V is for Vagina, Vulva, Vestibule

and all things amazing

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Let’s start with a "normal" vagina…

- The vagina is a dynamic ecosystem made up of 10^9 bacterial colony forming units
- It discharges – that’s normal!
  - Clear, white, mostly odorless, thick or thin
- 1-4 ml fluid per 24 hours
- pH 4.0-4.5
  - pH blood ~ 7.4
  - pH semen ~ 7.5
- No two look the same…this too is normal

Vaginitis

***Vaginal discharge, vulvar pruritus, irritation, and odor**

Bacterial Vaginosis
40-50%

- Off white/gray, thin, malodorous discharge
- No dyspareunia
- pH >4.5
- Positive Amine test (70-80% of patients)
- Clue cells (>20% of epithelial cells)
- pH also elevated in trich, atrophy, and DIV

Vulvovaginal Candidiasis
20-25%

- Thick, white, clumpy discharge
- Pruritus, soreness, dyspareunia
- pH 4.0-4.5
- Negative Amine test
- Pseudohyphae (40% of patients), budding yeast for nonalbicans Candida
- Also consider contact irritant dermatitis or vulvodynia

Trichomoniasis
15-20%

- Thin, green-yellow, malodorous discharge
- Burning, ***postcoital bleeding***, dyspareunia, ***dysuria***
- pH 5.0-6.0
- Amine test often positive
- Motile trichomonads (60% of patients)
- Also consider DIV, atrophic vaginitis, erosive lichen planus

WOMEN'S HEALTH COLLECTIVE

Initial Evaluation

- Identify site of cc
  - Vulva, clitoris, vestibule, vagina, cervix, and/or pelvis
- Keep in mind more than one thing may be happening
- Evaluate each symptom separately
- Discharge
  - Quantity, color, consistency, odor
- Burning, irritation, erythema or discomfort
- Pruritis
- Vaginal bleeding or spotting
- Pain
- Dysuria or Dyspareunia
- Timing of symptoms and onset as well as relation to sexual activity
- Past and recent vaginal or vulvar treatments
- Estrogen status
- Evaluate vaginal secretions with pH and wet mount

Next steps…

PE

- Visual inspection
  - From mons pubis to anus
- Speculum exam
- Manual exam
- Detection of odor

Etiologies

- GSM
- PID
- Retained foreign body
- Vulvar lesions/dystrophies
- Vaginal fistula
  - h/o gyn surgery or Crohn's
- Malignancy

Eval

- Microscopy vs Lab testing
  - Pros and cons
    - Timing of dx
    - Is microscope available and is clinician trained
    - Sensitivity and specificity
    - Cost

BV

- Most common cause of vaginal discharge in those of childbearing age (40-50% of cases)
- Overgrowth of bacteria which is normal vaginal flora
- Absence of inflammation
  - Vagin*osis* vs Vagin*itis*
- Sexual Activity:
  - Risk factor
  - Not classified as an STI
  - 25-50% prevalence in females who have sex with females
  - Increased risk with presence of other STIs
- Other risk factors:
  - African American (*50% prevalence vs 29% in general population)
  - Cigarette smoking
  - Douching
  - Possible genetic component
  - Not associated with immunosuppressive states
- Reported more frequently after vaginal intercourse and after menstrual cycle
- Symptoms may resolve spontaneously

*Allsworth JE, Peipert JF. Prevalence of bacterial vaginosis: 2001-2004 National Health and Nutrition Examination Survey data. Obstet Gynecol. 2007 Jan;109(1):114-20. doi: 10.1097/01.AOG.0000247627.84791.91. PMID: 17197596.

BV linked to:

PROM	Preterm delivery and low birth weight	HIV, N. gonorrhea, C. trachomatis, and HSV-2	PID
Post op infections after Gyn procedures	Recurrence of BV	Postpartum endometritis	Increased risk of late miscarriage

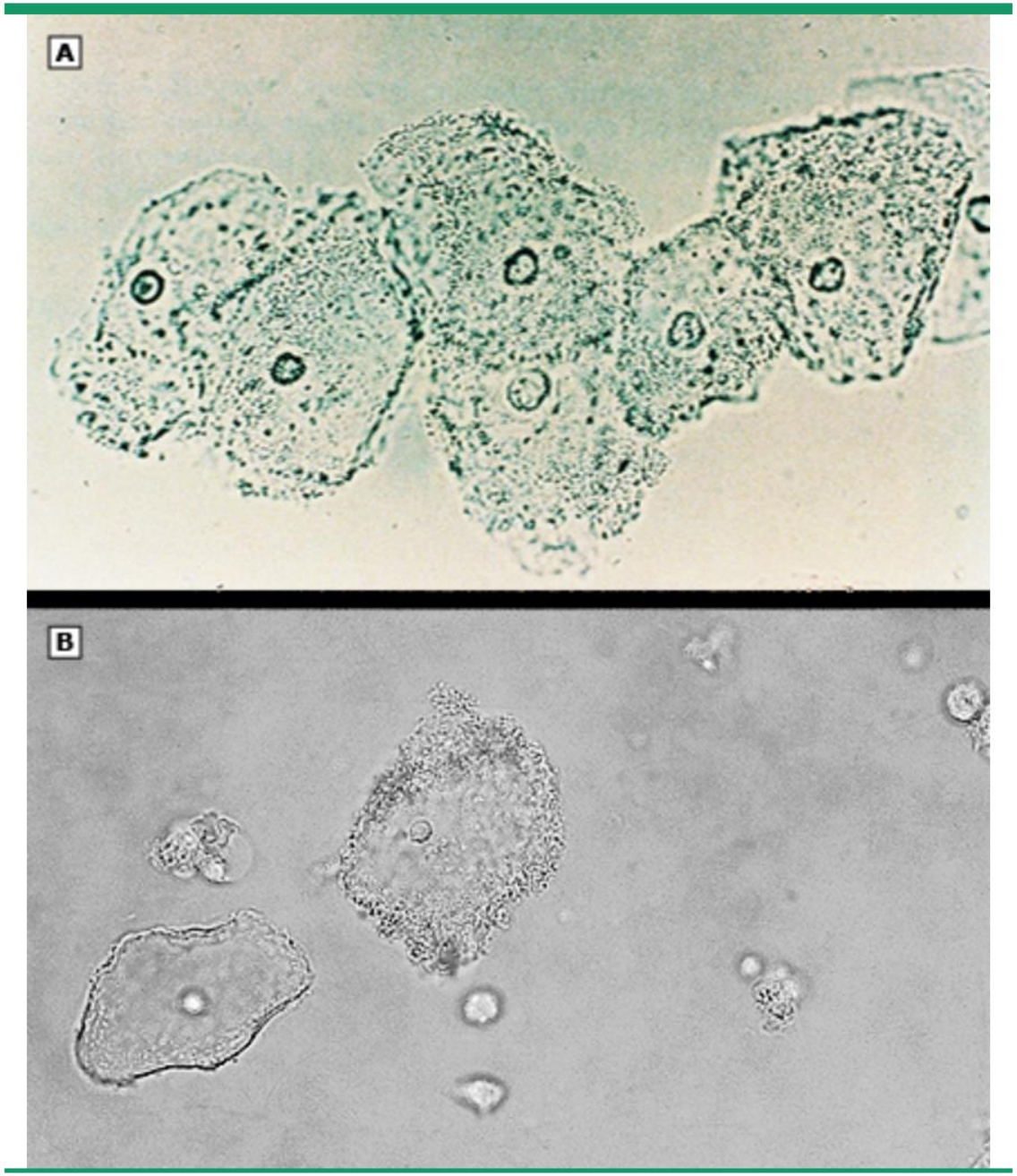
BV Diagnosis

- PE!
- Amsel Criteria – clinical criteria
  - Characteristic vaginal discharge: homogenous, thin, gray-white that smoothly coats the vaginal walls
  - pH >4.5
  - Positive whiff amine test
  - Clue cells on saline wet mount (>20% of the epithelial cells)

At least 3 of the 4 criteria must be met for diagnosis

- Gram stain
  - Gold standard
- Culture – no role in diagnosis
- DNA probe assay

Clue cells



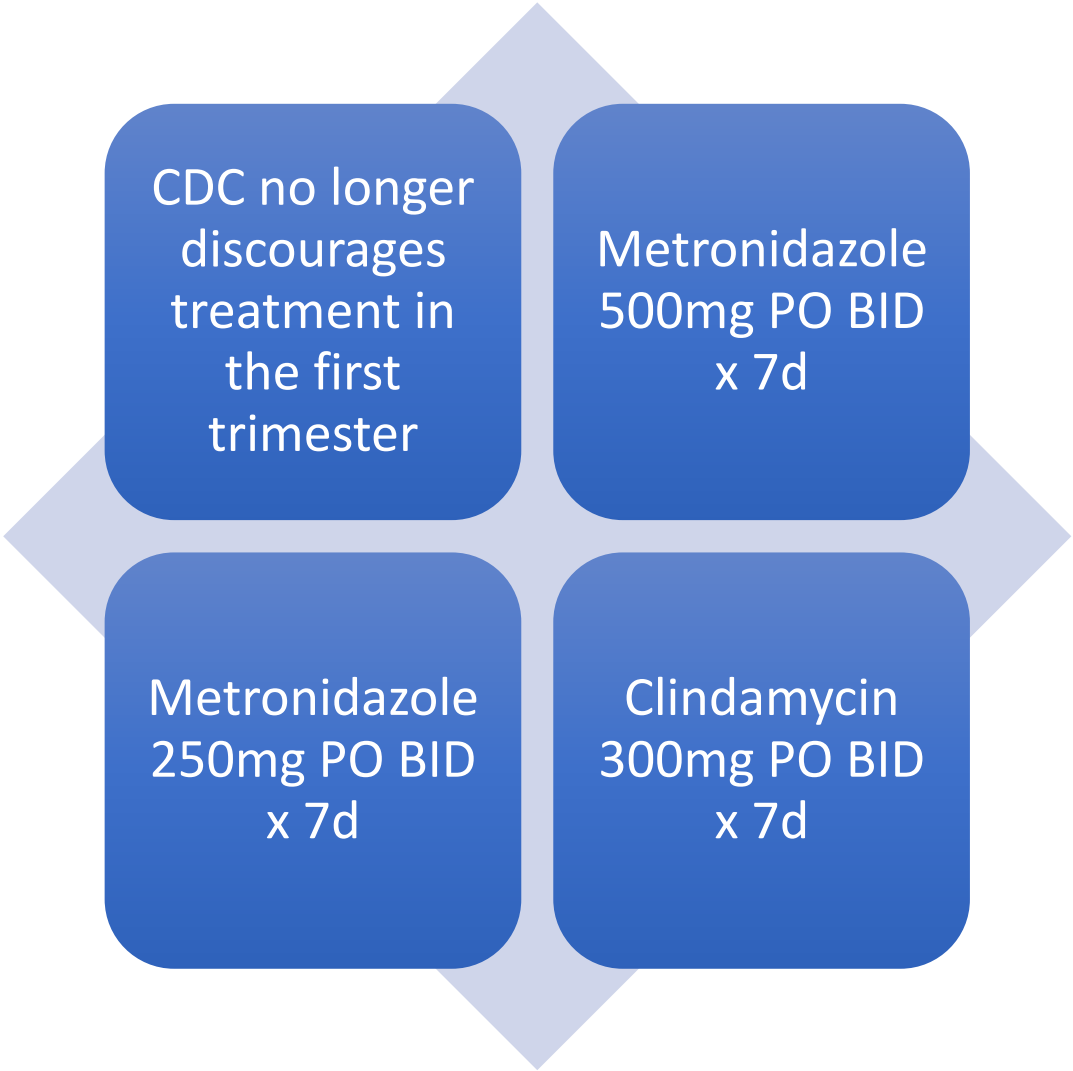
Clue Cells

(A) Wet mount showing characteristic clue cells. Note that the epithelial cells are so heavily covered by bacteria as to obscure the margins.
(B) A clue cell. The vaginal epithelial cell on the right has shaggy borders obscured by coccobacilli (1003 magnification). The more normal appearing epithelial cell on the left has sharper borders.

BV Treatment

- Oral or vaginal
- Treat symptomatic patients (40-50%)
- Metronidazole
  - *500mg po BID x 7d*
  - *1 applicatorful (5g) PV qhs x 5d*
- Clindamycin
  - *2% cream 1 applicatorful (100mg) PV qhs x 7d* (may use x 3d if not pregnant)
  - 300mg po BID x 7d
  - Ovules 100mg PV qd x 3d
- Secnidazole
  - 2g PO x 1 (granules, not to chew)
- Tinidazole
  - 1g PO qd x 5d

Treatment in Pregnancy



Vulvovaginal Candidiasis

- 2nd most common cause of vaginitis symptoms (after BV)
- Candida sp. also normal vaginal flora
- 75% of those born with a vagina will have at least 1 episode, 40-45% will have 2 or more
- Prevalence increases with age up to menopause
- 80-92% of episode caused by Candida albicans (remainder mostly C. glabrata)
- Risk factors:
  - DM
  - Antibiotic use
  - Increased estrogen levels
  - Immunosuppression
  - Contraceptive devices (impact is unclear as of yet)
  - Genetic
  - Sexual activity – not an STI, but sexually relevant
  - Diet (impact is also unclear and studies susceptible to moderate/high risk of bias)

Candidiasis Diagnosis

pH 4 to 4.5 (normal)

Wet mount (KOH prep)

Culture **IF** necessary (gold standard)

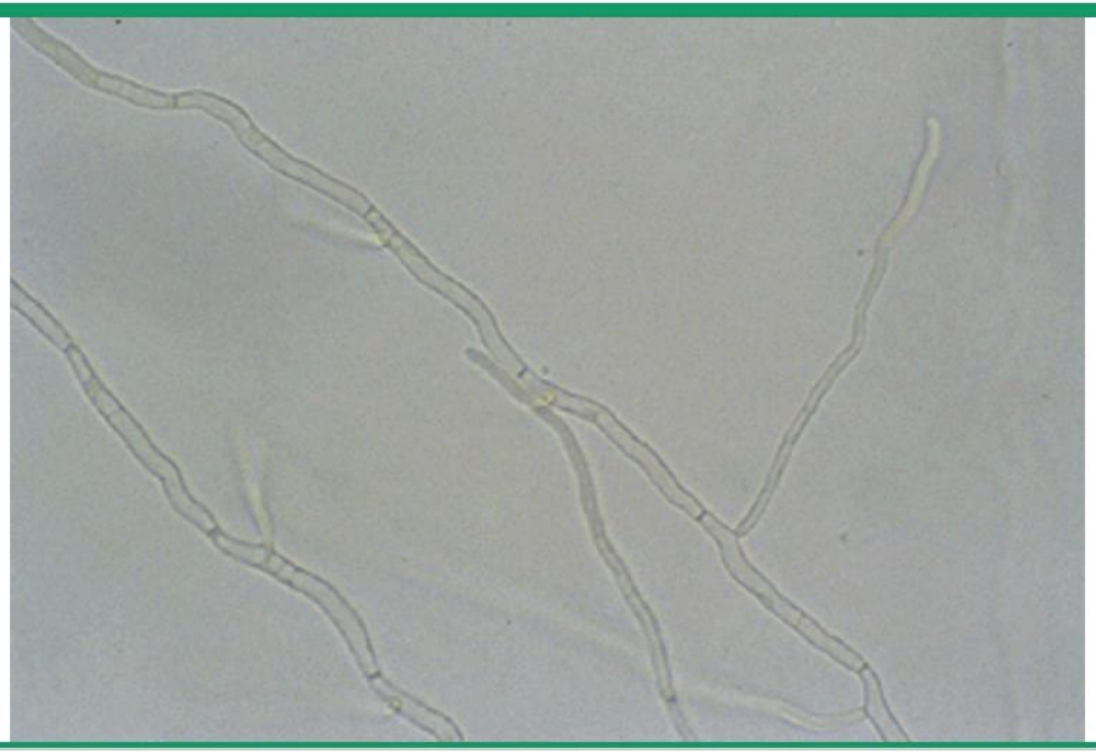
- Taken from vaginal wall (not cervix)

Self diagnosis should be discouraged

- Even with a history of confirmed VVC, people are accurate in self diagnosis only 35% of the time

Candida hyphae

True hyphae of Candida albicans



True hyphae (as opposed to pseudohyphae) elongate through a process of apical synthesis that does not involve budding. Since buds are not present at the hyphal tips, the hyphae do not exibit periodic constrictions associated with the budding process.

Courtesy of Wiley Schell, MS.

