# **V** is for Vagina, Vulva, Vestibule

**and all things amazing**

Nisha McKenzie PA-C, NCMP, CSC, IF

nisha@whcollective.com

WOMEN'S HEALTH COLLECTIVE

# 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, odorless
- pH 3.5-4.5
  - pH blood ~ 7.4
  - pH semen ~ 7.5
- No two look the same…this too is normal

WOMEN'S HEALTH COLLECTIVE

# 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

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# BV

- Most common cause of vaginal discharge in women 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 WSW
  - Increased risk with presence of other STIs
- Other risk factors:
  - African American
  - 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

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# 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

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# BV Diagnosis

- 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
- DNA probe

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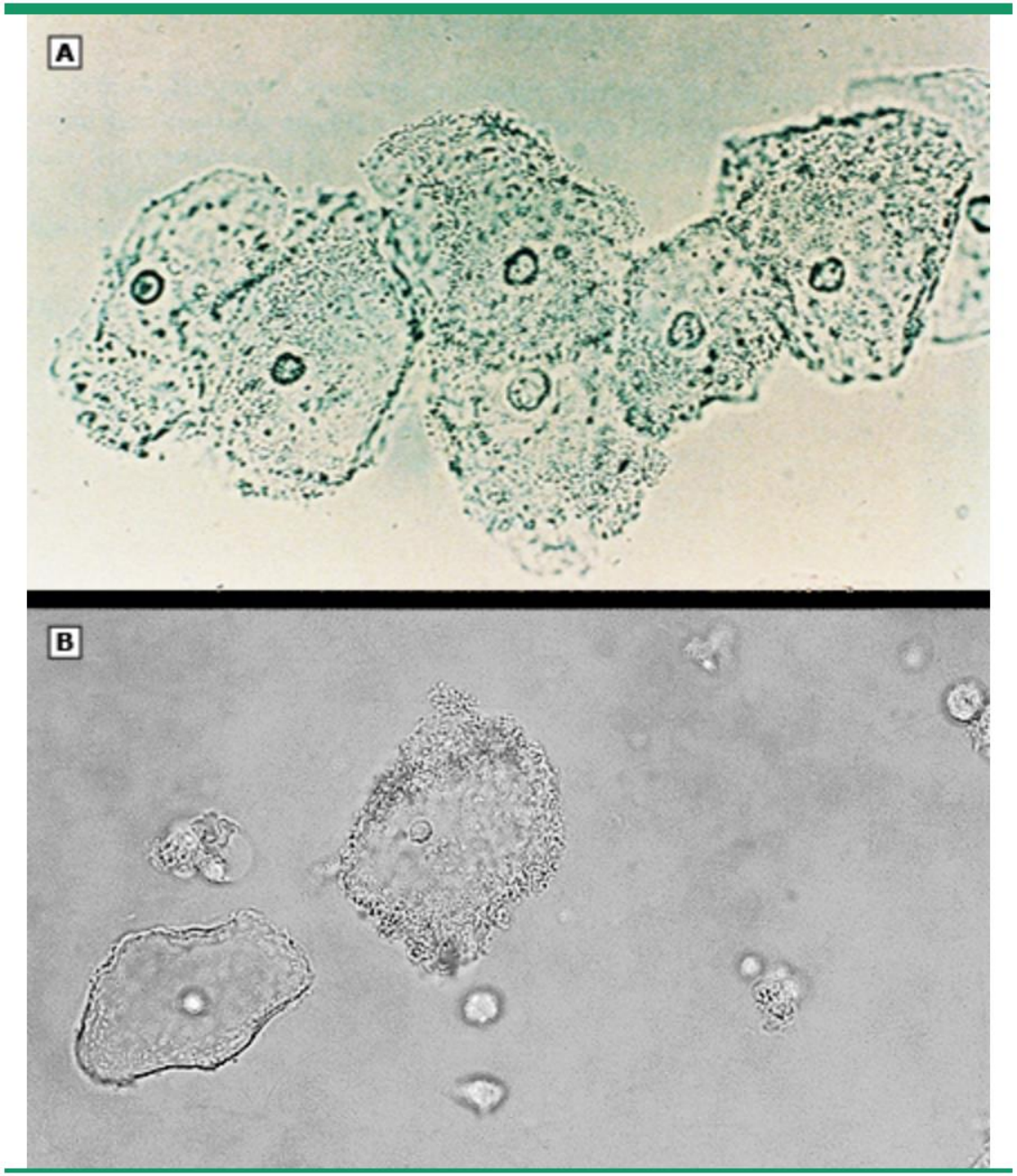
**Clue cells**




# 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.



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# 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

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# Treatment in Pregnancy

- *Only treat if symptomatic*
- Metronidazole 500mg PO BID x 7d
- Metronidazole 250mg PO BID x 7d
- Clindamycin 300mg PO BID x 7d

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# Vulvovaginal Candidiasis

- 2nd most common cause of vaginitis symptoms (after BV)
- Candida sp. also normal vaginal flora
- 75% of women 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
  - Sexual activity – not an STI, but sexually relevant

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# Candidiasis Diagnosis

- pH 4 to 4.5
- Wet mount
- Culture **IF** necessary (gold standard)
  - Taken from vaginal wall (not cervix)
- Self diagnosis should be discouraged
  - Even with a history of confirmed VVC, women are accurate in self diagnosis only 35% of the time

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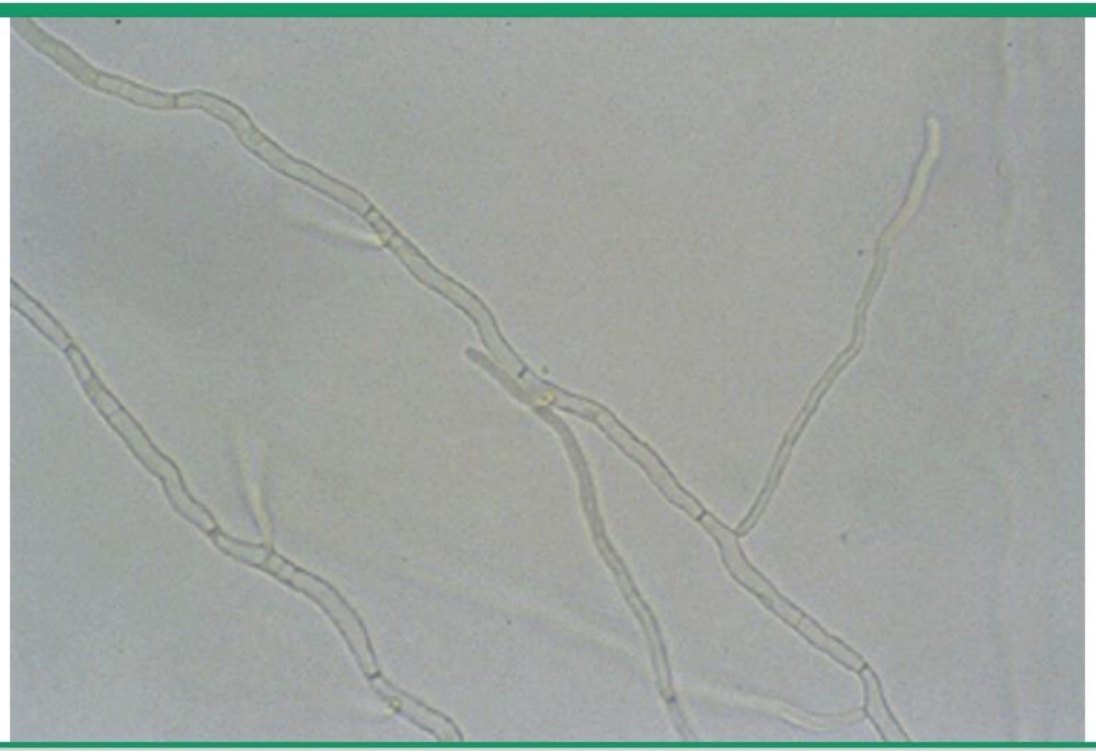
# Candida hyphae

**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 1 day
  - Fungicidal
- *C. glabrata*, **if symptomatic**, treated with boric acid 600mgPV 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

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# Trichomoniasis

- Most common non-viral STI worldwide
- Estimated 1 million cases annually in the US ($24 million)
- Often asymptomatic (~50-70%)
- Affects women > men
- 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

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# Trich linked to:

- PROM
- Preterm delivery
- Cervical neoplasia
- Post-hysterectomy cuff cellulitis or abscess
- PID in women with HIV
- Infertility

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# Trichomonas Vaginalis Diagnosis

- Wet mount shows mobile trichomonads (60-70% of the time)
  - Motion is jerky and spinning
  - Remain motile for 10-20 minutes after sample collection
- 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
- Single 2g dose (500mg po x4)
- Alt: Metronidazole 500mg PO BID x 7d
- *Do not consume alcohol for 24 hours after metronidazole tx and for 72 hours after tinidazole tx
- Retest all women 2 wks– 3 months after completing treatment

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# Treatment in Pregnancy

- Treat all symptomatic women, regardless of gestational age

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# Trichomonads

**Trichomonas vaginalis**

High power microscopy revealing Trichomonas vaginalis with easily identified flagella.

