 0.05% qd
  - Intravaginal hydrocortisone suppositories
  - Corticosteroid ointment applied to a vaginal dilator and inserted into the vagina
  - Other therapies: UV light, oral corticosteroids, tacrolimus, pimecrolimus, topical cyclosporine
  - Referral to dermatology

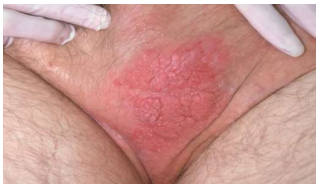
Other Vulvar Conditions

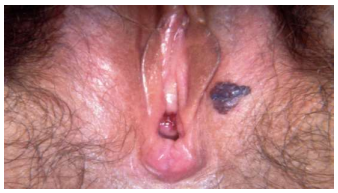
- Folliculitis
- Contact dermatitis
- Vulvar intraepithelial neoplasia (VIN)
- Melanoma
- Paget's disease







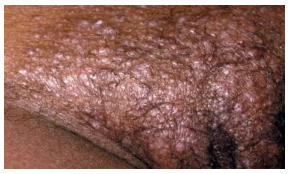




47

Back to Case 1…

- Patient clues:
  - PMH of eczema and major depression
  - Middle aged
  - PE with thickened lichenified plaques with exaggerated skin markings and co-exsisting papules (prurigo nodularis)
- Diagnostic biopsy shows...



48

Lichen Simplex Chronicus

Treatment and patient education:

- Antihistamine
- Skin lubricants/emollients
- Pyschologic re-evaluation
- High-potency/superpotent topical steroid cream
- Flurandrenolide tape
- Do NOT scratch

49

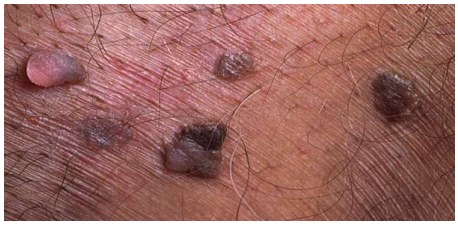
Case 2

- A 27 y/o G0P0 sexually active female presents with 2 weeks of “bumps.” She describes intermittent itching/irritation.
- PMH: abnormal pap 3 months prior showed normal cytology but was positive for HPV 6 and 11; colposcopy performed and unremarkable
- SH: + tobacco, smokes ½ ppd
- Medications: multivitamin, subdermal contraceptive implant
- Vital signs: WNL

50

Case 2

- On exam you see the following, what is your diagnosis?
  A. Condyloma acuminate (warts)
  B. Genital herpes
  C. Molluscum contagiosum
  D. Lichen simplex chronicus
  E. Lichen planus
  F. Folliculitis
  G. Vulvar intraepithelial neoplasia (VIN)
  H. Paget's disease



51

Case 2

Condyloma acuminate (warts)

Treatment and patient education:

- Trichloroacetic acid (80-90% solution) – weekly application
- Offer STI screening
- Partner notification
- Condom use
- Consider HPV vaccine
- Follow-up Pap smear (per guidelines)

52

Case 3

- A 36 y/o G1P1 sexually active female postpartum week 8, breastfeeding on OCPs presents with 2 weeks of “vaginal discharge.” She describes intermittent itching/irritation and dyspareunia.
- PMH: Celiac disease
- Medications: prenatal vitamin, norgestimate/ethinyl estradiol
- Vital signs: WNL

53

Case 3

- What is your diagnosis?
  A. Genitourinary syndrome of menopause
  B. Bacterial vaginitis
  C. Candidiasis vaginitis
  D. Trichomoniasis vaginitis
  E. Desquamative inflammatory vaginitis
  F. Other STI

54

Let’s discuss further…

55

Vaginal Conditions

- Genitourinary syndrome of menopause
- Bacterial Vaginitis
- Trichomoniasis Vaginitis
- Desquamative inflammatory vaginitis