Candidiasis Treatment

- Treat symptomatic infection
- May take 2 days or 2 weeks to respond to treatment, depending on severity
- No need to treat sexual partners, may want to abstain during treatment due to inflammation and discomfort
- Oral and topical preparations have similar cure rates, but most women prefer convenience of oral treatment
- Fluconazole (Diflucan) 150mg x 1, may repeat in 72 hours if necessary.
  - Complicated infection could require 2-3 doses, one every 72 hours –OR- 7-14 days of topical azole therapy (vs 1-3 days for uncomplicated infection)
- Ibrexafungerp (Brexafemme) 150mg 2 po BID x 1d
- Oteseconazole (Vivjoa) – indicated for RVVC
- *C. glabrata*, **if symptomatic**, treated with boric acid 600mg PV q hs x 2 wks, flucytosine cream PV, and/or amphotericin B cream 4-10% 5g qhs x 2 wks

Treatment in Pregnancy

7 day topical regimens are recommended - OTC

Fluconazole is not recommended, particularly during 1st trimester

- May increase risk of spontaneous ab
- Impact on birth defects is unclear

Trichomoniasis

Most common non-viral STI worldwide	WHO estimates >156 million new trich infections occurred in 2020	Often asymptomatic (~50-70%)	Affects females > males
Co-infection with BV 60-80%	Can cause post coital bleeding	Strawberry cervix (2%)	Untreated may last months to years and may progress to urethritis or cystitis

WOMEN'S HEALTH COLLECTIVE

Trich linked to:

PROM
Preterm delivery
Low birth weight
Cervical neoplasia
Urethritis/cystitis
Post-hysterectomy cuff cellulitis or abscess
Acquisition of other STIs (up to 2 fold increased susceptibility to HIV)
PID
Infertility

Trichomonas Vaginalis Diagnosis

High power microscopy revealing Trichomonas vaginalis with easily identified flagella.

Courtesy of Jack D. Sobel, MD and William E. Secor.

- Wet mount shows mobile trichomonads (60-70% of the time)
  - Motion is jerky and spinning
  - Remain motile for 10-20 minutes after sample collection
- pH
- NAAT (gold standard)
- Culture if NAAT not available

Trichomonas Vaginalis Treatment

Treat symptomatic AND asymptomatic infection

Curative treatment with metronidazole or tinidazole

Abstain from intercourse during treatment (or at least 7 days after last antibiotic if using a 1 day course)

Expedited partner treatment

Multiday:
Metronidazole 500mg PO BID x 7d

Alternatives:

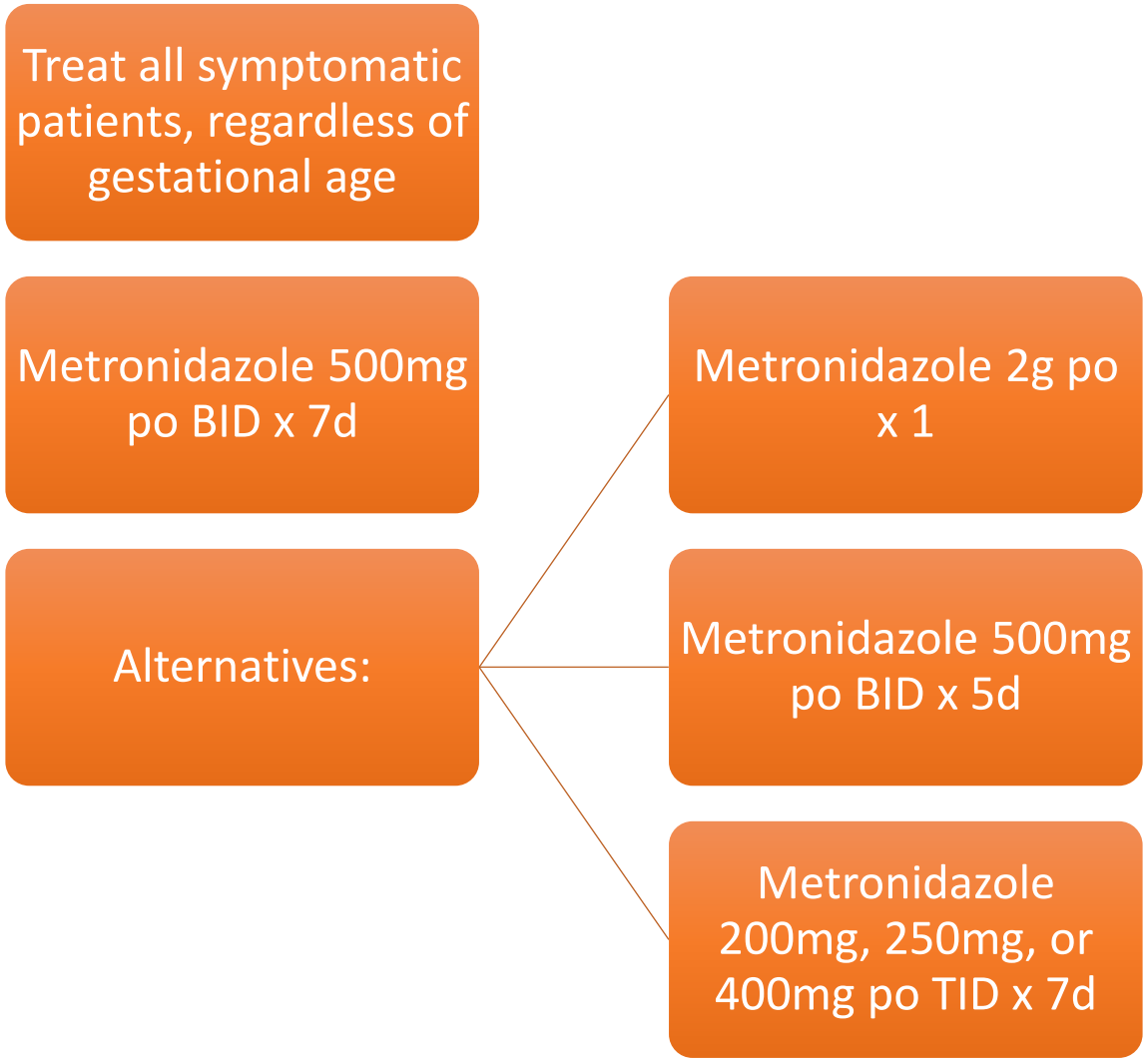
- Metronidazole 2g po x 1 (500mg po x4)
- Tinidazole 2g po x 1
- Secnidazole 2g po x 1

Retest all 2 wks– 3 months after completing treatment

- Reinfection rates up to 17%

WOMEN'S HEALTH COLLECTIVE

Treatment in Pregnancy



Recurrent infections

- Defined as >=4 episodes of symptomatic infection in 1 yr
- Speciate candida in refractory or recurrent cases
- **BV** – metronidazole gel twice weekly for 4-6 months
- **Candida** albicans– oral fluconazole 150mg every 72 hours x 3 doses, then once weekly x 6-12 months
- Candida glabrata – Boric acid 600mg daily x 3 wks with flucytosine 17% crm
- **Trich** – Tinidazole or Metronidazole 2g po qd x 14d
- Be sure to address sexual dysfunction and relationship discord that may occur with recurrent vaginitis
- Probiotics generally unproven for vaginal health
  - Exception: Clairevee

Desquamative Inflammatory Vaginitis

- Unknown etiology
- Non-infectious
- More common in peri-menopause
- Pain (dyspareunia, vestibular pain, burning)
- Copious exudative vaginitis
  - Requiring change of pad or underwear several times a day
- Profuse vaginal discharge
  - Yellow, gray or green

DIV Diagnosis

***ALL of the following required:**

- At least one of the following:
  - Vaginal discharge
  - Dyspareunia
  - Pruritus
  - Burning
  - Irritation
- Vaginal inflammation (spotted ecchymotic rash, erythema, focal or linear erosion)
- pH > 4.5
- Saline microscopy showing increased numbers of parabasal and inflammatory cells (Leukocyte to epithelial cell ratio is > 1:1)

DIV Differential Diagnosis

- Severe atrophic vaginitis
- Erosive lichen planus
- Pemphigus vulgaris
- Cicatricial pemphigoid

DIV Treatment

- Clindamycin 2% crm 4-5g PV qhs x 4-6 wks
- Hydrocortisone 10% crm 3-5g PV qhs x 4-6 wks
- Estradiol if postmenopausal/estrogen deplete
- For mild disease:
  - Hydrocortisone 25mg rectal supp ½ or 1 placed in the vagina BID
- Treatment continued until complete remission
  - Based on symptoms and microscopy
- Follow monthly for several months after remission to ensure stability
- If relapse occurs, utilize drug not used for initial treatment until remission, then taper

Vulvar dystrophies

- Vulvoscopy!!!
- Biopsy if there is a lesion – use a 4mm punch biopsy or suture for shave
  - Only exception would be in pediatrics
- Send all biopsies to a dermatopathologist – give them as much background info as possible – even a picture of the lesion if possible
- Do NOT empirically treat with steroids!
- All Lichens are not created equal – educate your patients that they need to know the entire name

WOMEN'S HEALTH COLLECTIVE

Lichen Sclerosus

Likely autoimmune	Potential Koebner phenomenon	Prevalence	85-98% of LS is found in the anogenital region
• Consider associated auto-immune disorders with diagnosis – thyroid, alopecia areata, vitiligo, pernicious anemia, lichen planus, diabetes	• May be precipitated by trauma, injury, sexual abuse in certain genetically predisposed patients	• 1:70 • Females – any age • Highest incidence in premenarchal and postmenopausal ages	

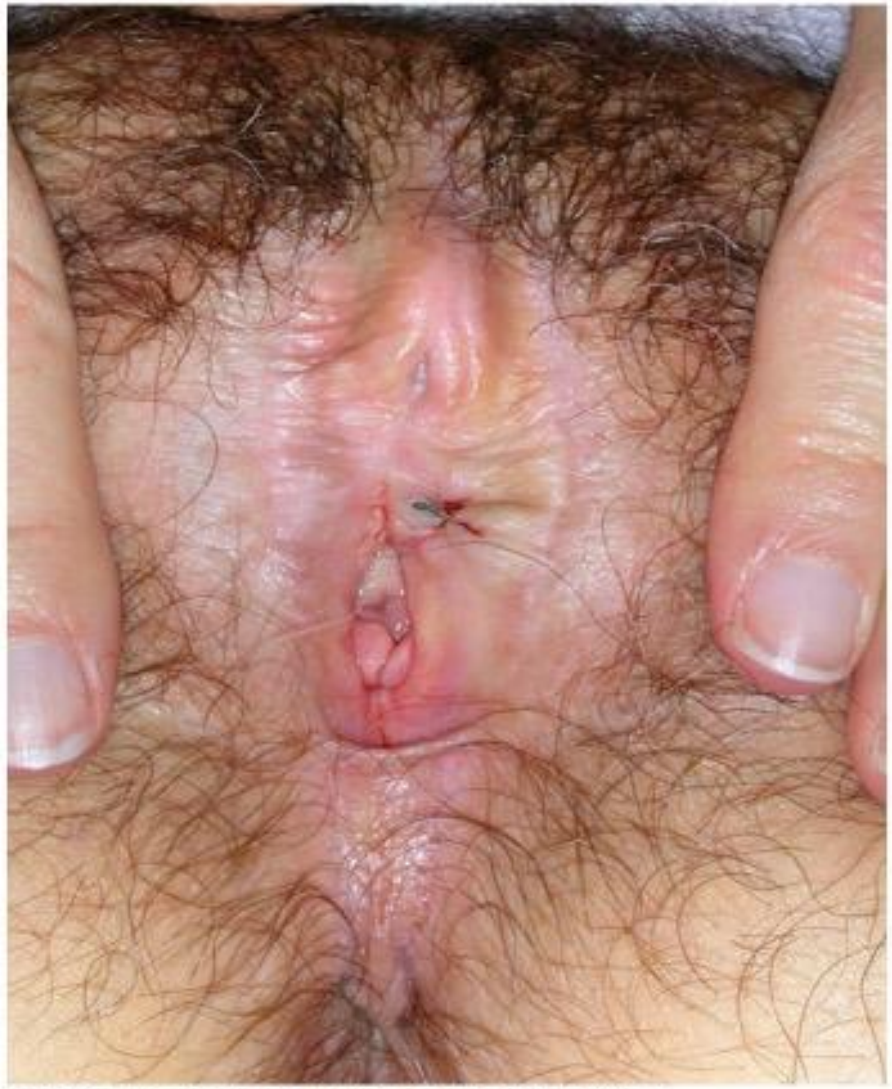
LS

- Lack of estrogen can worsen symptoms, but estrogen therapy is not curative
  - Childhood LS does not resolve at puberty due to estrogen, but symptoms may decrease
- Often misdiagnosed as yeast, HSV, or vitiligo
- 3-6% risk of developing squamous cell carcinoma
- Those with LS are likely to be less sexually active due to pain or embarrassment (vaginal intercourse, oral intercourse, masturbation)

Signs and Symptoms

Symptoms	• Pruritus • Burning • Dyspareunia • Dysuria
Signs	• “Cigarette paper” crinkling • Fissures • Waxy look
Scarring and architectural changes	• Fusion of clitoral hood • Phimosis of clitoris • Resorption of labia minora • Narrowing of introitus caused by recurrent tearing

Lichen Sclerosus



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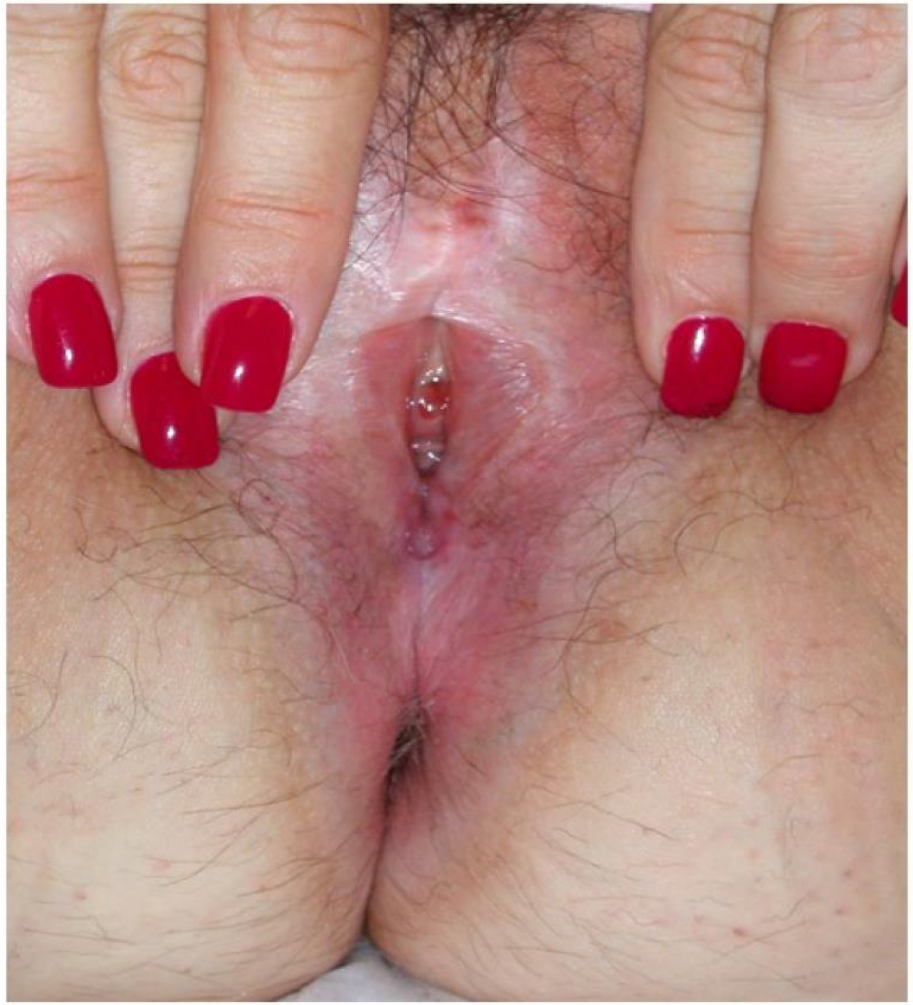
Lichen Sclerosus