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

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# 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** – metronidazole 500mg BID x 7d OR tinidazole 2g PO x 1
  - If that also fails, consider tinidazole or metronidazole 2g PO qd x 5d
- Be sure to address sexual dysfunction and relationship discord that may occur with recurrent vaginitis
- Probiotics unproven for vaginal health
  - RepHresh ProB

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# 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

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# 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)

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# DIV Differential Diagnosis

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

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# 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
- For mild disease:
  - Hydrocortisone 25mg rectal supp ½ or 1 placed in the vagina BID
- Treatment continued until complete remission
  - Based on symptoms on 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

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# Vulvar dystrophies

- Vulvoscopy!!!
- Biopsy if there is a lesion – use a 4mm punch biopsy and suture
  - 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

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# Lichen Sclerosus

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

WOMEN'S HEALTH COLLECTIVE

# 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
- Women with LS are likely to be less sexually active due to pain or embarrassment (vaginal intercourse, oral intercourse, masturbation)

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# 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

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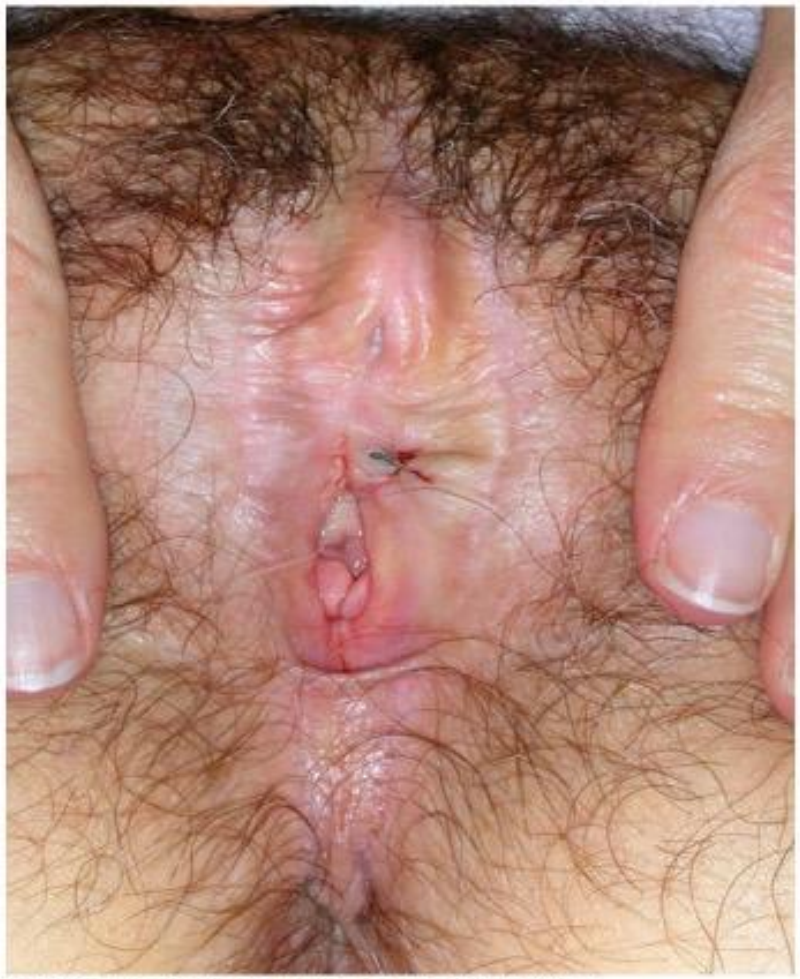
# Lichen Sclerosus



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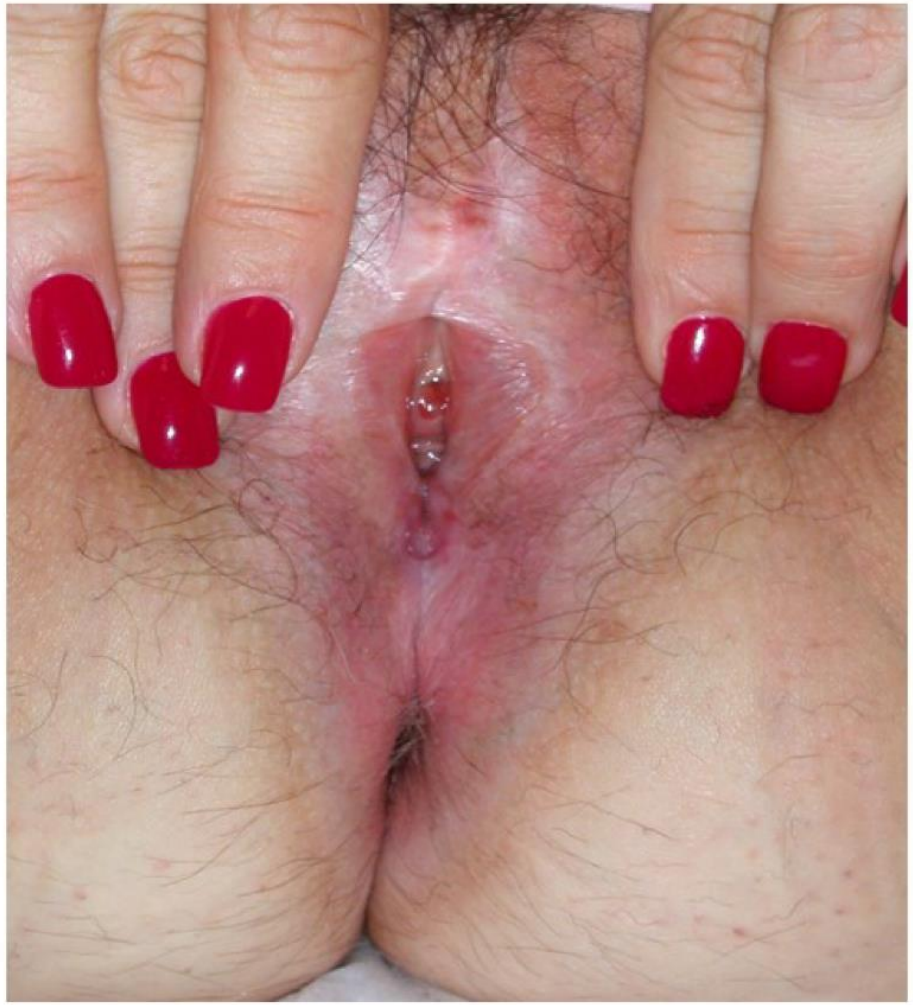
# Lichen Sclerosus