56

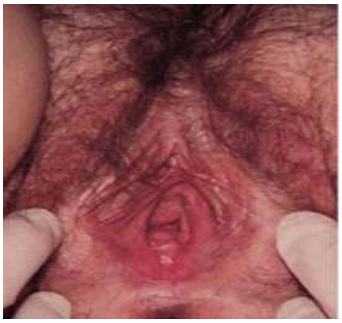
Genitourinary syndrome of menopause (atrophic vaginitis/vaginal atrophy)

- Caused by a low estrogen state
  - Vaginal pH rises
- Risk factors:
  - Menopause (affects 50+%; only 25% seek treatment)
  - Primary ovarian insufficiency
  - Chemotherapy
  - Pelvic irradiation
  - Hypothalamic amenorrhea
  - Hyperprolactinemia
  - Lactation
  - Medications (OCP, aromatase inhibitors, tamoxifen, gonadotropin-releasing hormone agonists or antagonists)

57

Genitourinary syndrome of menopause

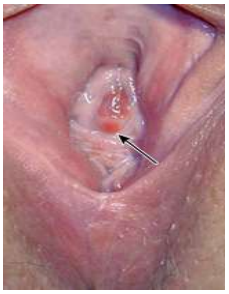
- Symptoms:
  - Dryness
  - Soreness/irritation
  - Itching
  - Thin, watery, yellow or gray discharge
  - Dyspareunia
  - Vulvodynia
  - Vaginal spotting
  - Urinary urgency and frequency
  - Incontinence
  - Recurrent UTI
  - Dysuria



58

Genitourinary syndrome of menopause

- Physical exam:
  - Labial thinning
  - Phimosis of the clitoral prepuce
  - Pale, dry vulva/vagina
  - Shortened or narrow vagina
  - Diminished vaginal rugae
  - Serosanguineous or watery discharge
  - Vulvovaginal erythema +/- bleeding (small punctate hemorrhages)
  - Atrophy of the cervix
  - Urethral caruncle (soft, smooth, bright red eversion of urethra)



59

Genitourinary syndrome of menopause

- Diagnosis:
  - Clinical
    - Vaginal pH 4.5 or greater
    - Wet prep (rule out infection)
    - Urinalysis (rule out infection)
    - Vulvar biopsy

60

Genitourinary syndrome of menopause

- Treatment:
  - Moisturizers
    - Water-based products available as liquids or gels
    - Used qd or every few days for maintenance
    - Oil-based lubricants may degrade condoms
  - Lubricants
    - Water-based or silicone-based products
      - Silicone based lubricants last longer but can impair erections
      - Silicone-based lubricants should not be used with silicone-coated sex aids
      - Used for comfort with sexual activity
  - Topical lidocaine ointment/gel to relieve insertional pain
    - Applied to the introitus 5-10 mins before sexual activity

61

Genitourinary syndrome of menopause

- Treatment continued:
  - For moisturizers/lubricants:
    - Apply to the intoitus and/or partner at time of sexual activity
    - Repeat during sexual activity as needed
    - If irritation/burning/stinging switch products
    - Avoid products with warming properties (contain capsaicin), flavors and known irritants such as glycerin, parabens and propylene glycol
    - Can be used with hormones

62

Genitourinary syndrome of menopause

- Treatment continued:
  - Hormones (creams, tablets, rings, patches, orals):
    - Discuss risks/benefits, age, length of treatment, type of hormone
    - Risks:
      - Combined therapy 5+ yrs is associated with increased risk of breast cancer
      - DVT risk
      - Ischemic stroke (not hemorrhagic)
      - Decreased sex drive (possible lower free testosterone)
      - Cognition (data mixed)
    - Benefits: (oral/transdermal)
      - Treatment of hot flashes
      - Reduces mood instability/concentration difficulties, improves quality of life
      - Slows development of atherosclerosis
      - Reduces bone loss/fracture risk
      - Associated with reduced risk of DM2