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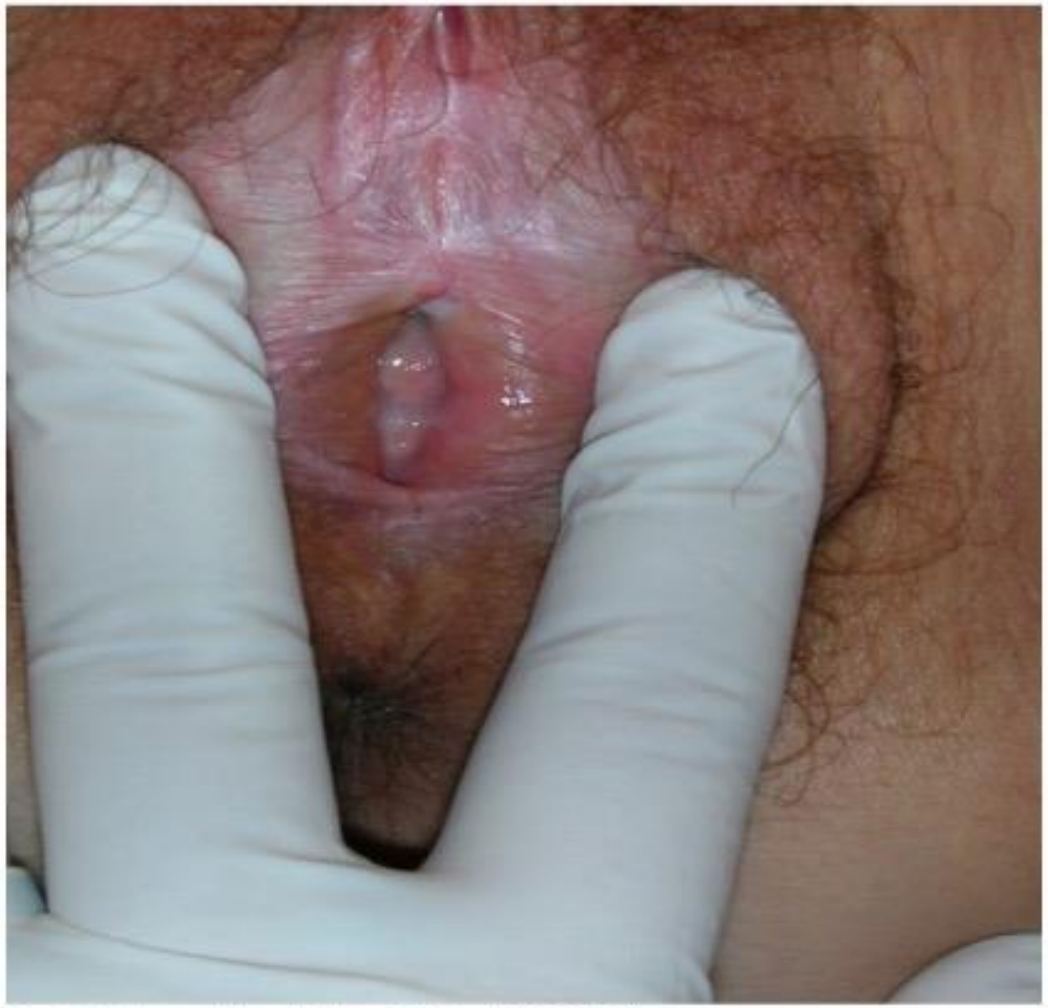

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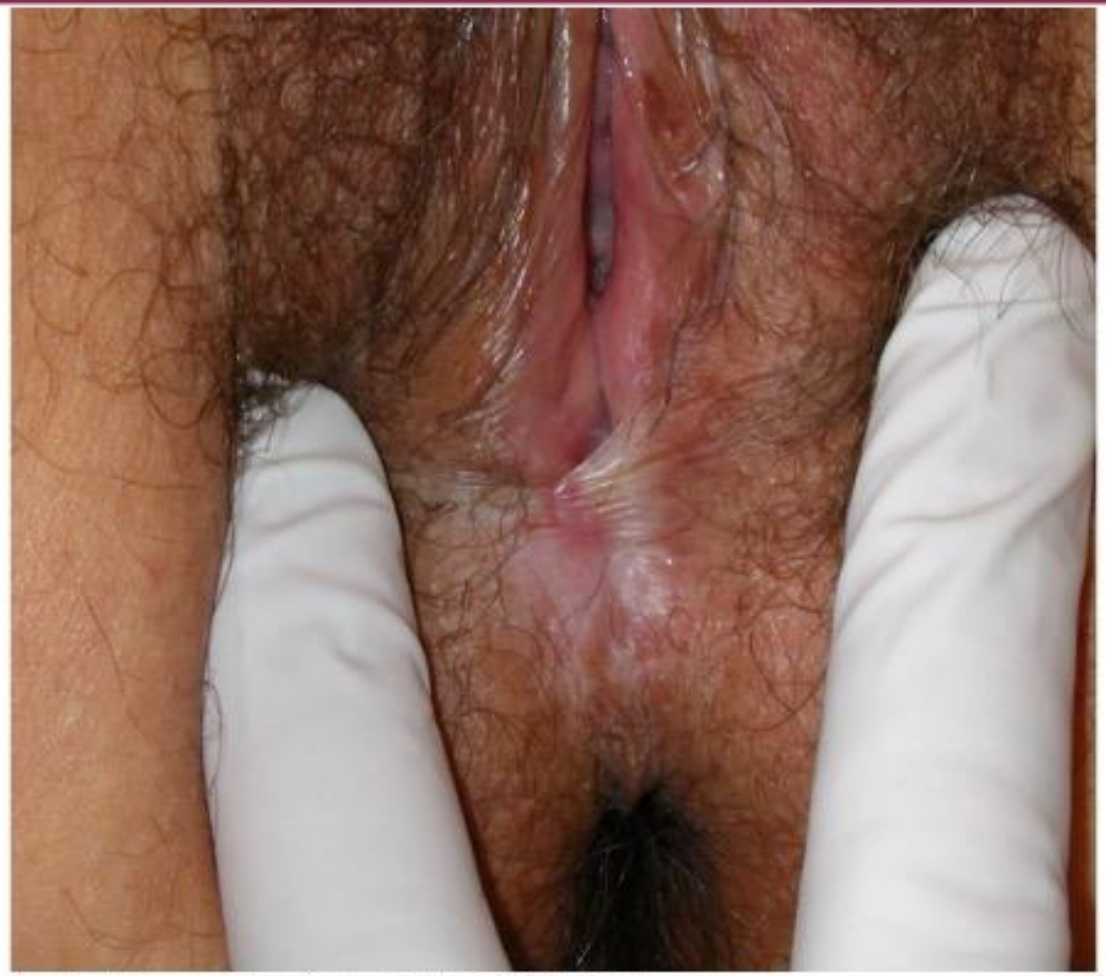
Lichen Sclerosus Confined to Perineum



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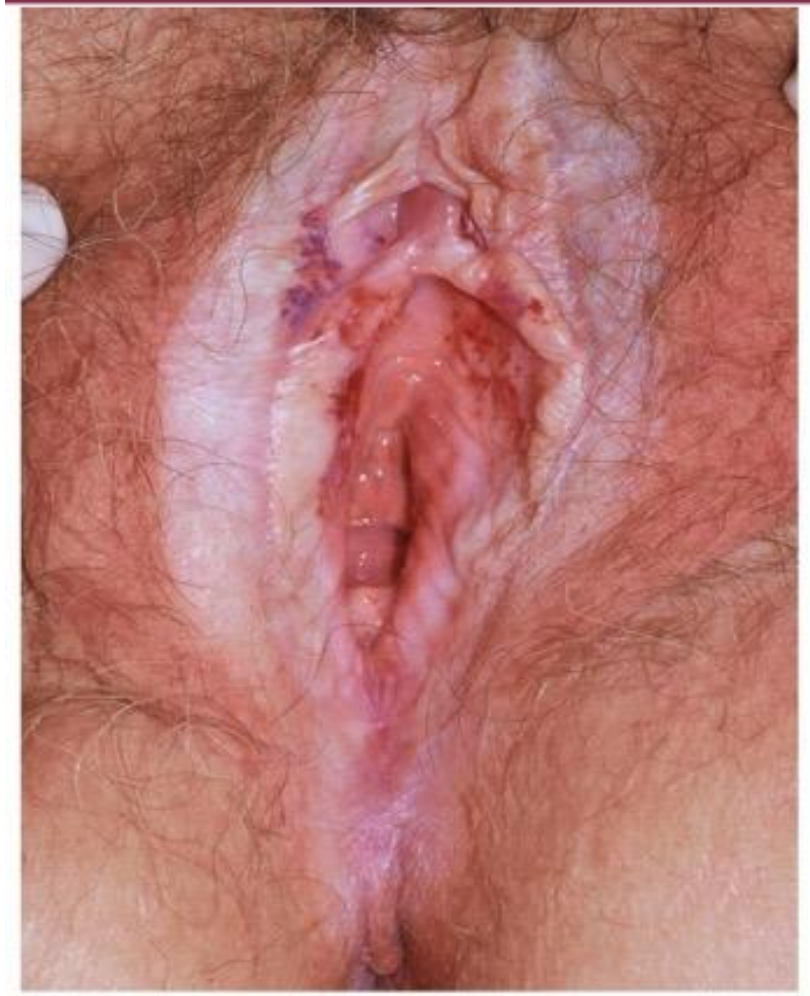
Lichen Sclerosus: Classic Presentation



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- LS is identified by loss of pigmentation, texture changes, ecchymosis, alterations in labial architecture and fissuring

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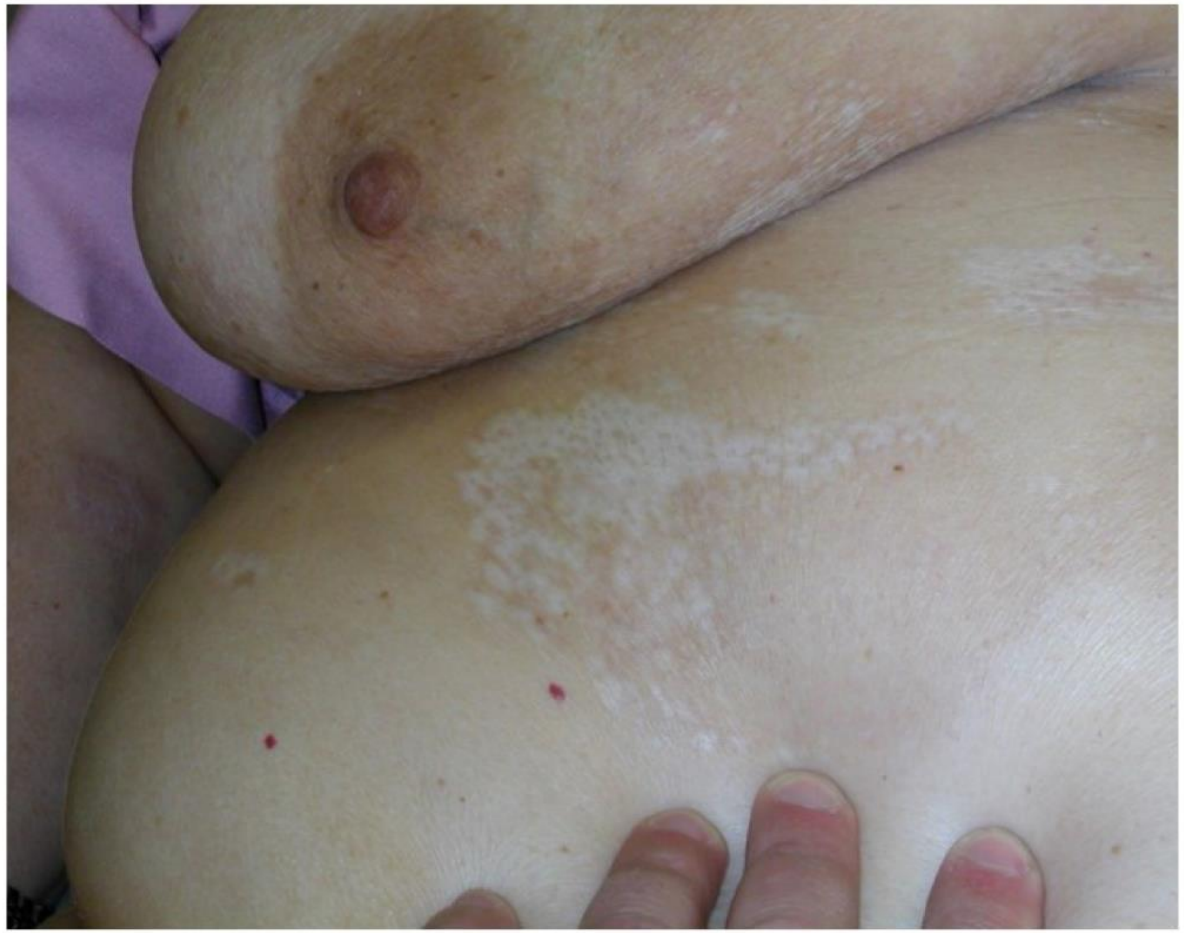
Lichen Sclerosus on Abdomen and Breast



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LS Treatment

- Clobetasol 0.05% ointment qhs after soaking
  - Taper frequency to 1-2x/wk and/or taper potency when all LS and symptoms have resolved (not just when symptoms have resolved)
  - Will likely take 4-6 weeks – re-evaluate 4 wks after starting topical steroid
- Testosterone does not work better than petrolatum ointment alone
- Vaginal or systemic estradiol is not therapeutic for LS
- Current research focused on using topical macrolide immunosuppressants

LS Treatment

Surgery may be considered if necessary for narrowing of the introitus

May also surgically correct clitoral phimosis

Only after all active disease has resolved

Follow up every 6 months

Photos with consent

Lichen Planus

- Erosive, papular, hypertrophic lesions of the vulva
  - May affect vagina as well
- Affects 0.5-2% of the population
  - Vulvar LP is a subtype of LP
- Most common in those ages 50-60
- Can co-exist with LS
  - LS NEVER extends above the hymen
- May resemble LS
  - Particularly when late agglutination and architectural distortion occurs
- Always biopsy to confirm diagnosis
- Can affect skin, mucosa, nails, and scalp

Signs and Symptoms *consistent or intermittent

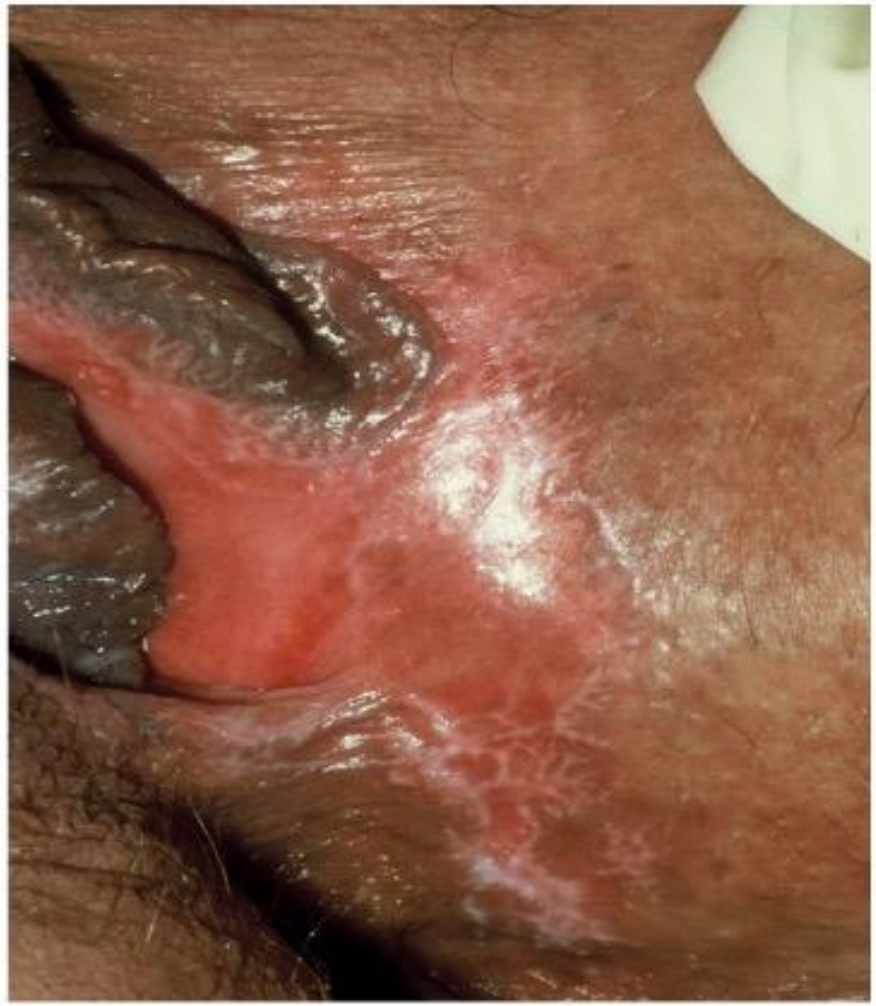
Symptoms

- Burning pain
- Severe dyspareunia
- Pruritus
- Post coital bleeding
- Vaginal stenosis
- Sticky yellow discharge

Signs

- Red plaques on mucous membranes (vulva, vagina, mouth)
- White ”lacey” edges or violaceous borders

Lichen Planus: Classic Presentation



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- LP with painful vulvar erosion and irregular white lacy border (Wickham Striae)