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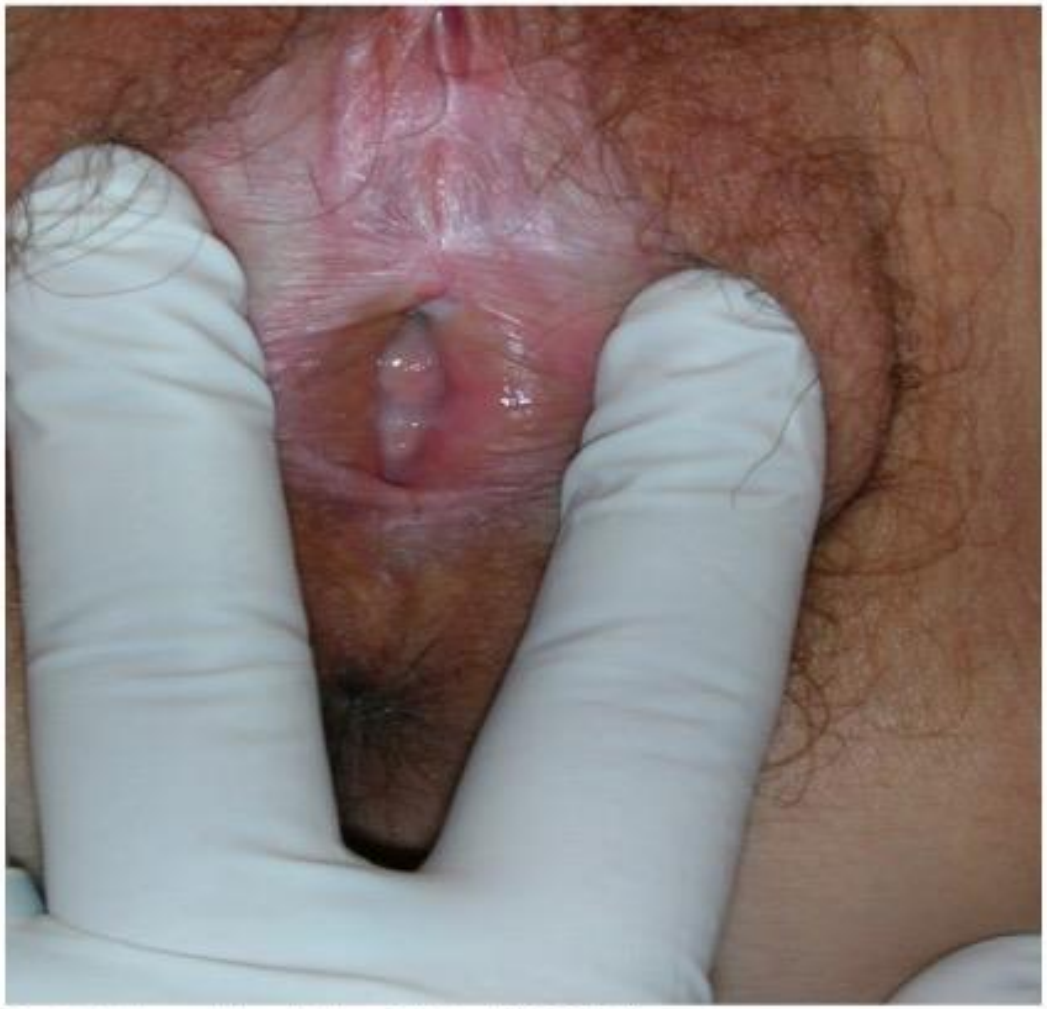
# Lichen Sclerosus



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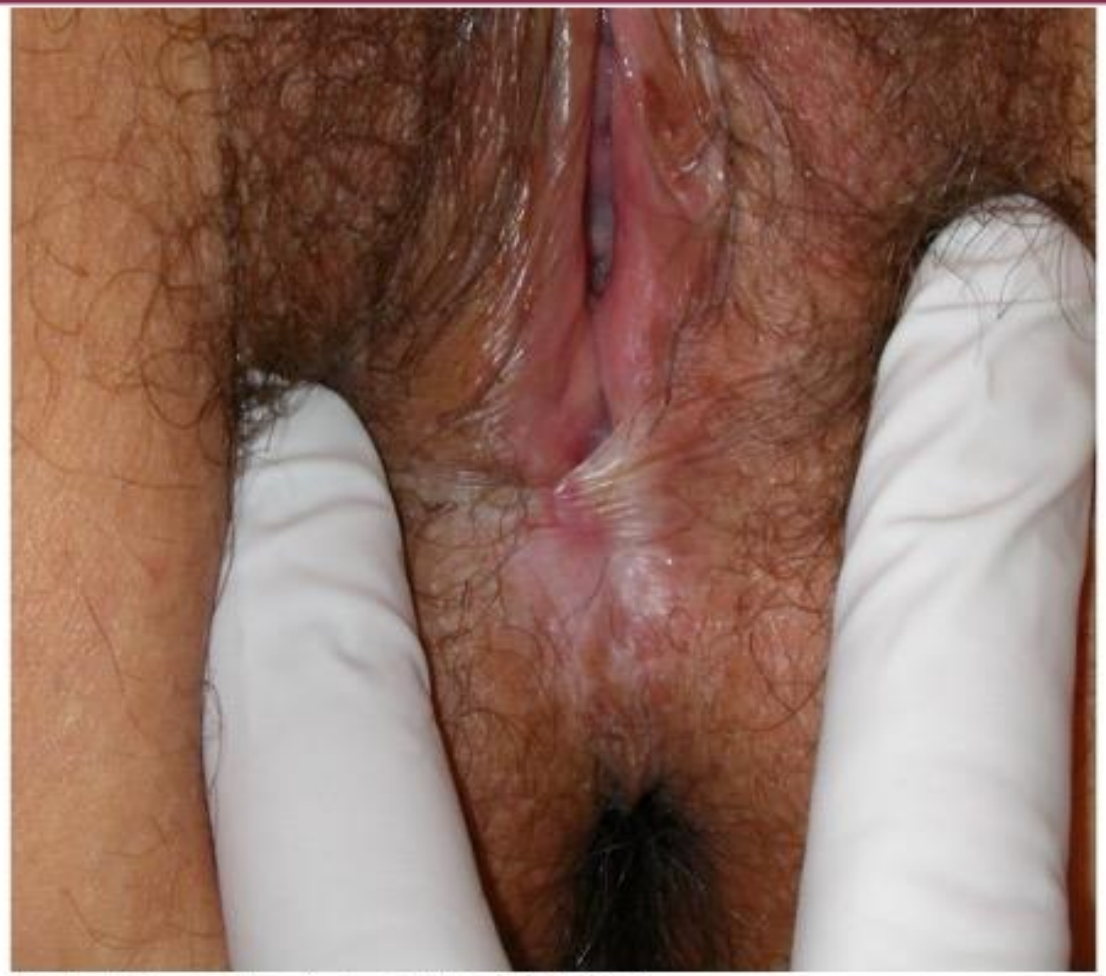
# Lichen Sclerosus Confined to Perineum



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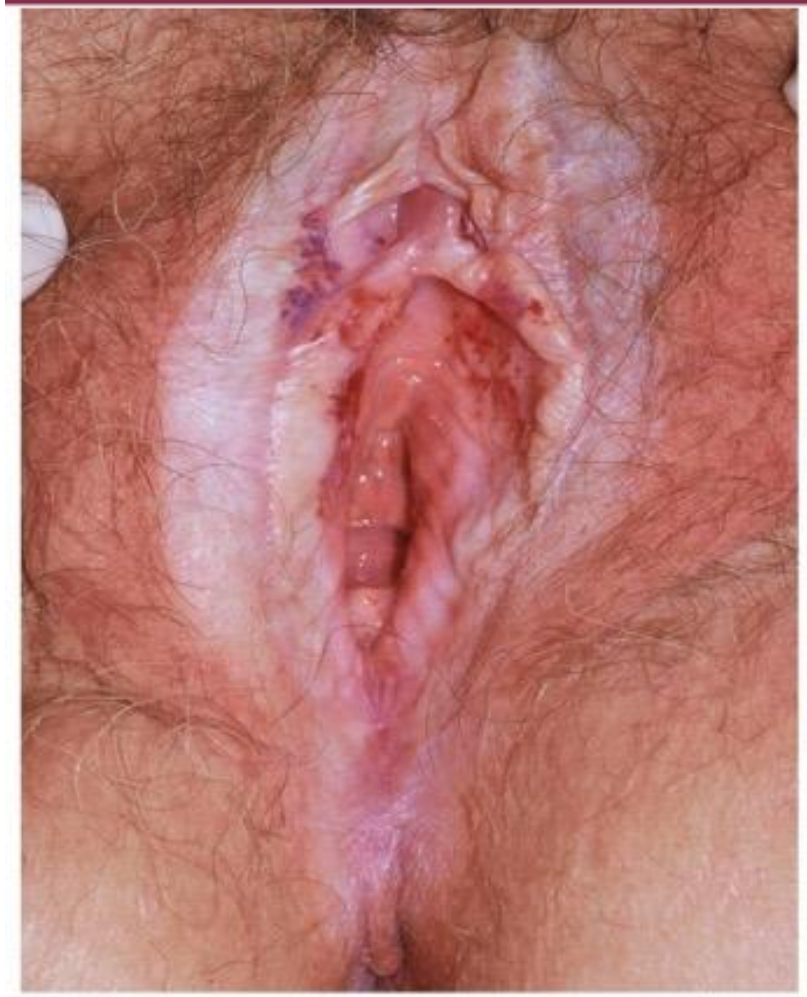
# Lichen Sclerosus: Classic Presentation