63

Genitourinary syndrome of menopause

- Types of estrogen (oral/transdermal):
  - Conjugated equine estrogen
  - Synthetic conjugated estrogen A and B
  - Ethinyl estradiol preparation: norethindrone acetate/ethinyl estradiol
  - 17 beta estradiol: estradiol
  - Bioidentical estrogens

64

Genitourinary syndrome of menopause

- Types of estrogen (topical):
  - Estradiol 0.01% vaginal cream 2-4 g/day for 1-2 weeks, then 1 g 1-3 times/week
  - Conjugated estrogen (0.625mg/g) cream 0.5g 2 times/week
  - Estradiol (0.010 mg) tab/d x 2 wk, then 2 times/week
  - Estradiol ring (2mg) every 3 months

65

Genitourinary syndrome of menopause

- Types of progesterone (oral):
  - Micronized progesterone
  - Synthetic progestin
    - Medroxyprogesterone acetate [MPA]
    - Norethindrone
- Avoid transdermal - unpredictable absorption
- Levonorgestrel IUC (off-label)

66

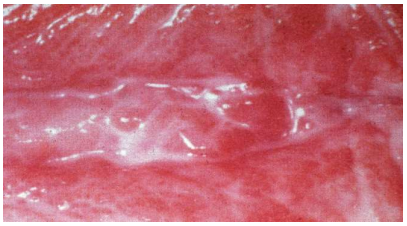
Genitourinary syndrome of menopause

- How long?:
  - Shortest interval
  - Lowest dose for symptom management
  - Normal menopause
    - Limit to 3-5 years
  - Surgical menopause
    - Until age of menopause

67

Bacterial Vaginitis (BV)
(Gardnerella or Hemophilis vaginalis)

- Caused by a change of vaginal flora; reduction of lactobacilli and increase of coccobacilli and other organisms
  - Rise of pH > 4.5
- Most common cause of abnormal discharge
- Incidence (age 14-49):
  - 29% of women
  - 50% African American



68

Bacterial Vaginitis

- Common organisms:
  - Gardnerella vaginalis
  - Prevotella species
  - Porphyromonas species
  - Bacteroides species
  - Peptostreptococcus species
  - Mycoplasma hominis
  - Ureaplasma urealyticum
  - Mobiluncus species

69

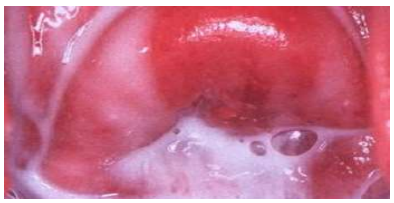
Bacterial Vaginitis

- Risk factors:
  - Multiple or new sex partners
  - Douching
  - Cigarette smoking
  - Poverty

70

Bacterial Vaginitis

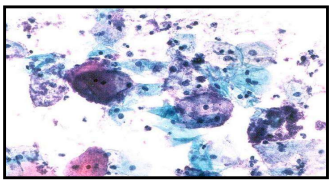
- Symptoms and physical exam:
  - Fishy odor, especially after intercourse
  - Thin, off-white discharge
  - Rare: dysuria, dyspareunia, pruritus, erythema, vaginal inflammation

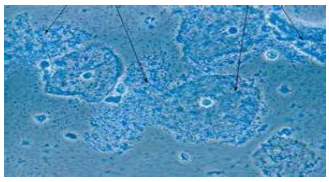


71

Bacterial Vaginitis

- Diagnosis:
  - Gram Stain (Nugent score)—gold standard
  - Amsel Criteria: must have 3 out of 4
    - Thin, off-white discharge
    - pH greater than 4.5
    - Positive whiff test (10% KOH added to discharge)
    - Clue cells (coccobacilli on the surface of epithelial cells) on saline wet mount
- Tests NOT to be used: vaginal culture, Pap smear