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Erosive Lichen Planus

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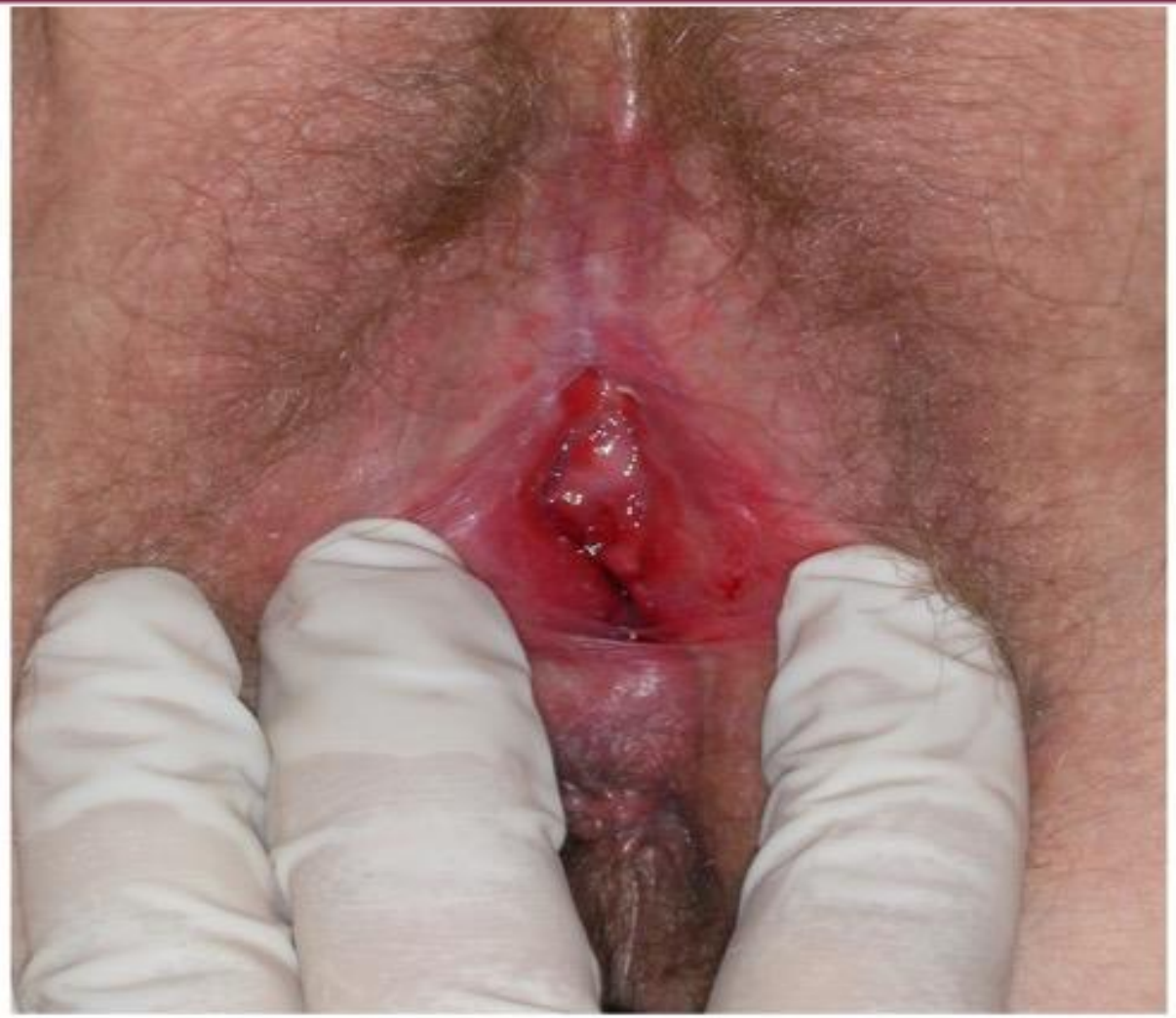
Erosive Lichen Planus



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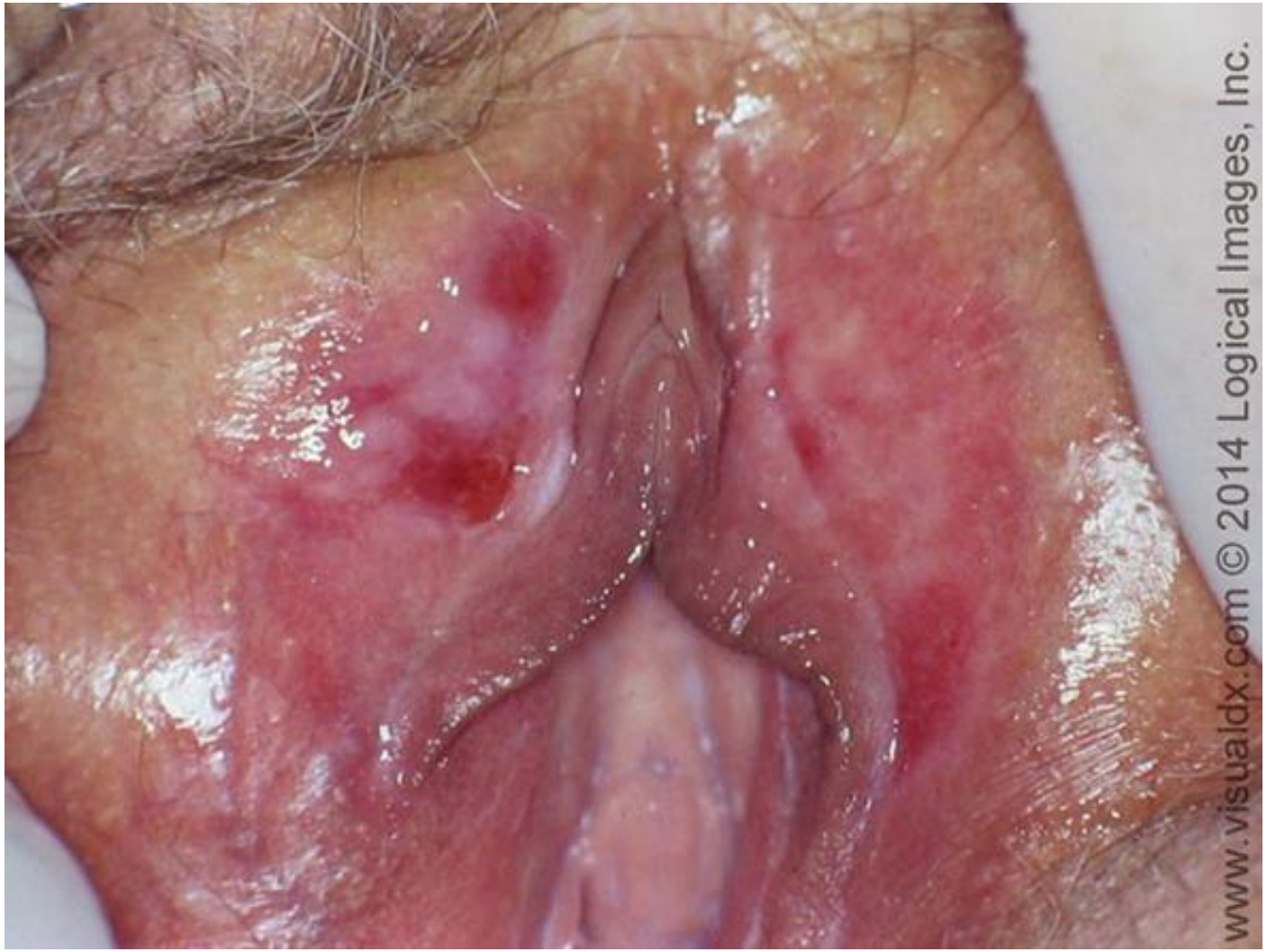
Erosive vulvar LP



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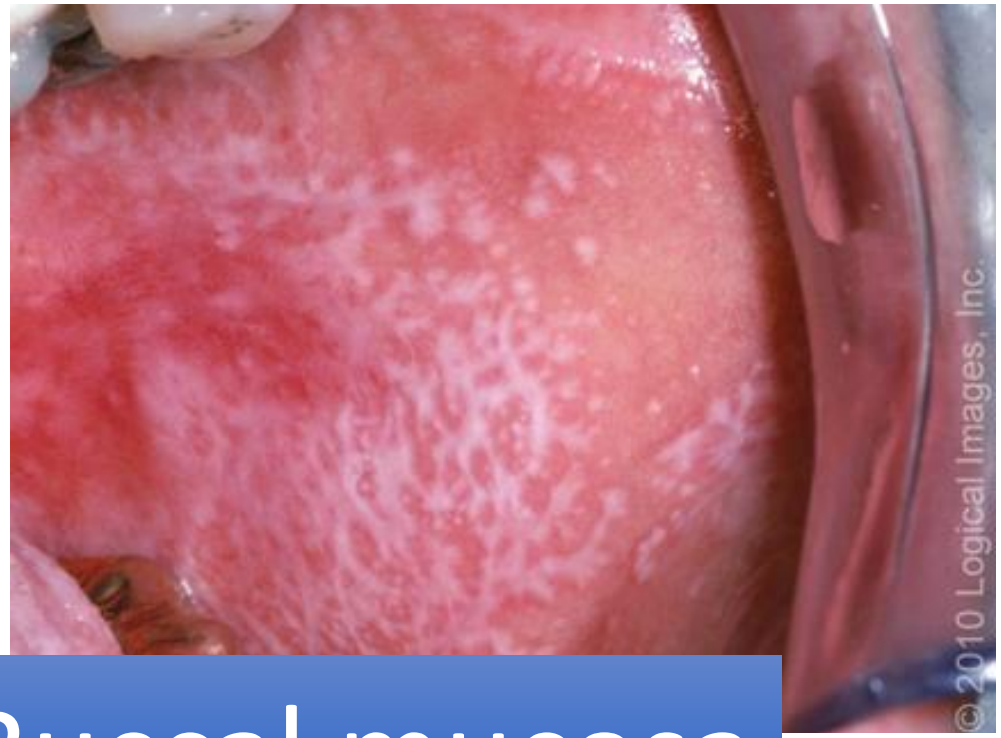
Erosive oral LP



Buccal mucosa

Gingiva

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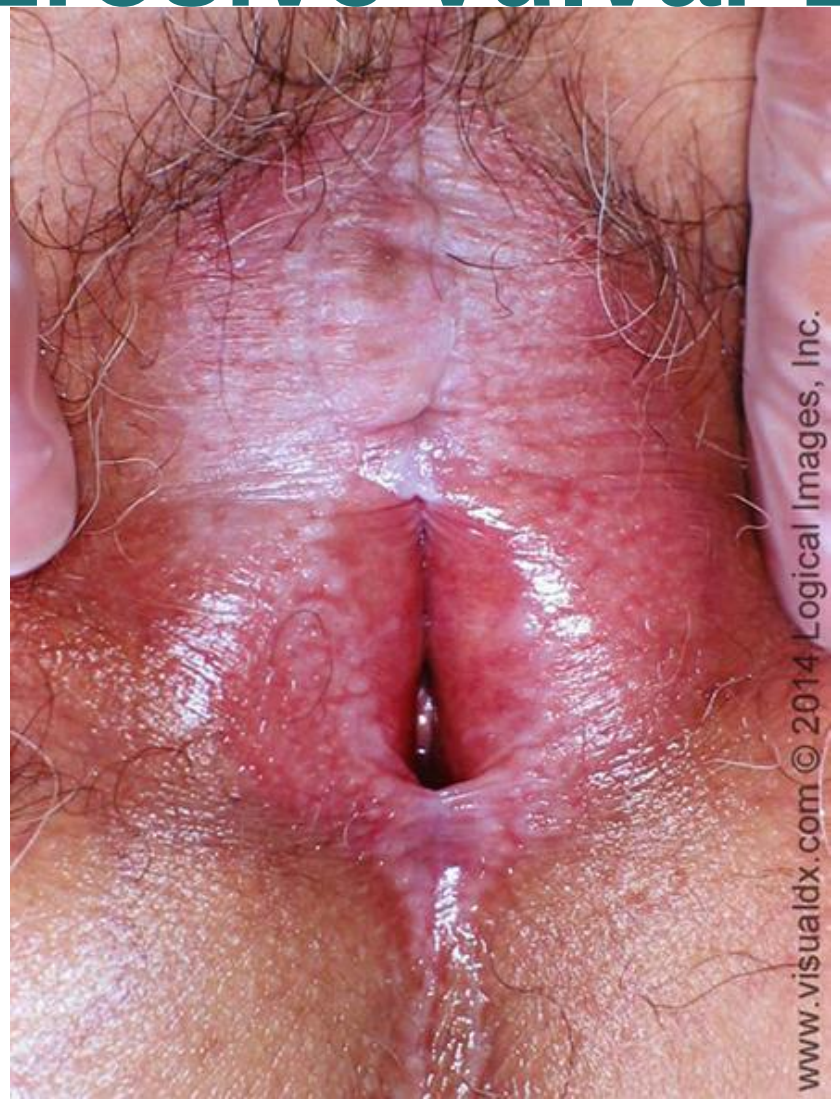
Erosive vulvar LP



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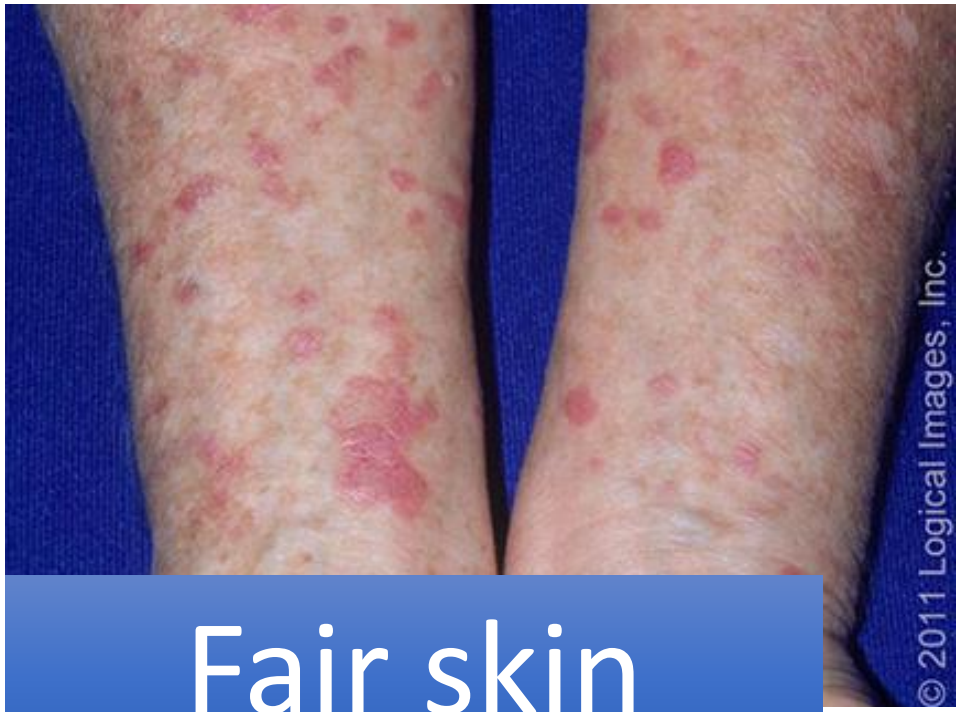
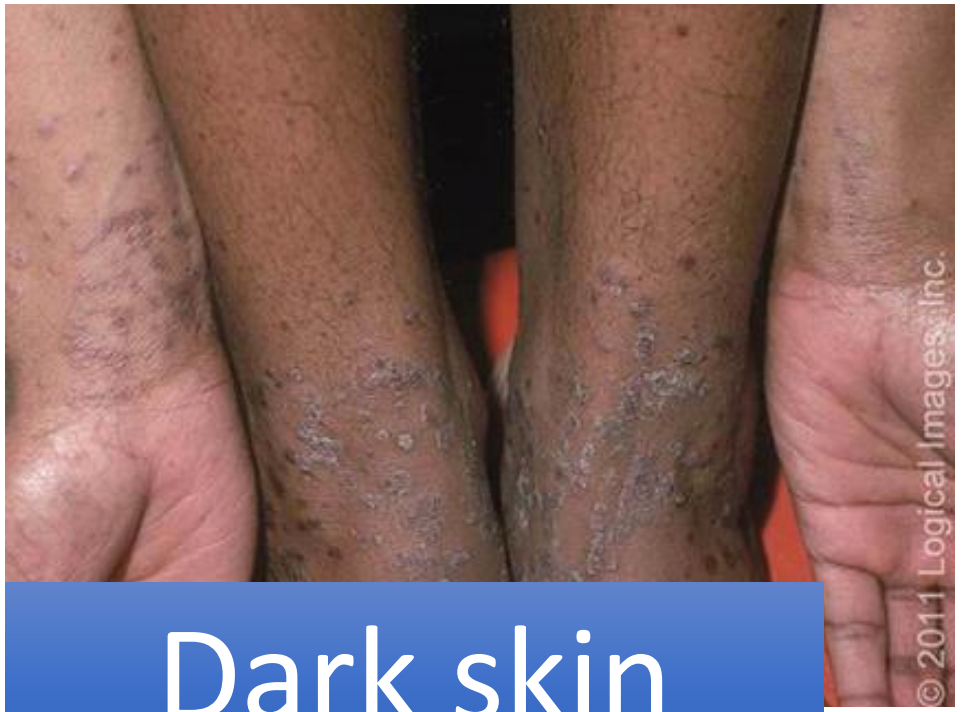
Cutaneous LP on volar wrists and ankles