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

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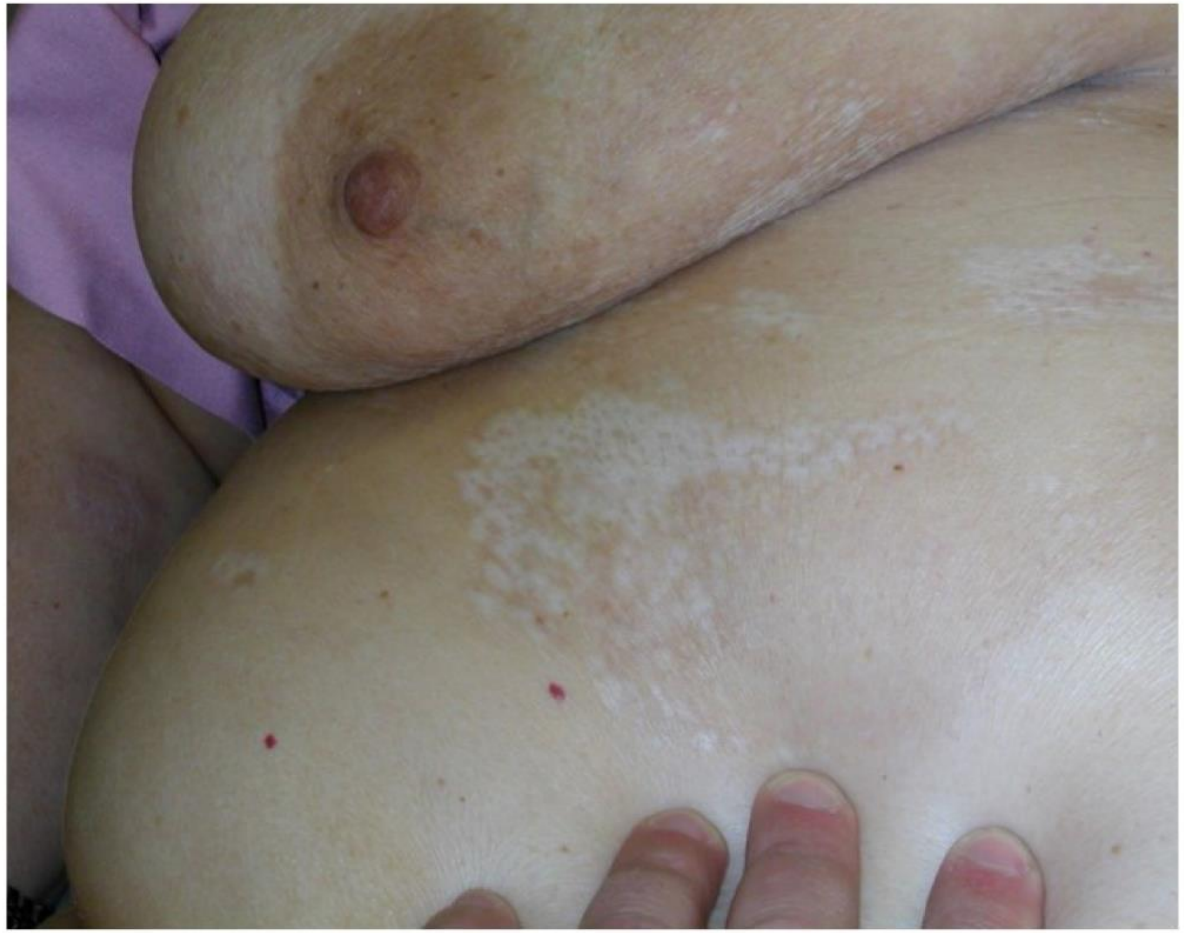
# Lichen Sclerosus on Abdomen and Breast



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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

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# 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

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# 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 women 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