72

Bacterial Vaginitis

- Infection consequences:
  - Higher risks of:
    - STIs (HSV-2, HPV, HIV, gonorrhea, chlamydia, trichomonas)
    - PID and infertility
    - Cervicitis and endometritis
    - Cystitis
    - Post-gyn surgery and postpartum infections
    - Preterm delivery
    - CIN

73

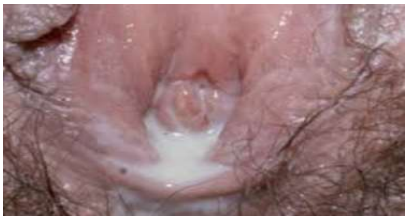
Bacterial Vaginitis

- Treatment:
  - Metronidazole (oral or vaginal)
    - 500 mg po bid x 7 days OR 0.75% gel 5 gm qd x 5 days
  - Clindamycin cream 2%
    - 1 applicator (5g) vaginally hs x 7 days (oil based = avoid condoms up to 5 days after use)
  - Avoid alcohol on metronidzole
- Treatment in pregnancy:
  - Metronidazole 500 mg po bid x 7 days OR 250 mg po tid x 7 days
  - Clindamycin 300 mg po bid x 7 days

74

Trichomoniasis Vaginitis

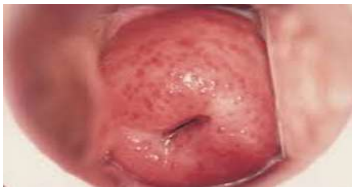
- Caused by a protozoan infection (Trichomoniasis vaginalis)
  - Vaginal pH >5.0
- Can cause preterm delivery
- Risk factors:
  - Sexual activity



75

Trichomoniasis Vaginitis

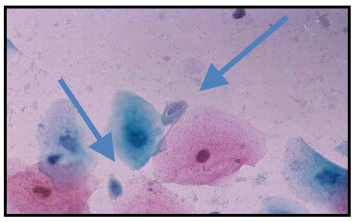
- Symptoms and physical exam:
  - 70-85% asymptomatic
  - Discharge (odorous, frothy, clear-yellow-green)
  - Dyspareunia or lower abdominal pain
    - Bleeding after intercourse
  - Soreness (vulva/vagina)
  - Itching
  - Burning
  - External dysuria and frequency
  - Vaginal erythema
  - Vulvar dermatitis
  - Cervicovaginitis (strawberry cervix)



76

Trichomoniasis Vaginitis

- Diagnosis:
  - Saline microscopy
    - Pear-shaped with red granules and slit-like nucleus
    - Lack of chromatin structure of stripped nuclei
  - Vaginal pH >5.0
  - Rapid antigen and nucleic acid amplification test (NAAT)



77

Trichomoniasis Vaginitis

- Treatment:
  - Metronidazole 2 g po in a single dose
  - Tinidazole 2 g po in a single dose
- Avoid alcohol
- Abstinence of alcohol should continue for 24 hrs after metronidazole or 72 hrs after tinidazole

78

Desquamative Inflammatory Vaginitis (DIV)

- Cause unknown (possible bacterial overgrowth, vaginal atrophy, lichen planus variant)
  - Occurs in 8% with persistent vaginitis
- Risk factors:
  - Hypoestrogenic state (postpartum, breastfeeding, peri/postmenopause, OCPs)

79

Desquamative Inflammatory Vaginitis

- Symptoms and physical exam:
  - Copious discharge (yellow or brown)
  - Burning of vagina
  - Severe dyspareunia/postcoital bleeding
  - Severe introital/vaginal erythema
- Diagnosis:
  - White blood cells on saline microscopy
  - Vaginal cultures
  - Increased vaginal pH > 4.5

80

Desquamative Inflammatory Vaginitis

- Treatment:
  - Clindamycin cream 2% vaginal cream 5 gm/d x 4 weeks OR
  - Hydrocortisone 10% vaginal cream, 3 gm/d x 4 weeks
    - Other hydrocortisone creams, rectal and vaginal suppositories can be used as alternatives
  - Estrogen to prevent reoccurrence