Fair skin



Dark skin

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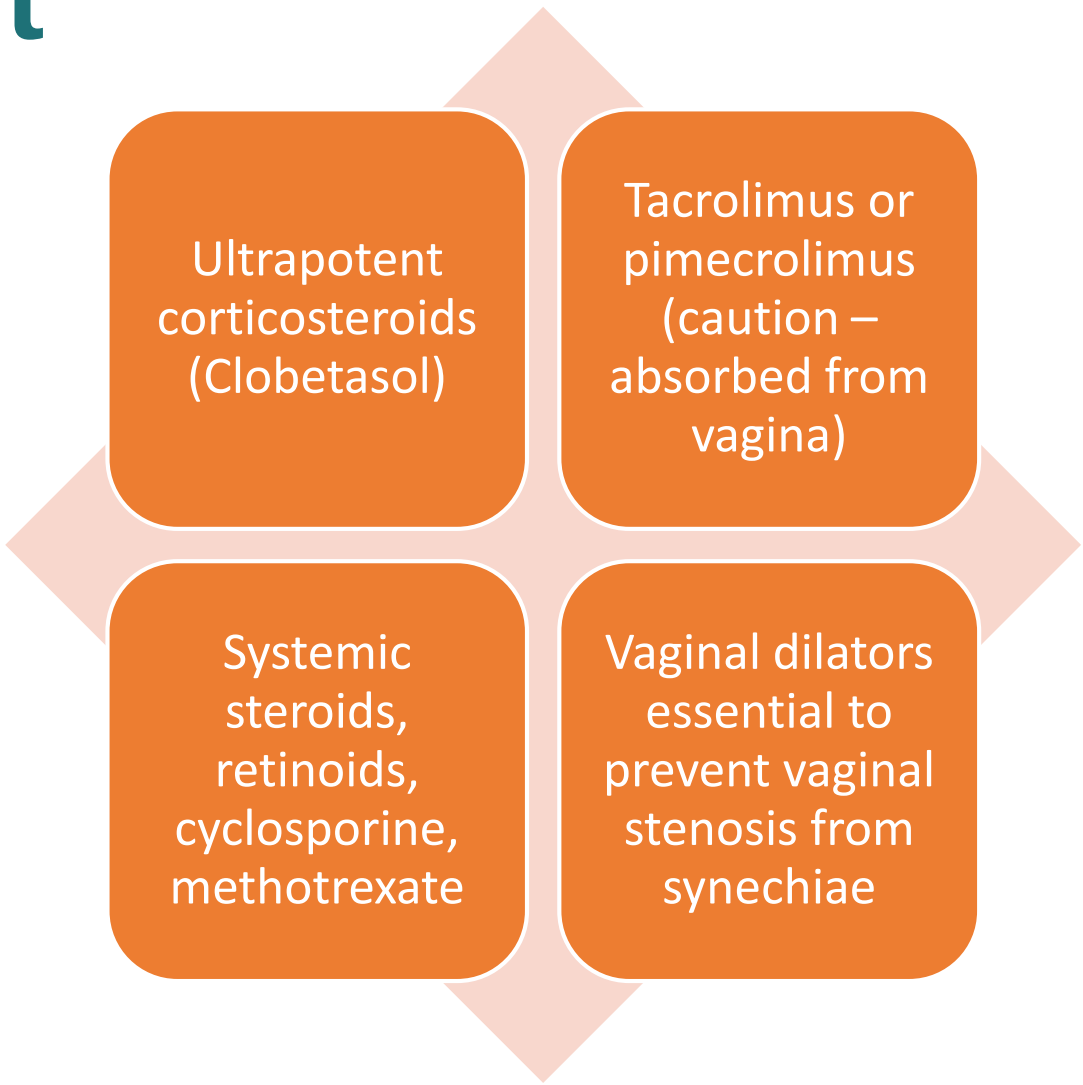
LP Treatment



Lichen Simplex Chronicus

- AKA: vulvar eczema, vulvar dermatitis, atopic dermatitis, neurodermatitis
- Triggered by:
  - Irritants
  - Allergens
  - Infections
  - Vulvar intraepithelial neoplasia
  - Mast cell/histamine mediated

Lichen Simplex Chronicus: Clinical Presentation

End stage of itch-scratch cycle

May be superinfected with yeast or bacteria

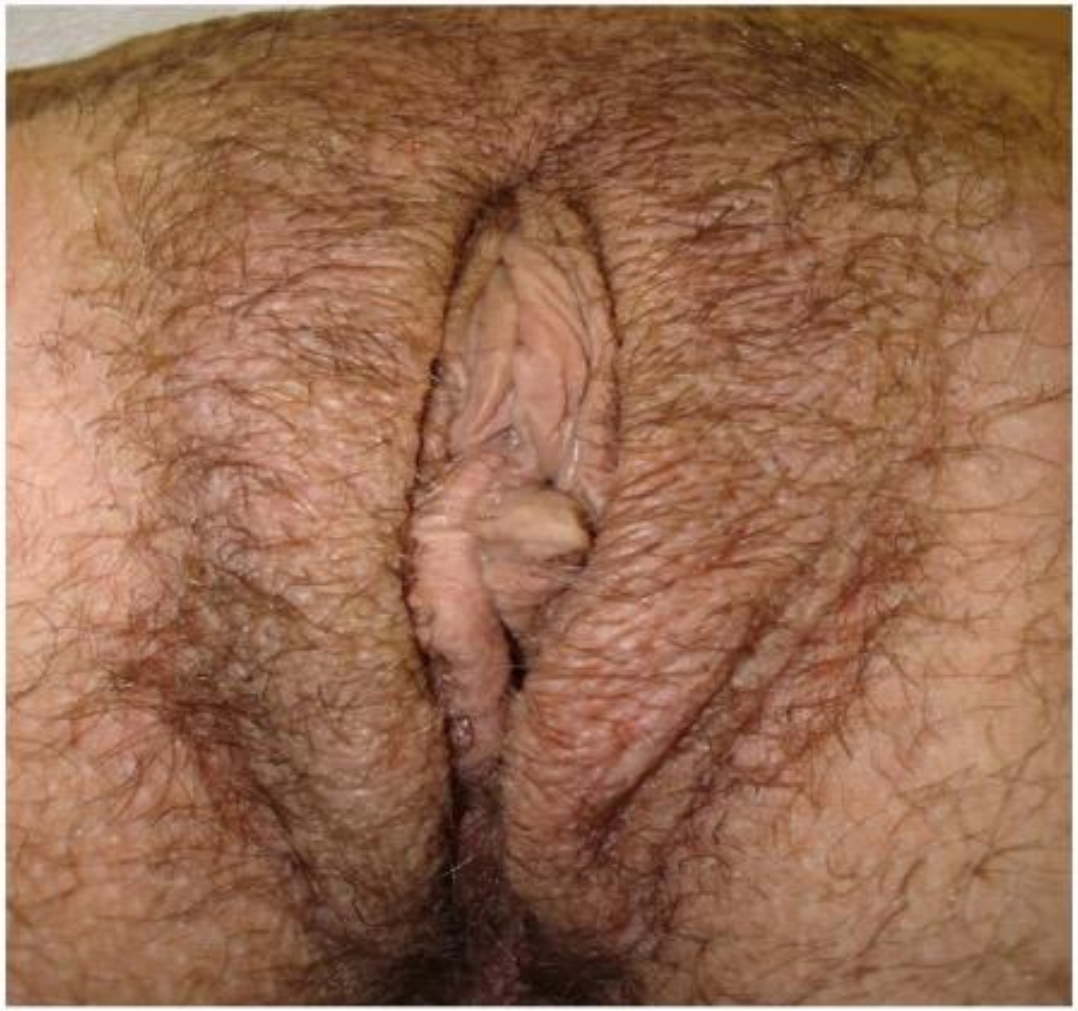
Symptoms:

- Intense pruritus
- Temporary relief with scratching

Signs

- Thick, lichenified skin
- Erythema – namely labia majora
- Potential erosions, fissuring, broken hairs, alopecia, exaggerated skin marking

Lichen Simplex Chronicus



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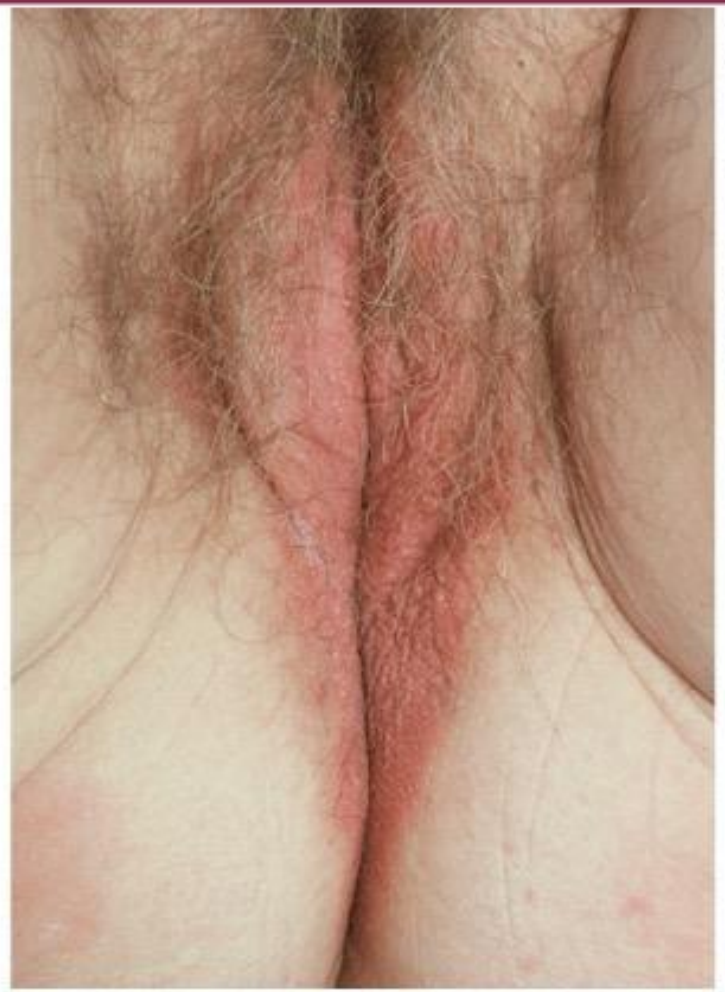
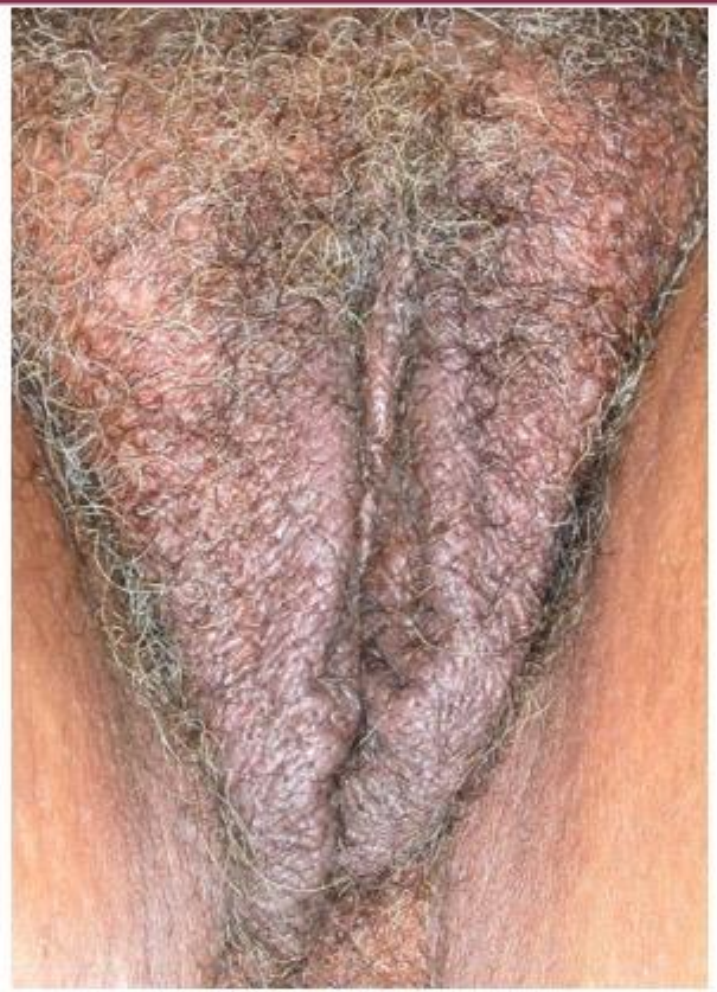
Lichen Simplex Chronicus





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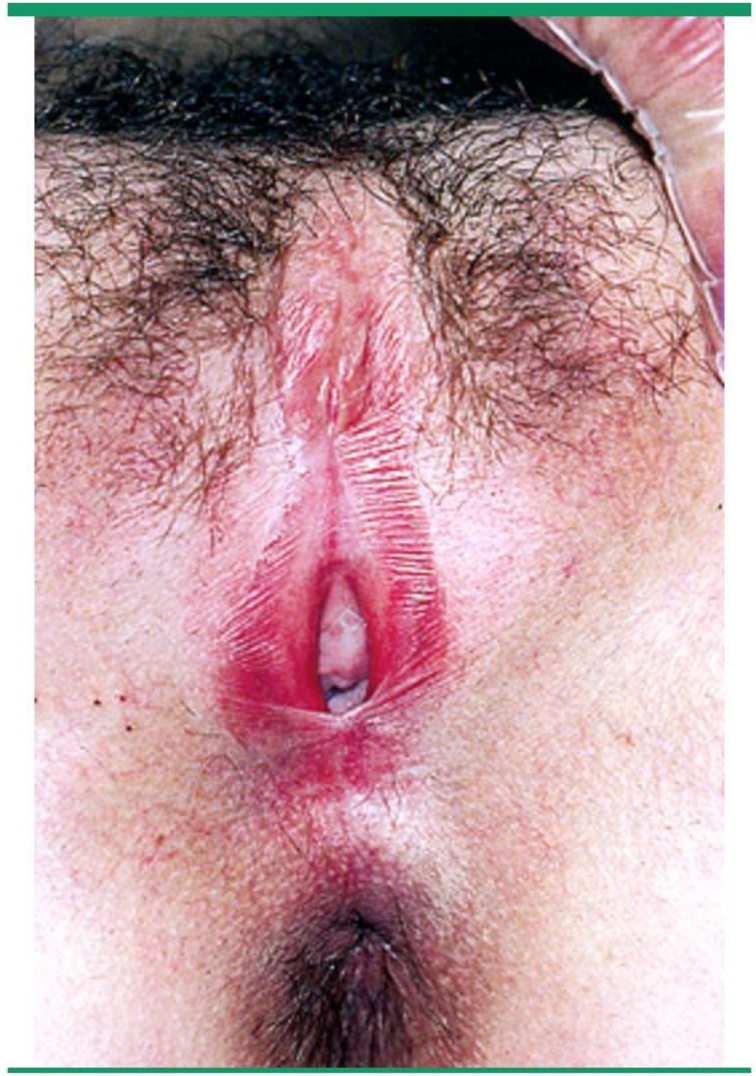
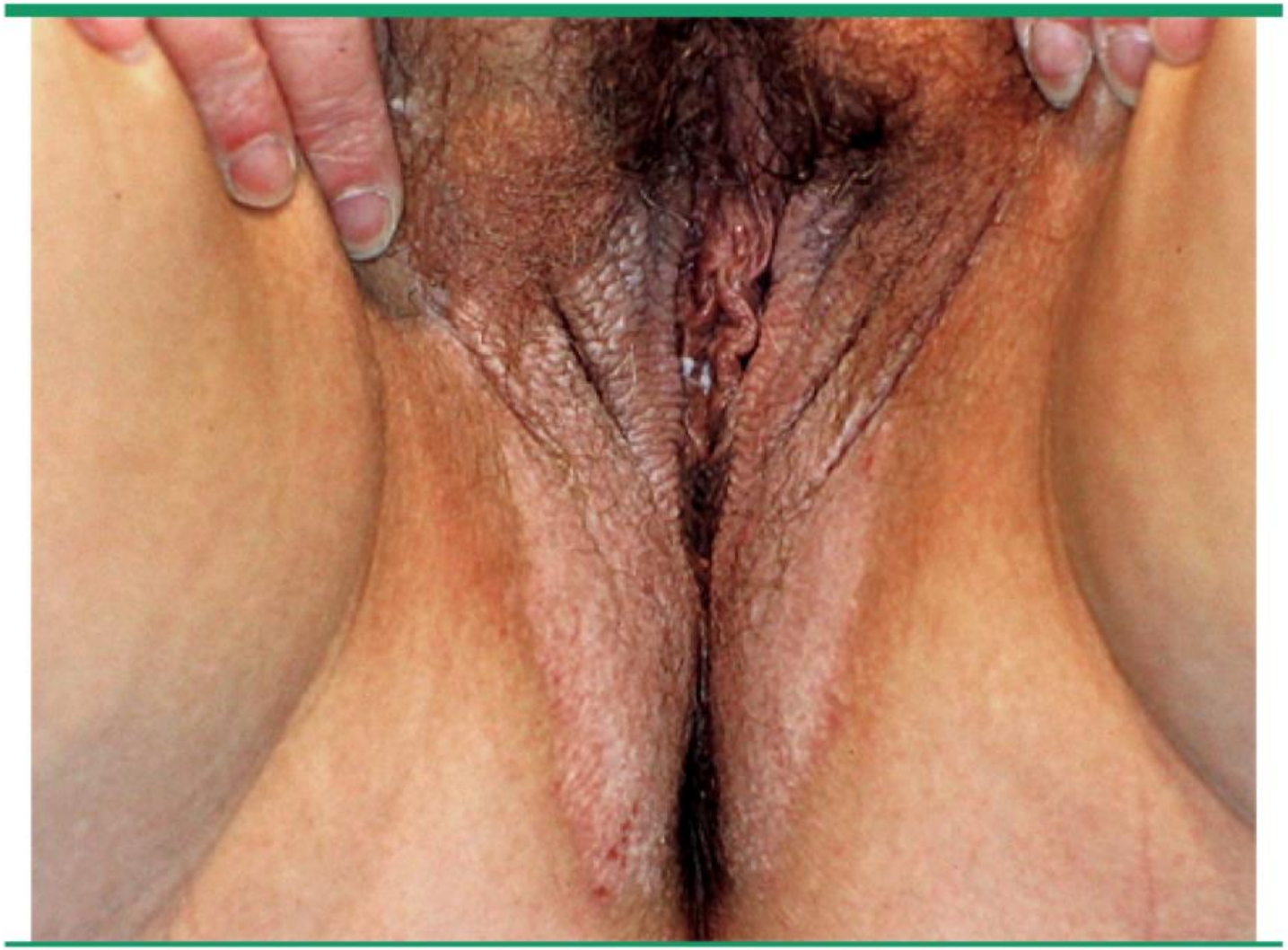
Loss of architecture



The distinction between the labia majora and minora is lost, and the clitoris becomes buried under the fused prepuce.