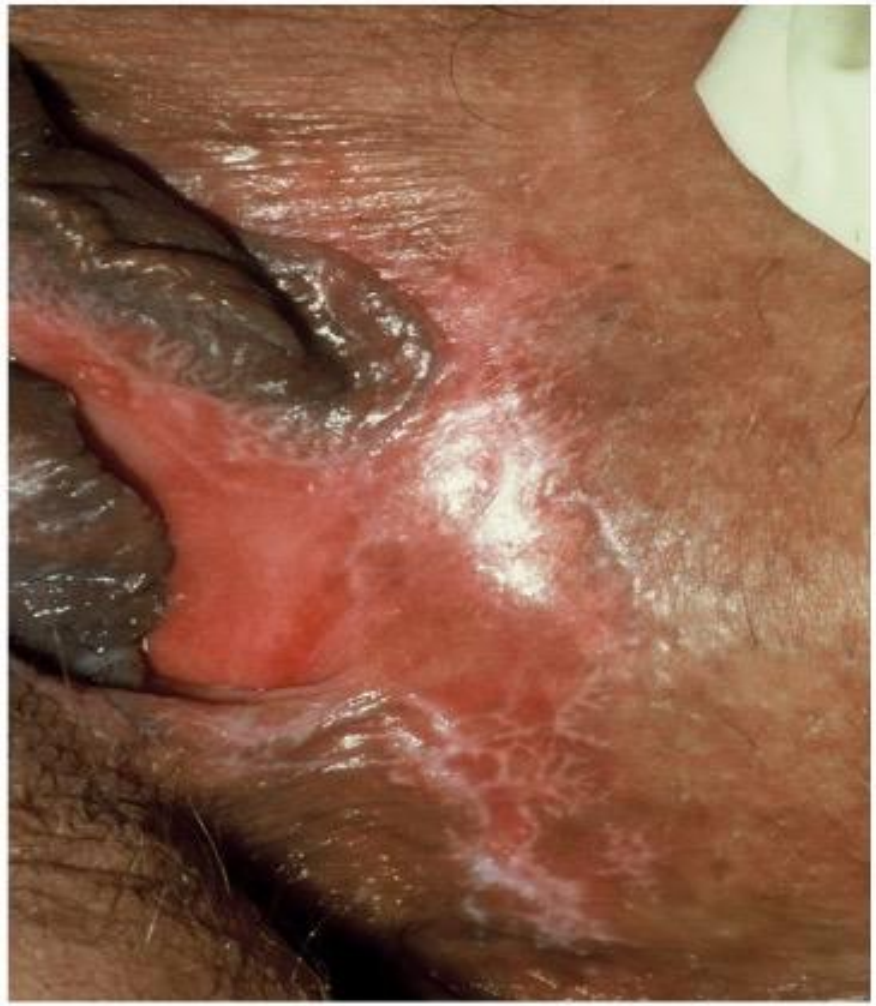
# Signs and Symptoms

## *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

WOMEN'S HEALTH COLLECTIVE

# 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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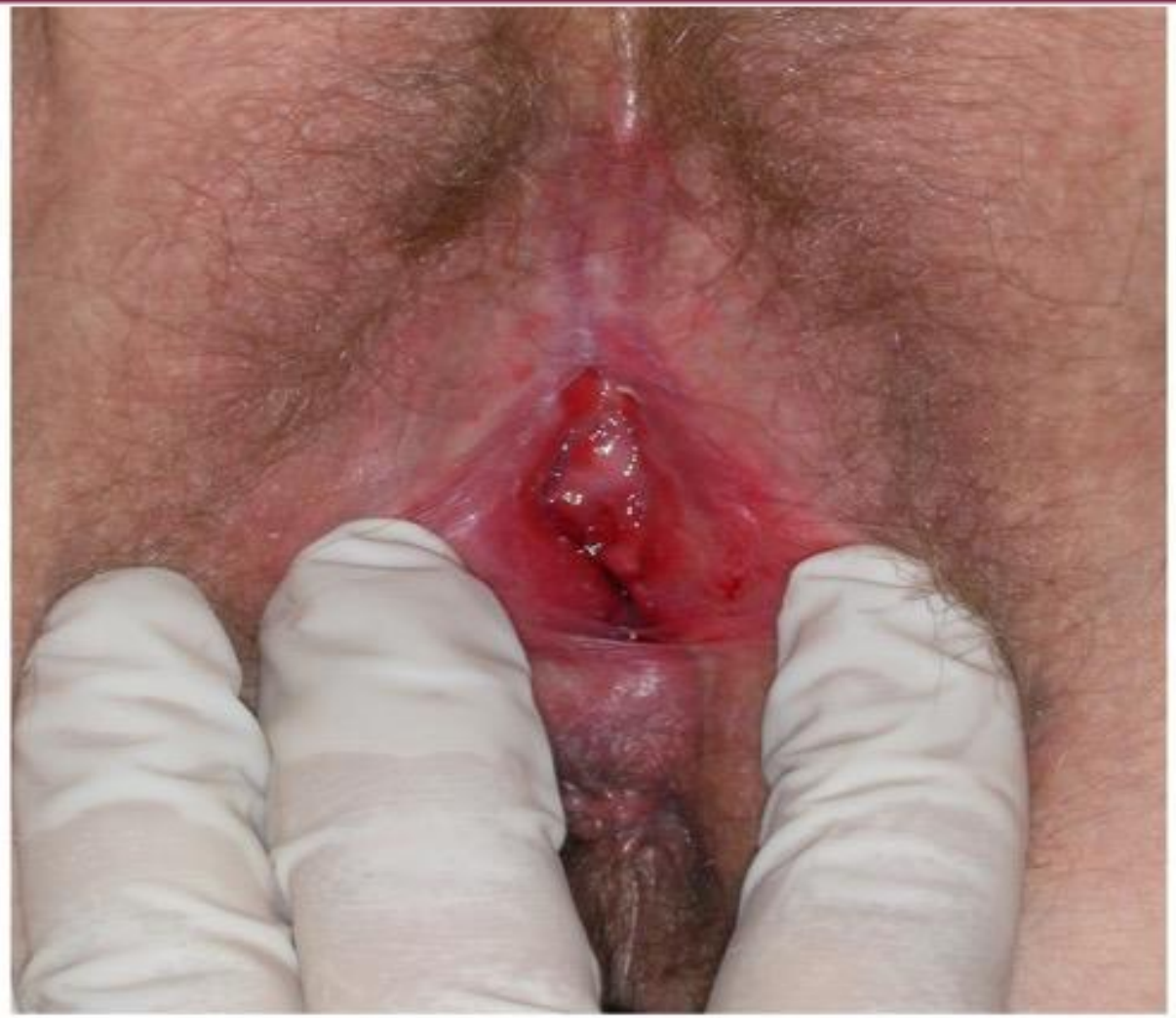
# Erosive Lichen Planus



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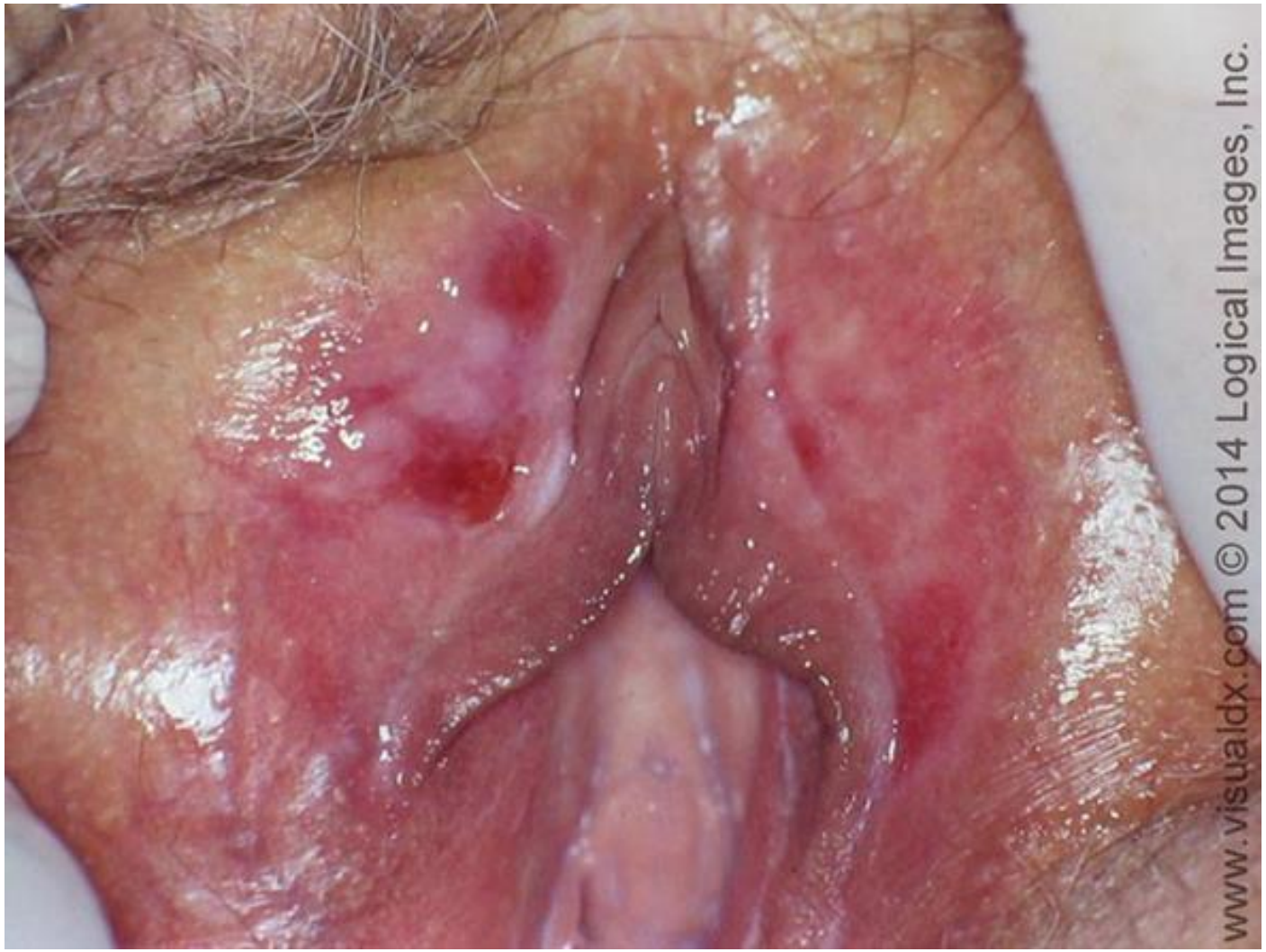
# Erosive vulvar LP