81

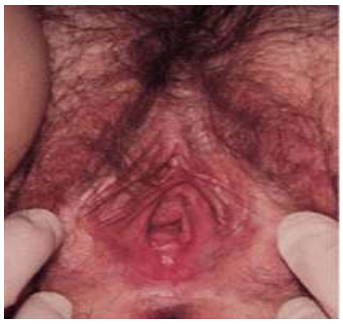
Other Vaginal Conditions

- STIs
  - Gonorrhea
  - Chlamydia
- Foreign body/retained tampon
- Cervicitis/endometritis
- PID

82

Back to Case 3…

- Patient clues:
  - Postpartum week 8 and breastfeeding
  - On OCP
  - PE with a pale, dry vulva, thinning of the vulvar skin and diminished vaginal rugae
- Vaginal pH is 5.5; wet prep is normal
- Diagnostic biopsy shows...



83

Genitourinary syndrome of menopause

Treatment and patient education:

- Moisturizers/lubricants
- Consider short term topical estrogen (no systemic symptoms)
- Symptoms will likely improve with time
- Re-evaluate

84

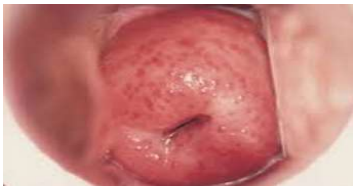
Case 4

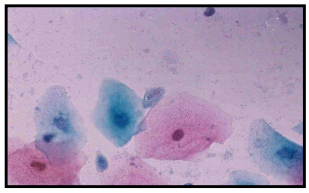
- A 19 y/o G0P0 sexually active female presents with 1 week of “vaginal discharge.” She describes intermittent itching/irritation and dyspareunia. She describes discharge as odorous and yellow-green.
- PMH: ADD
- Medications: levonorgestrel IUC
- Vital signs: WNL

85

Case 4

- On exam you see, what is your diagnosis?
  - A. Genitourinary syndrome of menopause
  - B. Bacterial vaginitis
  - C. Candidiasis vaginitis
  - D. Trichomoniasis Vaginitis
  - E. Desquamative inflammatory vaginitis
  - F. Other STI





86

Trichomoniasis Vaginitis

Treatment and patient education:

- Metronidazole or Tinidazole
- Avoid alcohol (24 hrs after metronidazole or 72 hrs after tinidazole)

87

Summary

- Not all discharge is abnormal
- Obtain a thorough history
  - Ask about vulvovaginal symptoms
- Do the physical exam
- 1+ condition may be causing symptoms
- Recurrence is common, treatment and patient education is needed
- Discuss prevention and vulvar/vaginal care recommendations

88

	Normal	Bacterial Vaginosis	Yeast Vaginitis	Trichomoniasis
Frequency	20% mixed BV/yeast	29-50%+ (30% recurrence @ 1 mo)	25+% (50% lifetime recurrence)	2-5+%
Symptoms		Fishy odor, no itch	**Itch**, thick/cheesy discharge	
Vaginal signs, discharge	White, opaque pale	**Watery**, **fishy**, thin, milky white, malodor, **NO inflammation**	**Clumpy**, **white**, thick, discharge, **vulvar inflammation**	Frothy, gray or yellow-green, malodorous, bright **cervical inflammation**
KOH "whiff"	Negative	**Positive**	Negative	Often positive
Saline micro	Lactobacilli and epithelial cells	**Clue cells**, few WBC's 70-80% sensitive	Negative, few WBC's	Motile flagellated protozoa, many WBC's 70% sensitive
KOH micro	Negative	Negative	Pseudohyphae or budding yeast 70% sensitive	Negative
Vaginal pH	3.5-4.5	>4.5	Normal (usually <4.5)	>4.5-5
Culture / PCR	60% have Gardnerella spp., 40% have Candida spp.	Culture poor predictive value, often Gardnerella spp. PCR poor predictive value	Often Candida spp.	PCR test specific

89

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90

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91

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92