Vulvar lichen simplex chronicus



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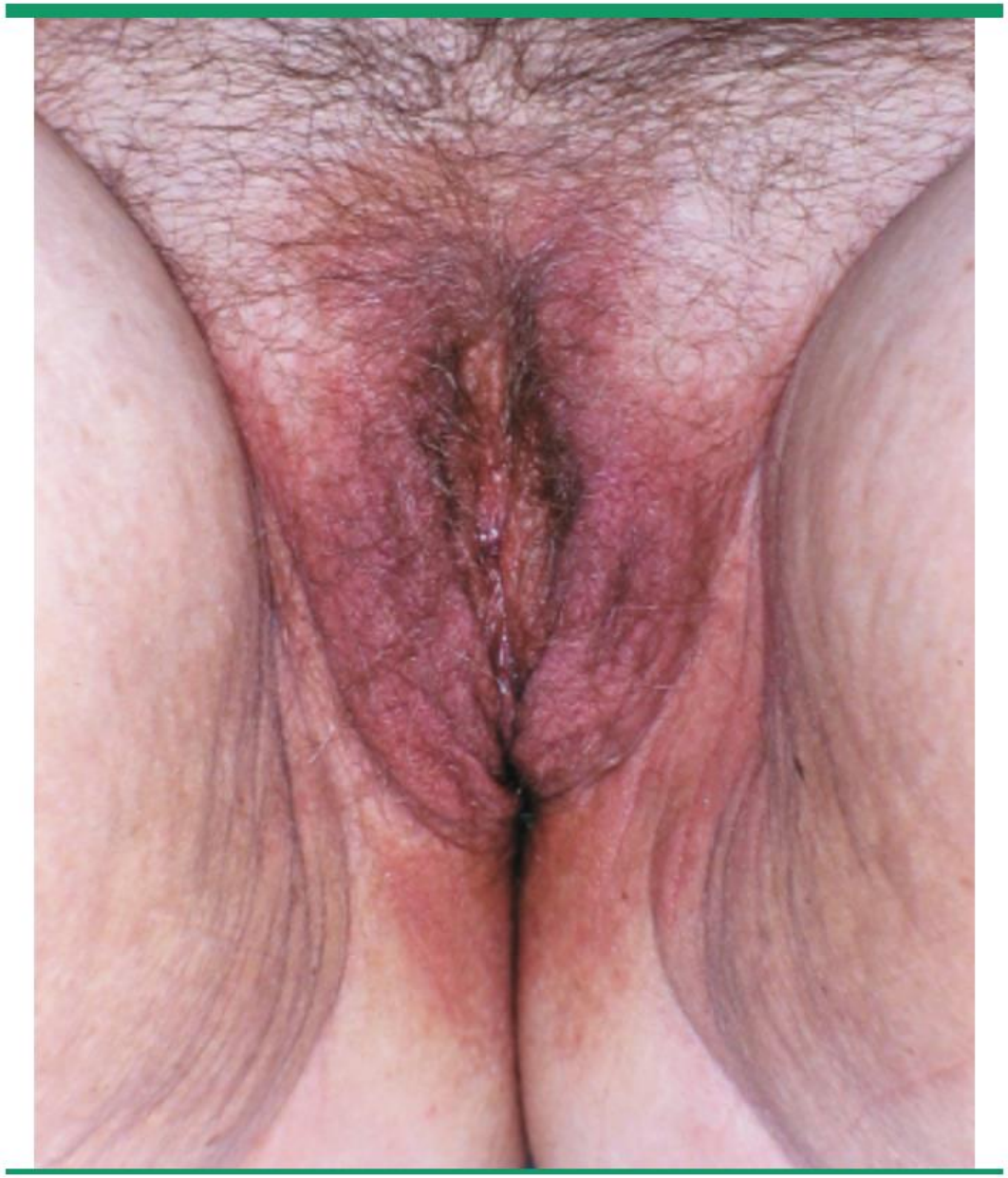
LSC Treatment

Discontinue any irritants	• Soaps, detergents, douches, lotions, etc.
Sitz baths	• Warm water 1x/d for 1—15 minutes
High potency topical corticosteroid ointment	• Rub in for 1-2 minutes
Night time routine	• Amitriptyline 10-50mg qhs • Ice packs (frozen peas) at bedtime to help prevent scratching during sleep
Treat underlying infection	• Amox/clavulanic acid + fluconazole
Current research: Pimecrolimus vs corticosteroid	

Contact dermatitis vulva



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Genitourinary Syndrome of Menopause

- AKA: Vulvovaginal atrophy, atrophic vaginitis, urogenital atrophy
- Can occur in any low estrogen state
  - Postpartum
  - Breastfeeding
  - Antiestrogenic medications
  - Hypothalamic amenorrhea
  - Pre-/peri-menopausal
- Multiple surveys from 2008 to present on patient views of the impact of GSM
  - Consistent finding of negative impact of GSM on sexual health
  - Barriers to treatment

Numerous barriers

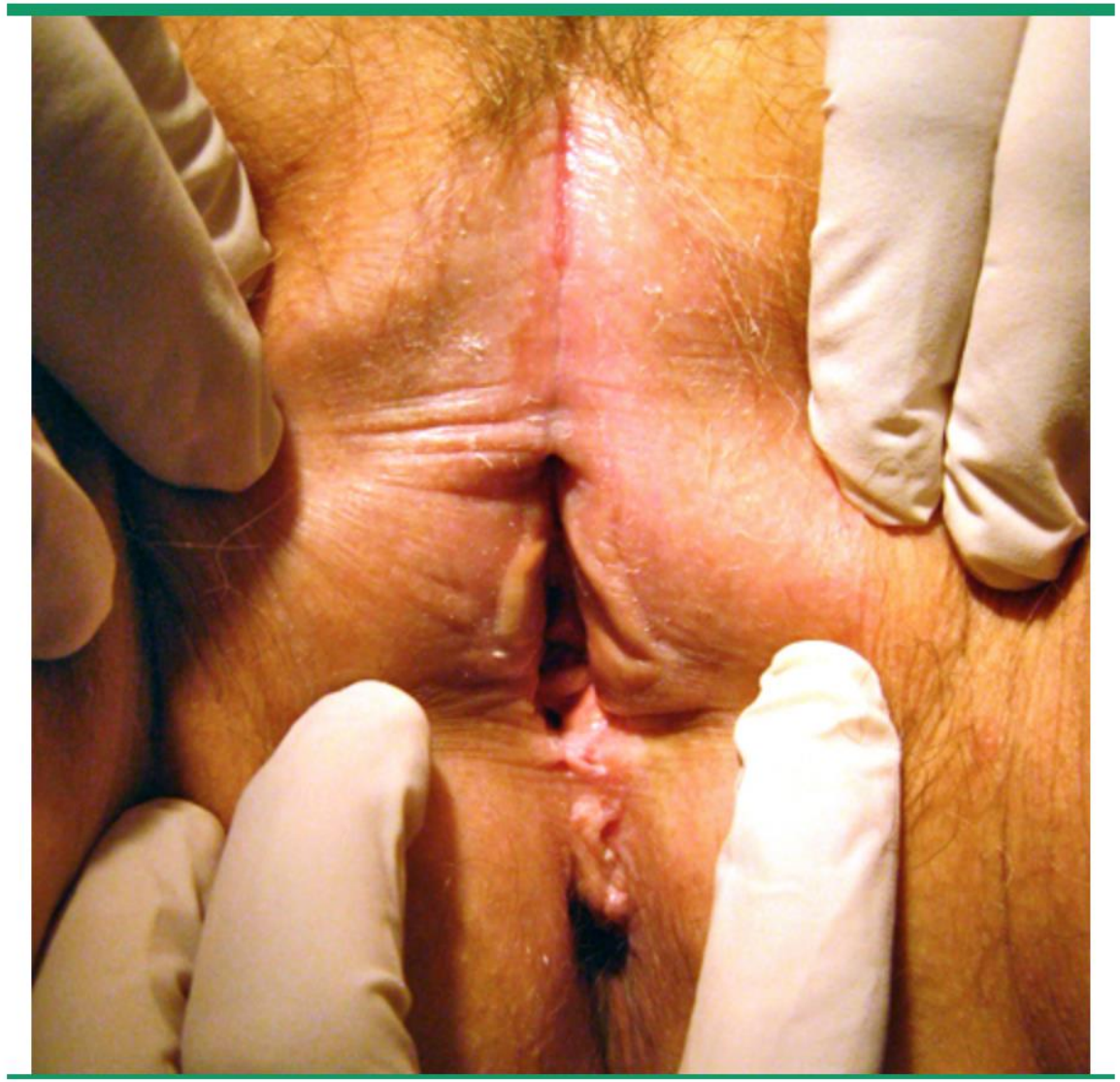
- 70% of women with GSM have not discussed it with the HCP
- 30% of women with GSM had not spoken to anyone
  - Embarrassment, private, doesn’t concern others, just part of growing old, others don’t want to hear about vaginal problems
- 31% prefer that HCP initiate the conversation
- Ageism, sexism, lack of awareness, cultural factors

Prevalence of GSM

- Estrogen maintains thick, robust, rugated vaginal tissue which is rich in glycogen – ultimately maintains acidic vaginal environment
- Prevalence of vaginal dryness:

Reproductive age	Early menopausal transition	Later menopausal transition	3 yrs post menopause
3%	4%	21%	47%

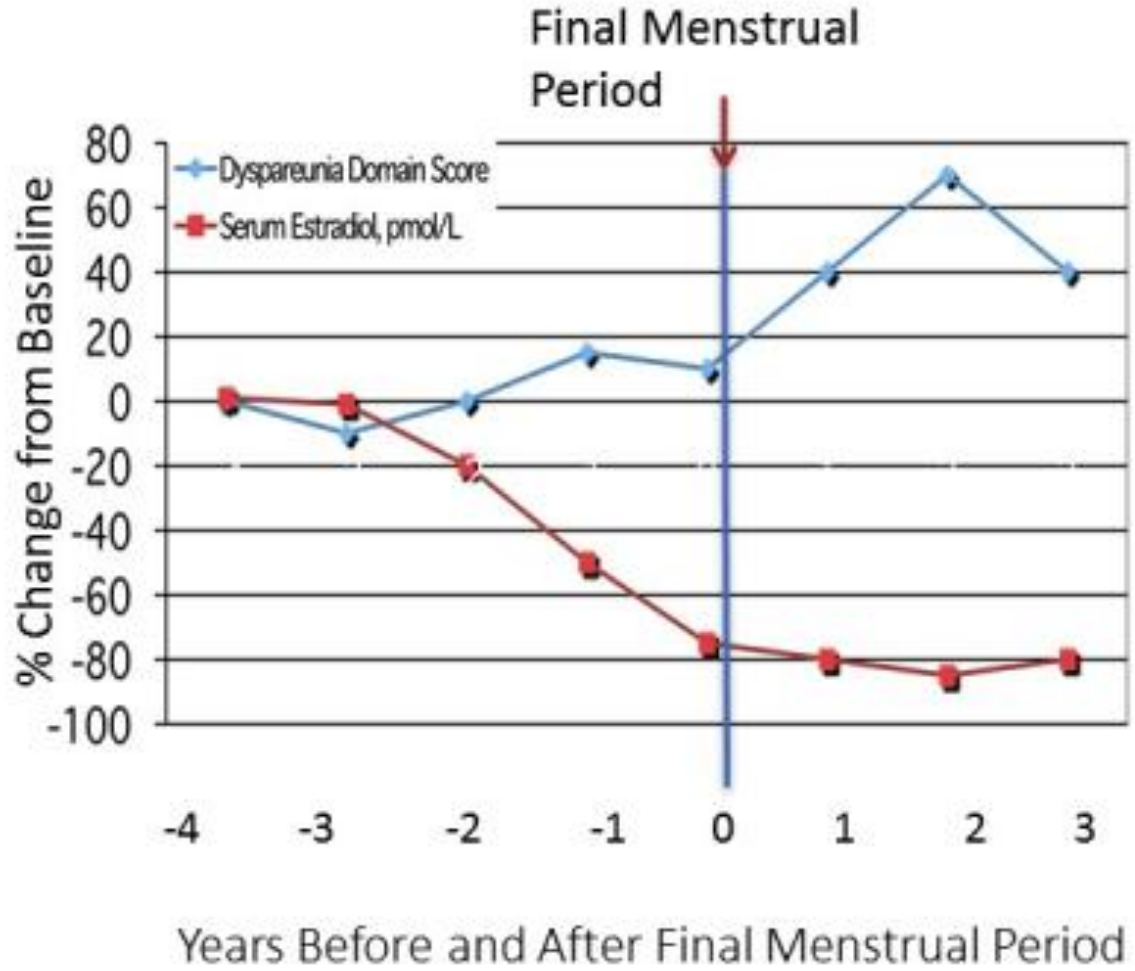
Atrophic vaginitis



External genitalia show scarce pubic hair, diminished elasticity and turgor of the vulvar skin, decreased introital moisture, and fusion of the labia minora.

Courtesy of Aron Schuftan, MD.

Estrogen Decline and Dyspareunia



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Diagnosis

- Made clinically based on signs and symptoms
- Assess degree of introital stenosis with a gloved finger prior to attempting to insert pediatric speculum
- Labs available, but typically not necessary
- pH if possible

GSM Signs and Symptoms

- Dryness and insufficient moisture
- Dyspareunia
- Itching
- Burning
- Soreness
- Tightness
- Loss of elasticity
- Recurrent UTIs
- Urinary symptoms
- Thinning of vaginal tissue
- Vaginal discharge
- pH > 5.0
- Mucosal defects (petechiae, microfissures, ulcerations, inflammation)
- Shortening, fibrosis, obliteration of vaginal vault
- Narrowing of introitus
- Smoothing of fornix, flattening of vaginal rugae
- Diminished blood flow
- Erythema early, pallor later

Non-prescription therapies for GSM

- Moisturization
- Lubrication
- Dilation
- Massage
- Vibration

Prescription therapies for GSM

- Local therapies vs oral therapies
- Vaginal estrogen
- Vaginal testosterone (compounded)
- Vaginal DHEA
- SERM - Ospemifene

Vaginal estrogen preparations

- Low dose local treatment
  - <= 50mcg estradiol or <=0.3mg conjugated estrogen/0.5mg cream
- Estradiol 10mcg tablets (*Vagifem, Imvexxy*) q hs x 2 wks, then 2-3 nights a week
- Estradiol 7.5mcg ring (*Estring*) inserted and replaced every 90 days
- Estradiol 100mcg/1g crm (*Estrace*) 2-4g PV qhs x 2 wks, then 1g 2-3 nights a week
- Conjugated estrogen 0.625mg/1g crm (*Premarin vaginal*) 0.5-2g PV qhs x 2 wks, then taper to maintenance dose 2-3 nights a week
- Protection of the uterine lining with a progestin for **low dose** vaginal estrogen therapy is not necessary
- Estradiol 50-100mcg ring (*Femring*) – administered vaginally but this is a **SYSTEMIC** therapy!!!