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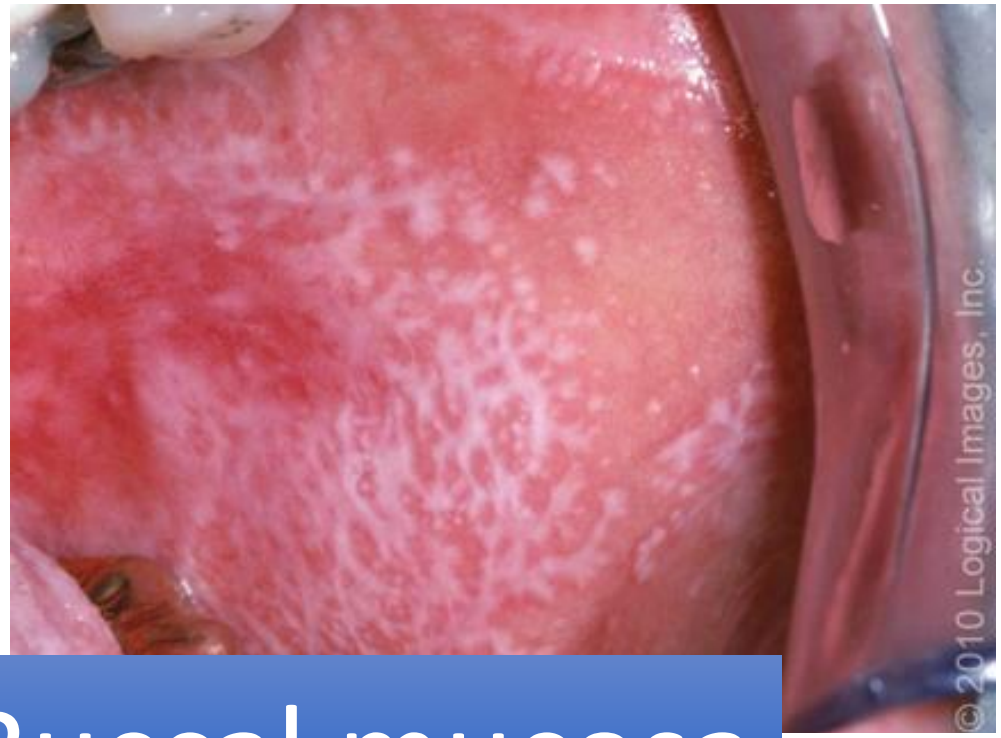
# Erosive oral LP




Buccal mucosa


Gingiva

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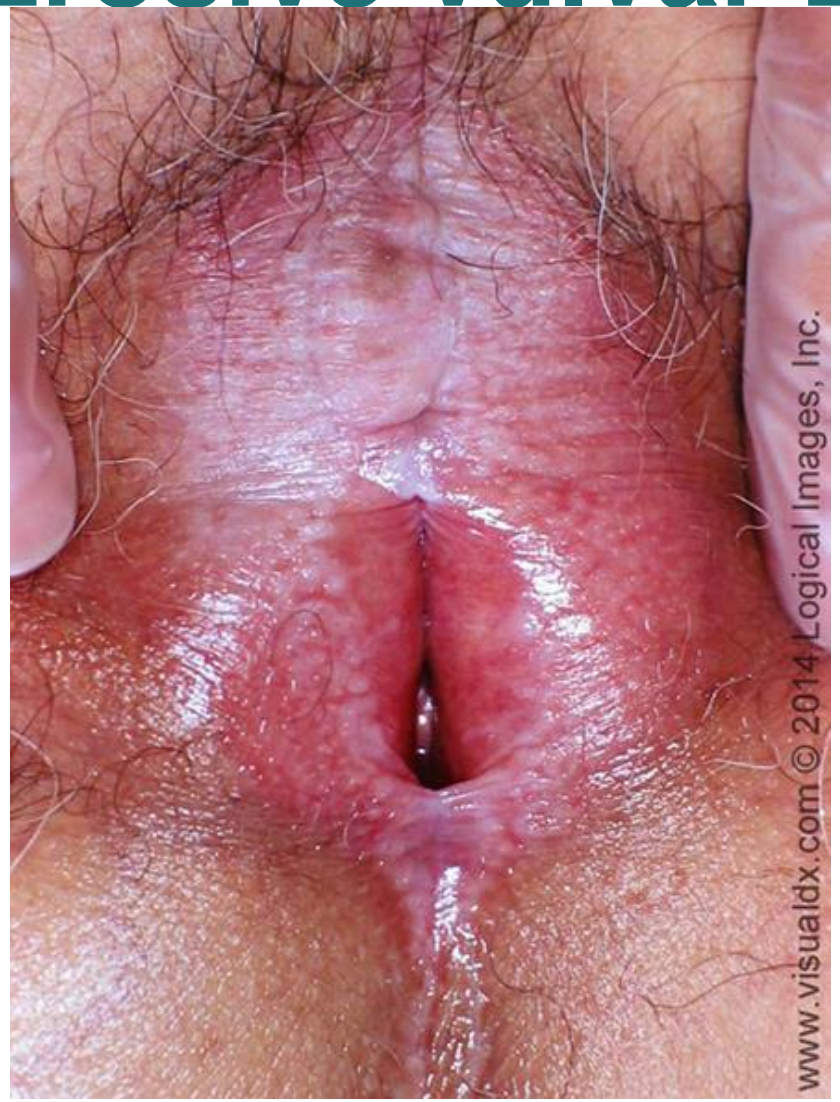
# Erosive vulvar LP

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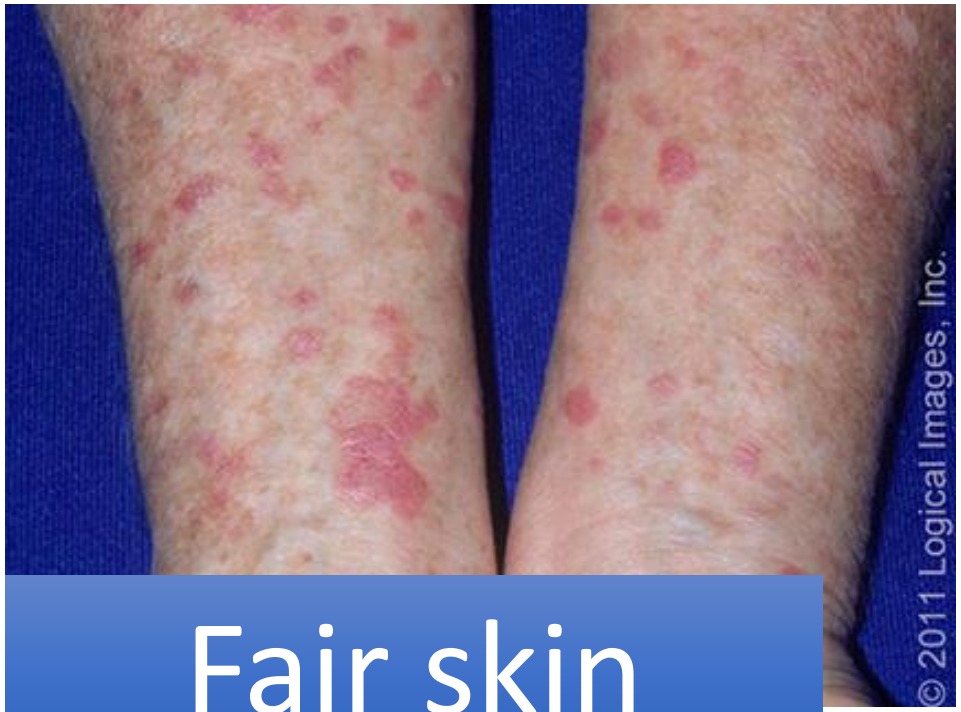
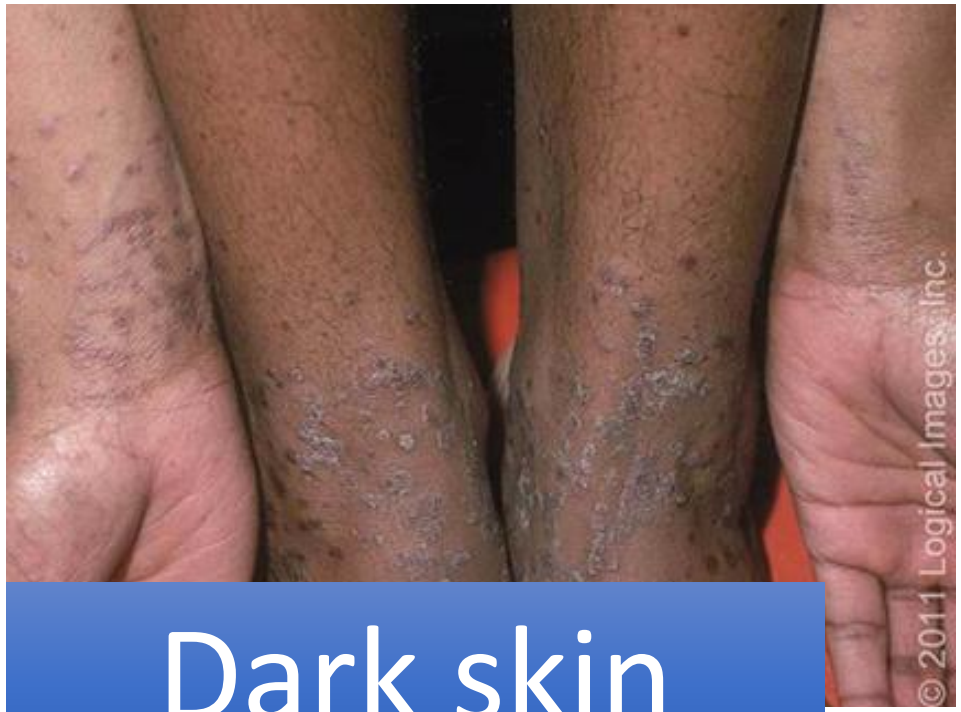
# Cutaneous LP on volar wrists and ankles