Systemic absorption of vaginal estrogens

Table 1. Estradiol Preparations and Maximum Annual Delivered Dose

Product name	Route/Type of administration	Typical regimen	Nominal daily delivery rate or administered lowest approved dose (mg/day)	Typical serum level (pg/mL)	Maximum annual delivered dose (mg)[1]
Vaginal estradiol					
Vagifem	Vaginal tablet	1 Tablet daily × 14 then 2 × weekly	10 μg	4.6	1.14
Estring	Vaginal ring	1 Ring vaginally q 3 months	7.5 μg	8.0	2.74
Estrace	Vaginal cream	1 g cream vaginally q week[2]	variable[2]	NA	7.1
FemRing	Vaginal ring	1 Ring vaginally q 3 months	0.05 mg	40.6	18.25
Oral estradiol					
Estrace tablets and generics	Oral tablet	1 Tablet p.o. qd	0.5 mg	55.4	182.5
Transdermal estradiol					
Divigel[3]	Gel	0.25 mg packet qd	0.003	9.8	1.09
Estrogel	Gel	0.75 mg/pump qd	0.035	28.3	12.78
Evamist[3]	Spray	1.53 mg spray qd	0.021	19.6	7.67
Climara[4]	Patch	1 Patch weekly	0.025	22	9.13
Menostar	Patch	1 Patch weekly	0.014	13.7	5.11
Vivelle-Dot[5]	Patch	1 Patch twice weekly	0.0375	34	12.78

WOMEN'S HEALTH COLLECTIVE

Ospemifene (Osphena)

- Selective Estrogen Receptor Modulator (SERM)
- 60mg PO qd with a light snack
- Estrogen agonist in vagina
- Appears to have no clinically significant estrogenic effect on endometrium or breast
- Side effects
  - Hot flashes!
  - Potential risk of VTE

Vaginal DHEA

- Prasterone (Intrarosa) 6.5mg inserts PV q hs
- Approved 11/2016
- Precursor of sex steroids
  - Converted intracellularly into active androgens and/or estrogens
  - Specifically testosterone and estradiol
- Systemic levels remain similar to that of unsupplemented postmenopausal women at 52 weeks
- Did note a small but significant increase in estrone (not estradiol) levels systemically – but still within normal postmenopausal levels
- As with low dose estrogen preparations – unknown effect with small increases in systemic levels

Vulvodynia Definition:

- Vulvar pain of at least 3 months duration, without clear identifiable cause, which may have potential associated factors (2015 Consensus terminology)
- Localized, Generalized, or Mixed
- Provoked, Spontaneous, or Mixed
- Onset – Primary or Secondary
- Temporal pattern – intermittent, persistent, constant, immediate, delayed

Associated factors

- Co-morbid with other pain syndromes (BPS, fibromyalgia, IBS, TMJ)
- Genetics
- Hormonal factors
- Inflammation
- Musculoskeletal (overactive pelvic floor)
- Neurologic (Central or Peripheral)
- Psychosocial
- Structural defects

Introital dyspareunia and vulvar pain:
A diagnostic and treatment algorithm

- Vulvodynia.com
  - Publications
    - Vulvodynia
      - Dyspareunia and pain algorithm

WOMEN'S HEALTH COLLECTIVE

Vulvodynia physical exam

- Let the patient know they are in charge
- Ask them to let you know if they need a break or if they would like you to stop the exam at any time
- AVOID saying “relax”
- Let them know when and where you plan to touch them
- Demonstrate the pressure you will use on another body part
- Significantly important with a history of abuse
- Ask if they do yoga – recommend yoga breaths
  - If not, walk them through some breathing techniques

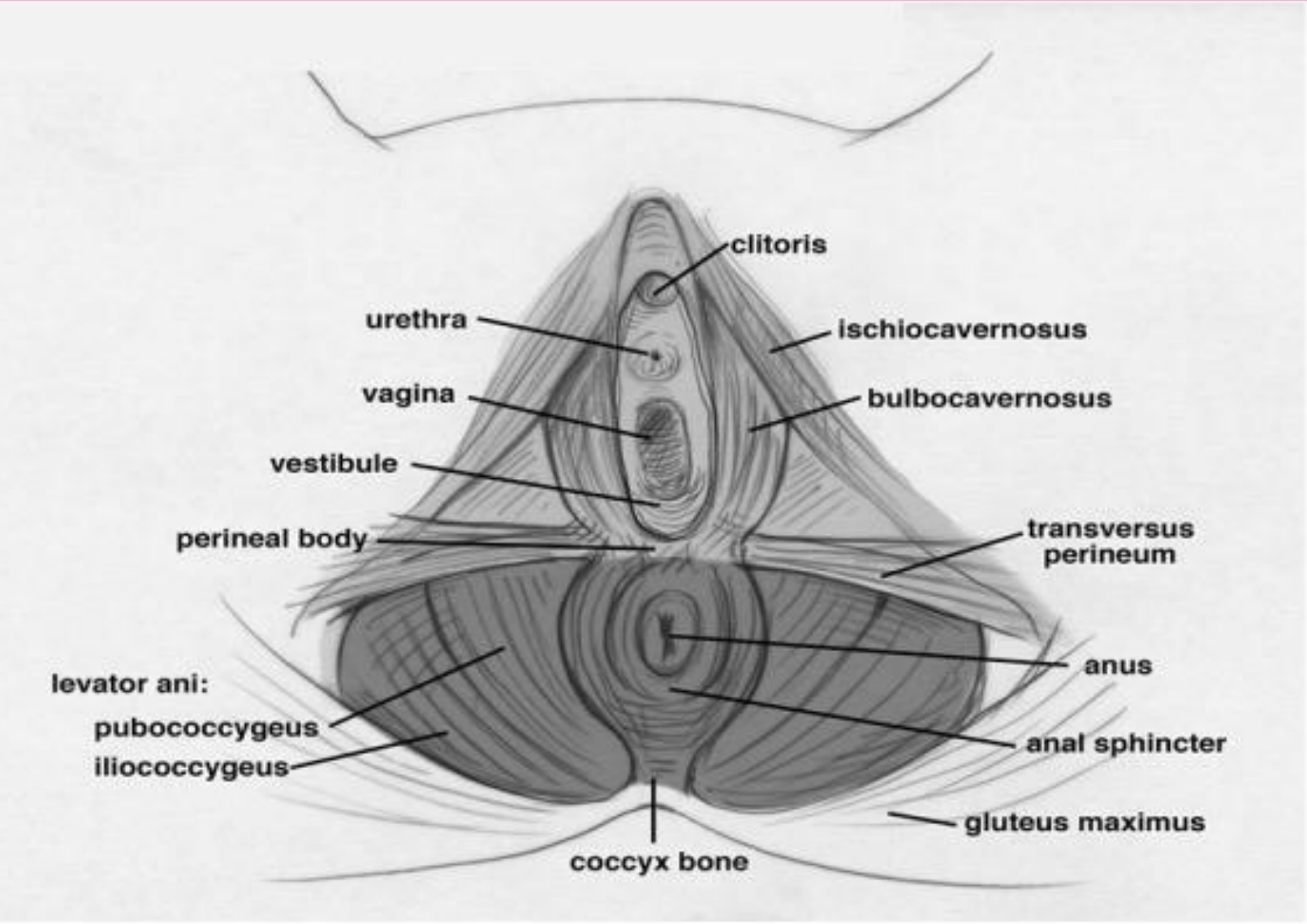
Q tip test

Current standard assessment for evaluating for provoked vulvodynia
1:00, 3:00, 5:00, 6:00, 7:00, 9:00, 11:00 all tested randomly
Pain rating scale x/10 at each location
Make sure your system of mapping out vestibular regions is reproducible
Wet cotton swab

Overactive pelvic floor

Holding urine or stool	Postural abnormalities	Prolonged lack of motion	Leg length discrepancies
Gait abnormalities	Pelvic girdle abnormalities	Pregnancy	Labor and delivery
Running	Gynecologic surgery	Anxiety	Sexual abuse history

Pelvic Floor Muscles



his image was published in the Journal of Sexual Medicine, Vol 46. Bancroft J, Graham CA, Janssen E, Sanders SA. The dual control model: current tatus and future directions. Copyright Elsevier 2009.

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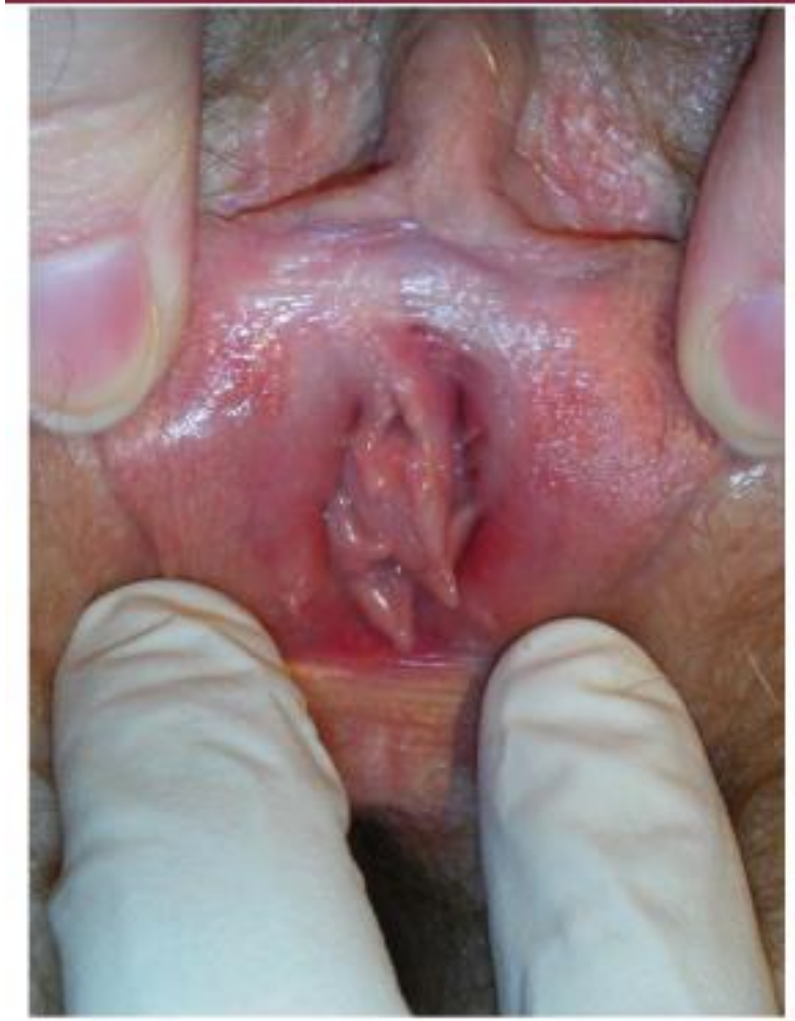
Symptoms of overactive pelvic floor

Vulvar Pain	Vulvodynia
Dyspareunia	Superficial or deep
Vaginismus	Pain with tampon use
Pelvic Pain	Abdominal pain
Hip pain	Low back pain
Coccodynia	Rectal pain/fullness
Vulvovaginal burning	
Urinary urgency/frequency	

Vestibulodynia: Exam and Lab Findings



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- Diffuse vestibular tenderness
- Ostia of glands are frequently erythematous
- Vestibule may have diffuse pallor with superimposed erythema
- Low estradiol, low free testosterone, very high SHBG

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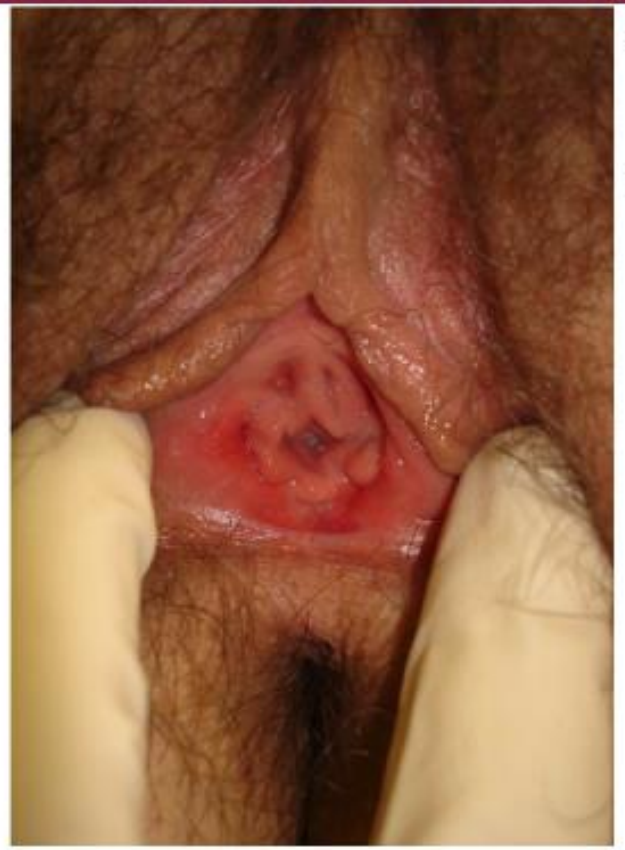
Hormonally Mediated Vestibulodynia

Hormonally-Associated Persistent Vulvar Pain



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- Commonly caused by hormonal contraceptives
- Other causes include:
  - Menopause
  - Oophorectomy
  - Hormonal control of endometriosis or hirsutism
  - Breast-feeding
  - Infertility treatments
  - Treatment of breast cancer

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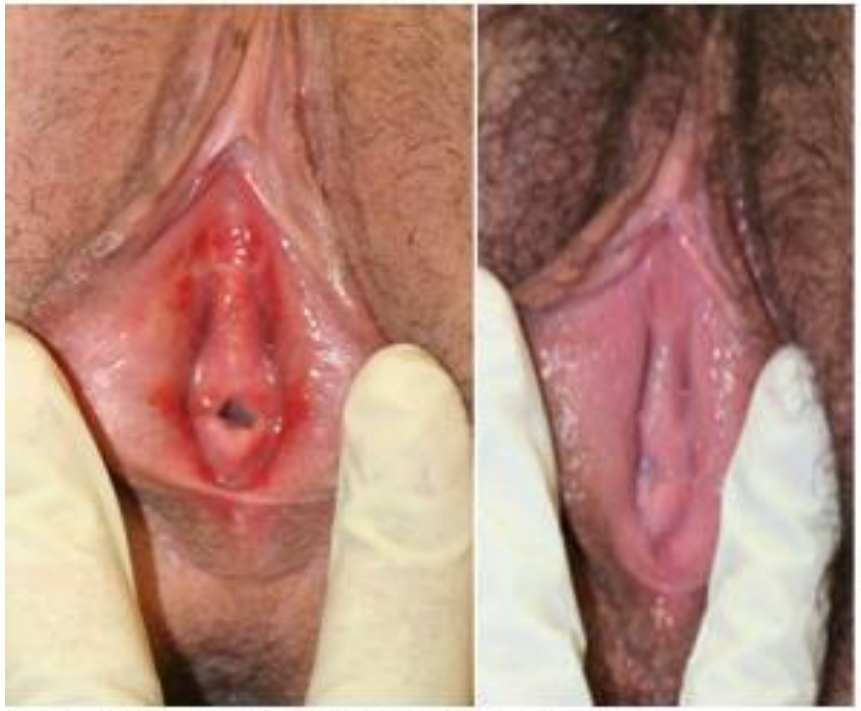
Hormonally-Medicated Vestibulodynia



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- Stop hormonal contraceptives
- Consider topical estradiol 0.03%/testosterone 0.01% in base (e.g., versabase) twice daily to vestibule
- Improvement- none expected at 6 weeks, 50% at 12 weeks

- Clinical experience suggests estradiol 0.01%/testosterone 0.01% may also be effective.

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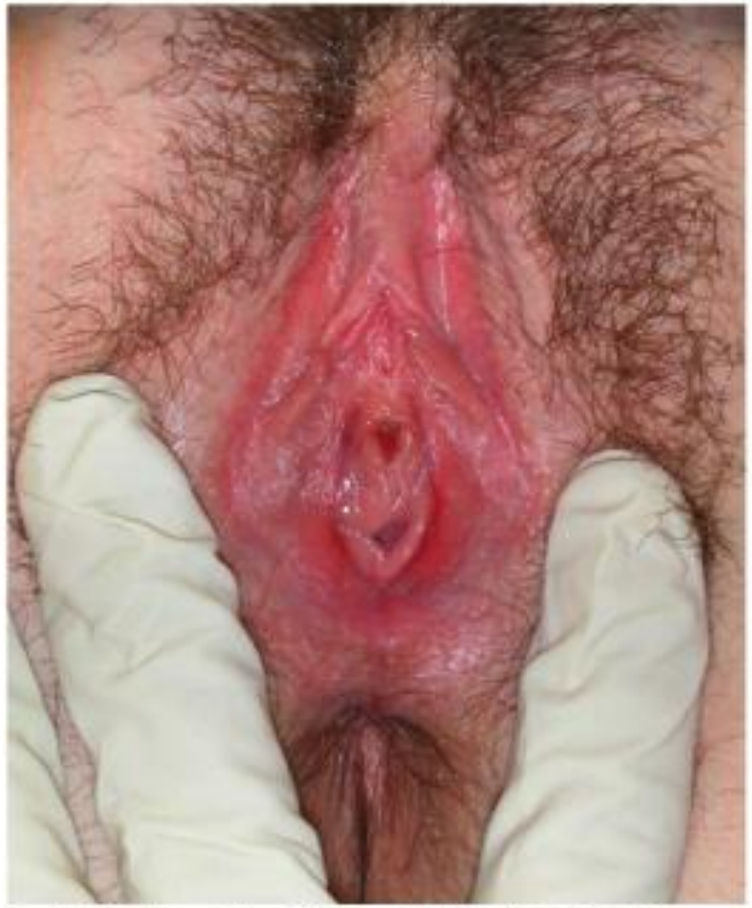
WOMEN'S HEALTH COLLECTIVE

Congenital Neuroproliferative Vulvodynia



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- Increased density of C-afferent nociceptors in the vestibular mucosa.
- Nociceptors extend into the superficial dermis
- Primary: congenital neuronal hyperplasia in the primitive urogenital endoderm.
  - Umbilical hypersensitivity

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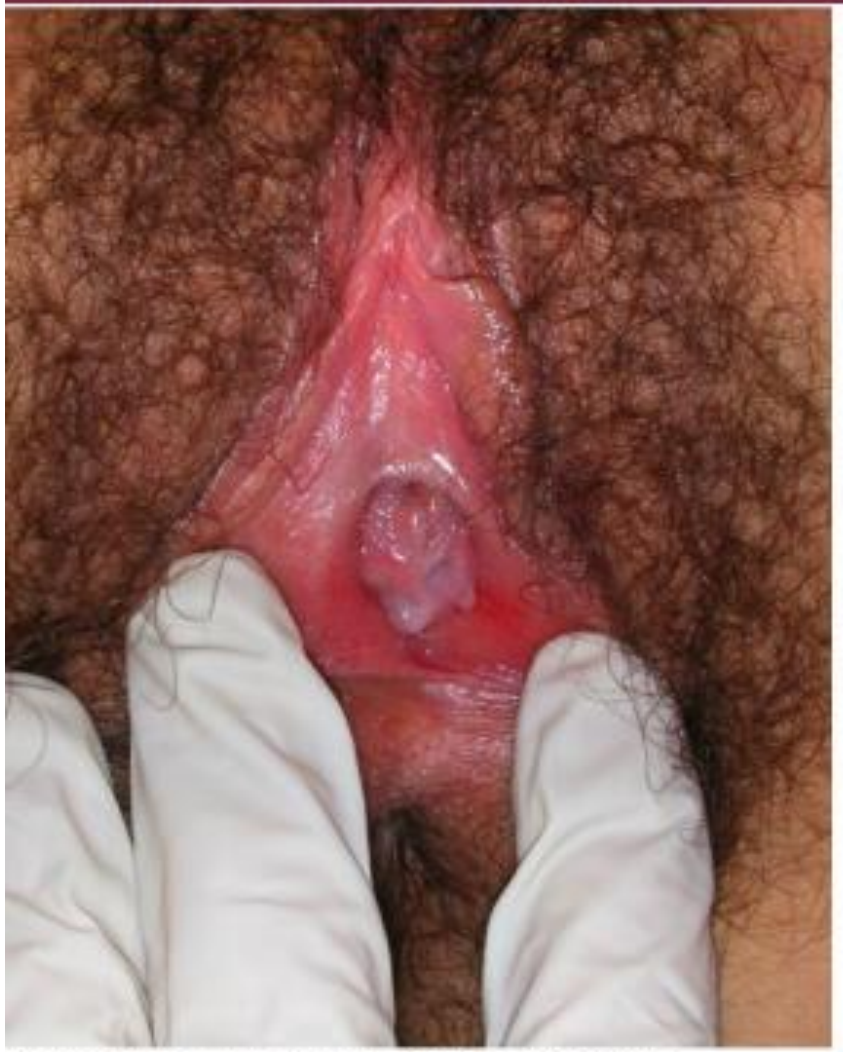
WOMEN'S HEALTH COLLECTIVE

Acquired Neuroproliferative Vulvodynia



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- Women report onset of symptoms after severe or recurrent candidiasis or allergic reaction
- Polymorphism in genes coding for IL-1ra, IL-1b
- Decreased INF-a
- Elevated TNF, IL-1b, IL-6,IL-8, Heparinase
- Increased mast cells in mucosa
- Persistent inflammation can lead to a proliferation of C-afferent nociceptors

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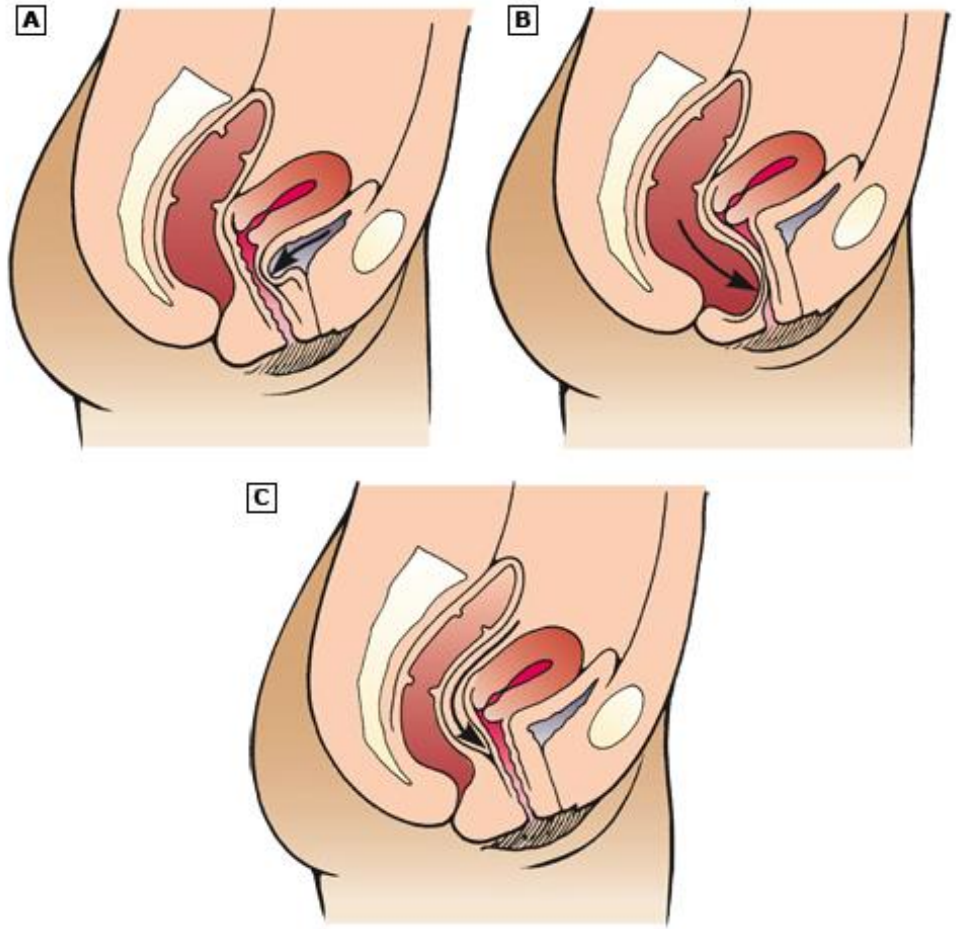
Pelvic Organ Prolapse

- Herniation of pelvic organs toward or beyond vaginal walls
- Approximately 200,000 surgical procedures annually for prolapse in US
- Cystocele (33-34%)
  - Hernia of anterior vaginal wall
- Rectocele (18%)
  - Hernia of the posterior vaginal segment
- Enterocele
  - Hernia of the intestines to or through the vaginal wall
- Apical prolapse (14%)
  - Uterine/vaginal vault prolapse
- Uterine procidentia
  - Hernia of all three compartments through the introitus

*Percentages according to WHI

Anatomic sites of pelvic organ prolapse

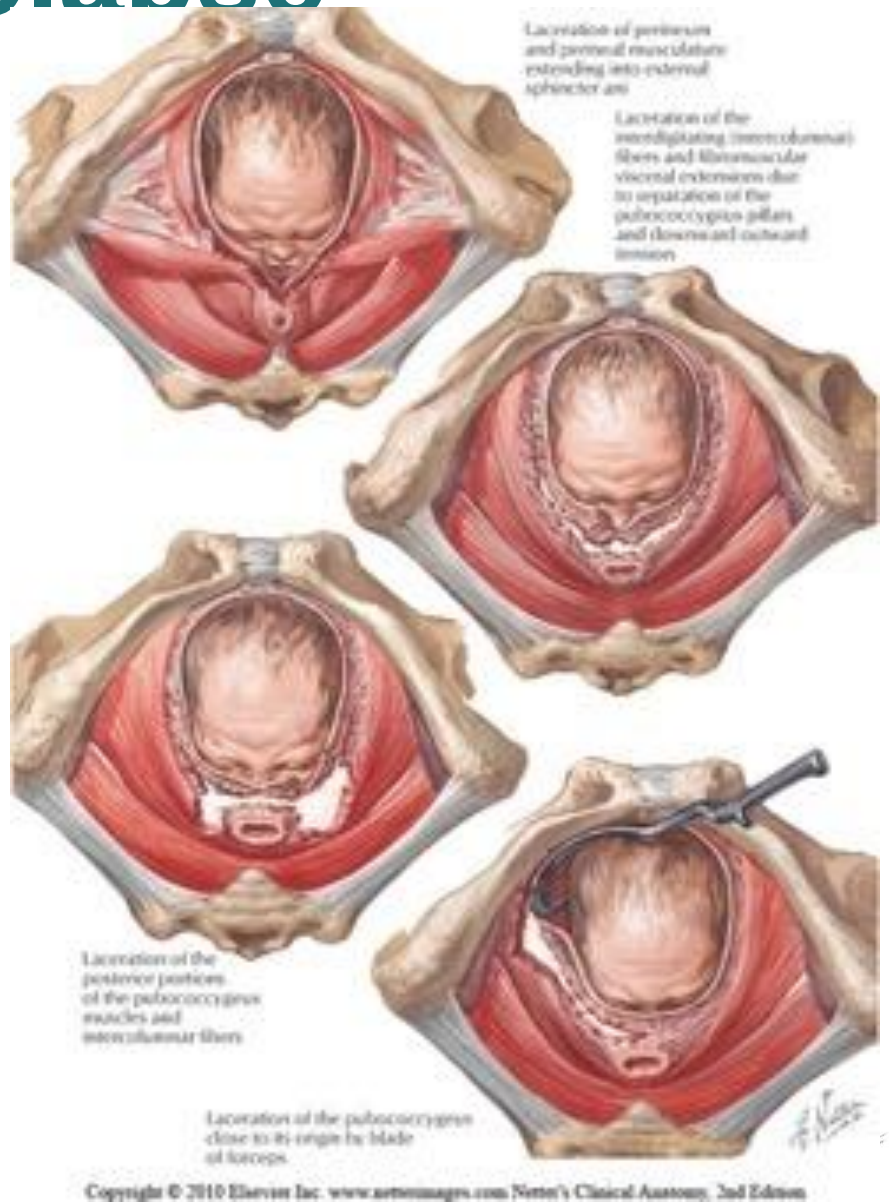


Pelvic support disorders.
(A) Cystocele.
(B) Rectocele.
(C) Enterocele.

Graphic 62745 Version 2.0

Risk factors for prolapse

- Multiparity
- Hypermobility
- Advancing age
- Long pushing phase
- Instrument assisted delivery
- Smoking
- Pelvic surgery/hysterectomy
- Obesity
- Constipation
- Straining



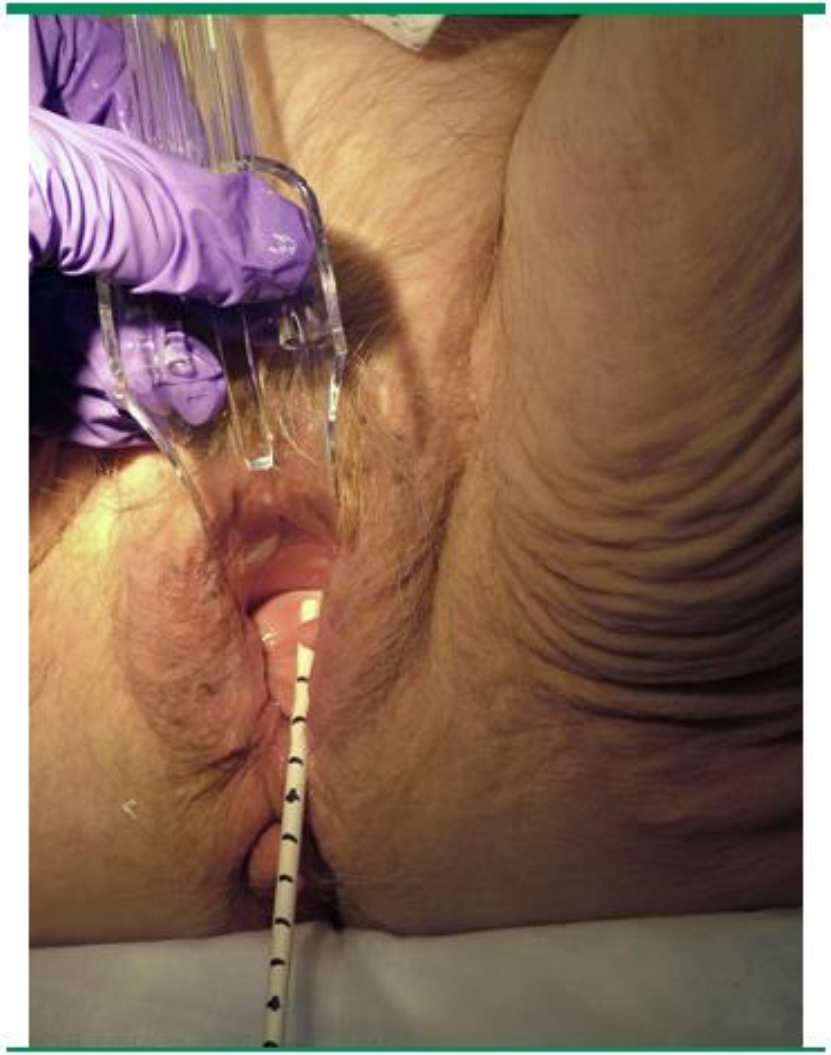
Symptoms of prolapse

- Distinct lump or bulge in introitus
- Pelvic/vaginal ache/heaviness
- Persistent ache in lower back or over tailbone
- Frequent UTIs
- Bleeding or vaginal discharge
- Dyspareunia
- SUI in stage I or stage II prolapse
- Urinary retention as prolapse advances – leading to splinting
- Obstructed defecation or constipation

Diagnosis of POP

- Thorough GU history
- Treatment if symptomatic
- Diagnosis based on pelvic exam
  - Both dorsal lithotomy and then straining
  - Note pt position as well as bladder and rectal fullness
  - Also document any incontinence noted during exam
- Use single blade speculum
- POP-Q staging most commonly used
  - 5 degrees/grades
- Braden-Walker system
  - Can also use a grading system 0-4 (less precise and less reproducible)

Evaluation of posterior vaginal wall prolapse



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Graphic 51685 Version 1.0

Pelvic organ prolapse staging

Stage 0	No prolapse
	Aa, Ba, Ap, Bp are -3 cm and C or D≤ -(tvl - 2) cm
Stage 1	Most distal portion of the prolapse -1 cm (above the level of hymen)
Stage 2	Most distal portion of the prolapse ≥ -1 cm but ≤ +1 cm (≤1 cm above or below the hymen)
Stage 3	Most distal portion of the prolapse > +1 cm but < +(tvl - 2) cm (beyond the hymen; protrudes no farther than 2 cm less than the total vaginal length)
Stage 4	Complete eversion; most distal portion of the prolapse ≥ + (tvl - 2) cm

Aa: Point A of anterior wall; Ba: point B of anterior wall; Ap: point A of posterior wall; Bp: point B of posterior wall; -: above the hymen; +: beyond the hymen; tvl: total vaginal length.

Treatment of POP

Expectant management

- If symptoms tolerable and pt prefers to avoid treatment

Conservative management 1st if possible

Pessary

Pelvic floor muscle training (PFMT)

Estrogen therapy – no data to support, but widely used

Surgical correction – with or without grafts/mesh

Questions???

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