Fair skin




Dark skin

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# LP Treatment

- Ultrapotent corticosteroids (Clobetasol)
- Tacrolimus or pimecrolimus (caution – absorbed from vagina)
- Systemic steroids, retinoids, cyclosporine, methotrexate
- Vaginal dilators essential to prevent vaginal stenosis from synechiae

WOMEN'S HEALTH COLLECTIVE

# 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

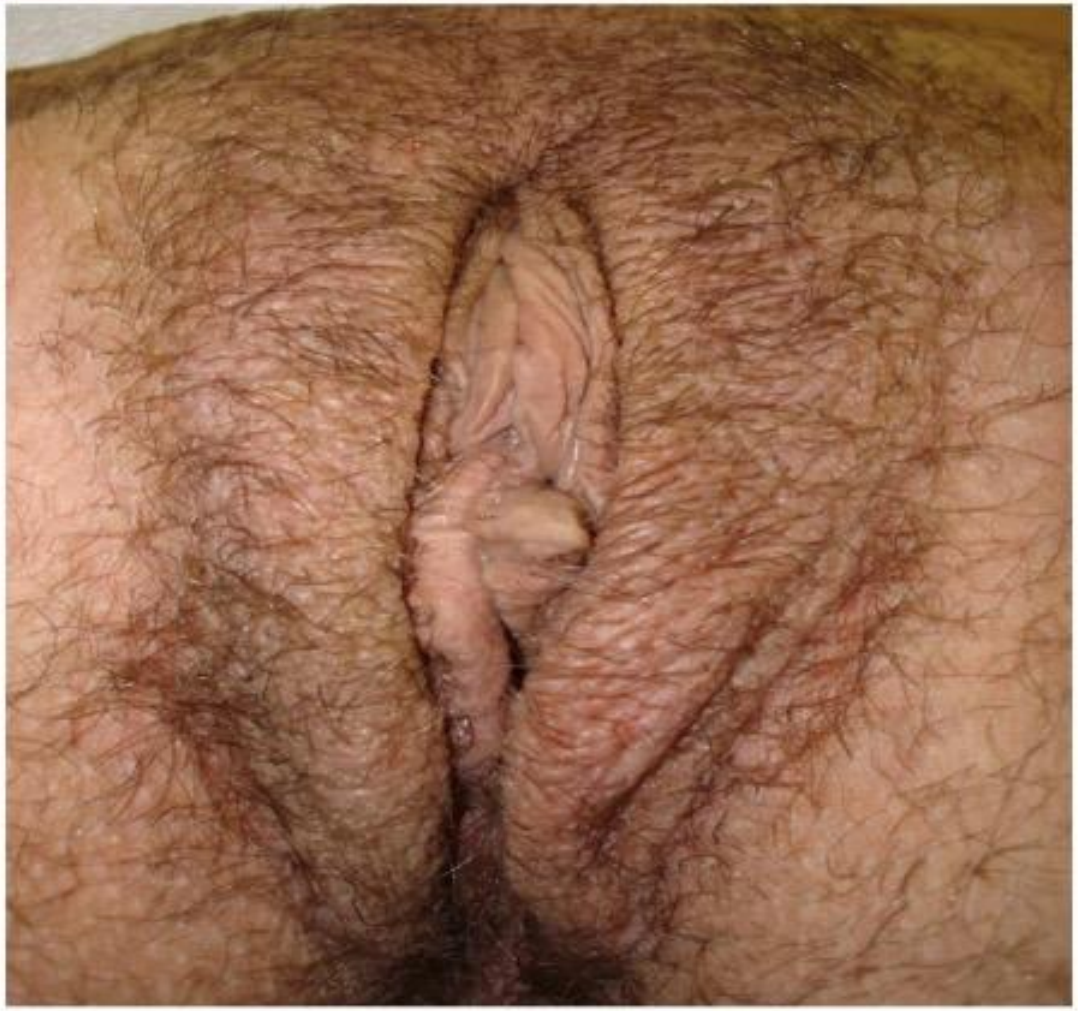
WOMEN'S HEALTH COLLECTIVE

# Lichen Simplex Chronicus

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

WOMEN'S HEALTH COLLECTIVE

# Lichen Simplex Chronicus



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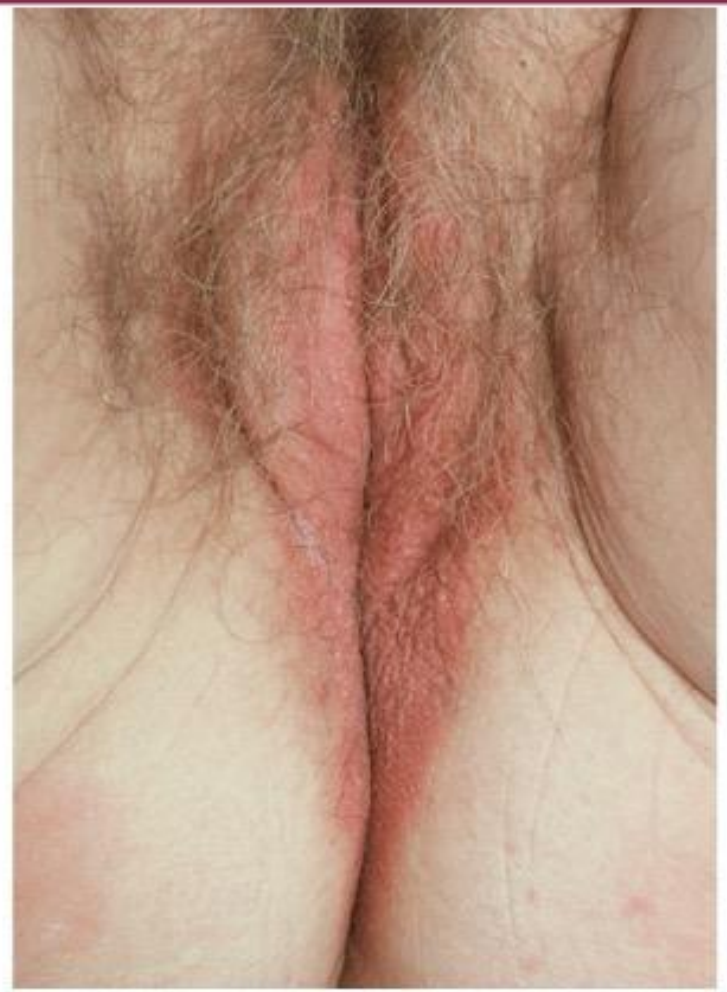
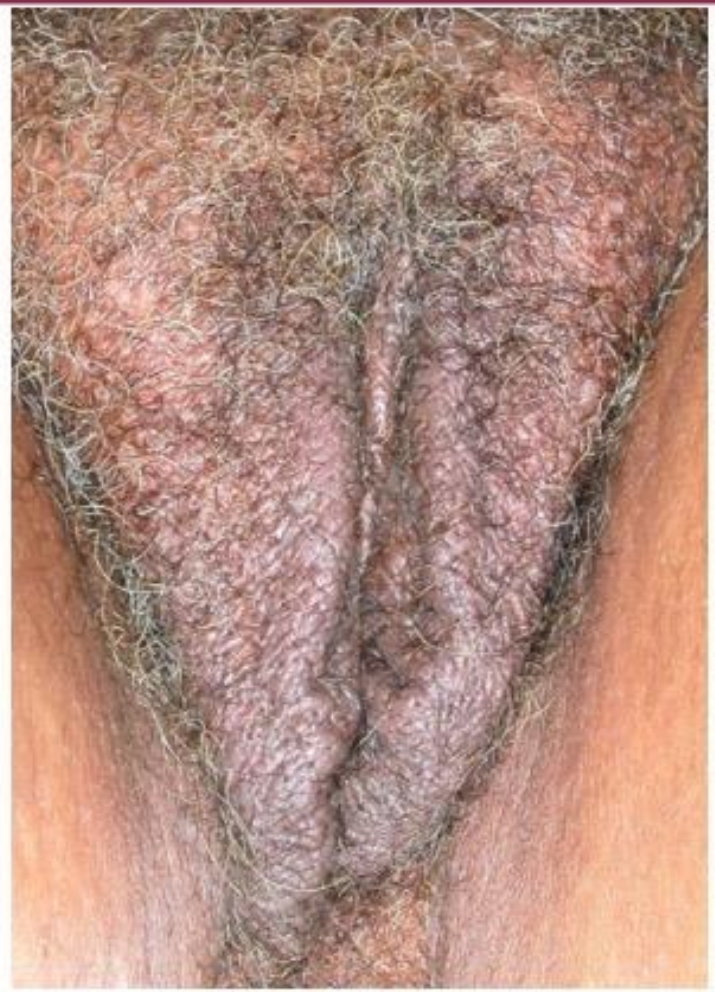
# Lichen Simplex Chronicus





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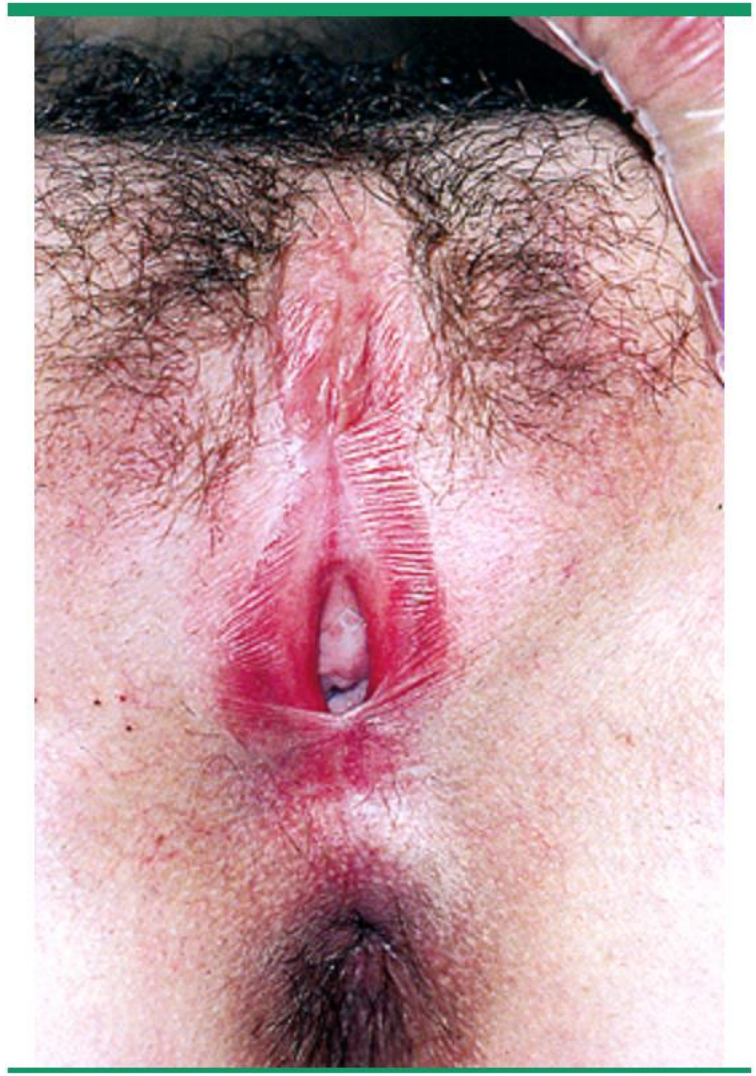
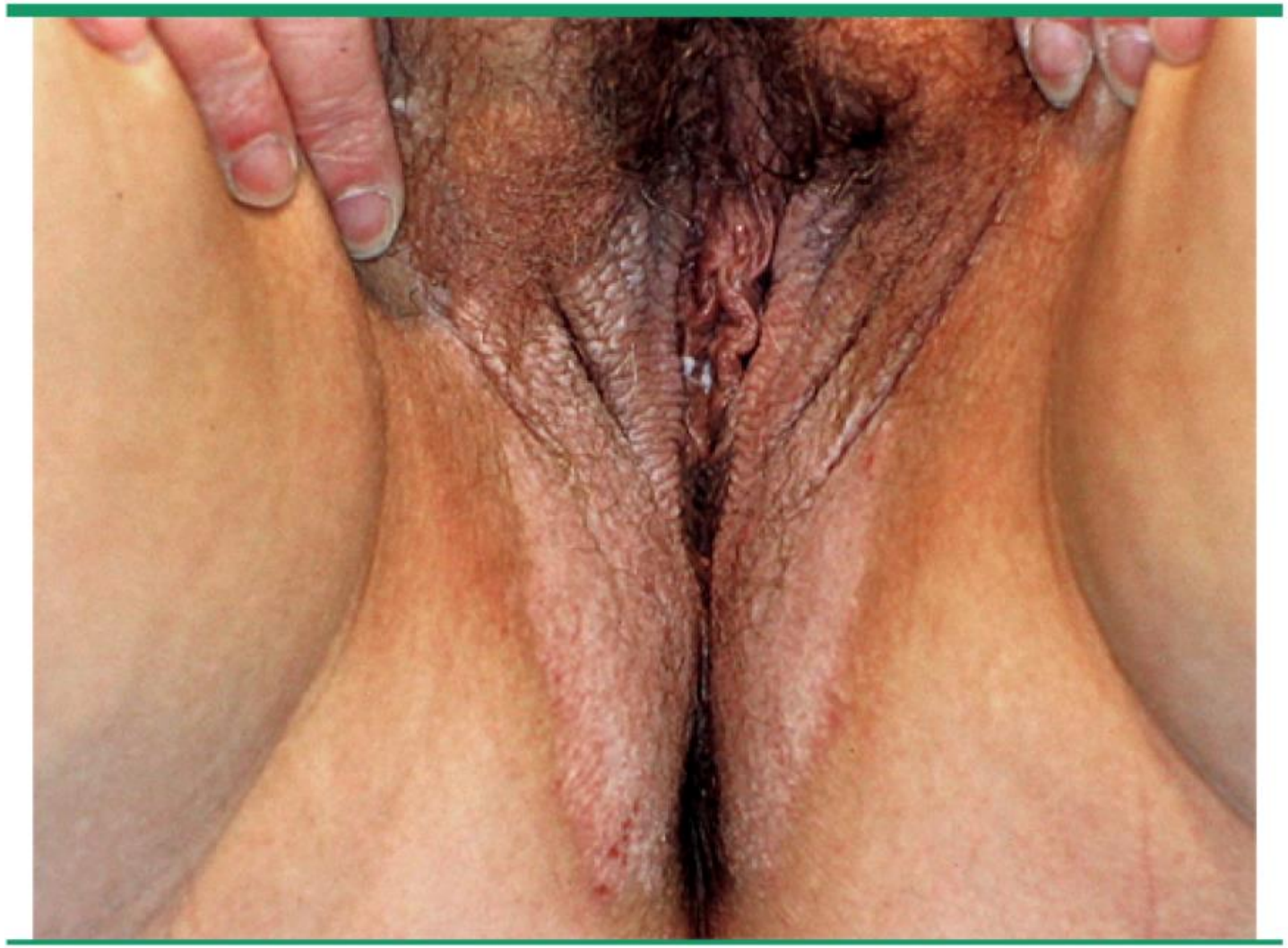
## Loss of architecture



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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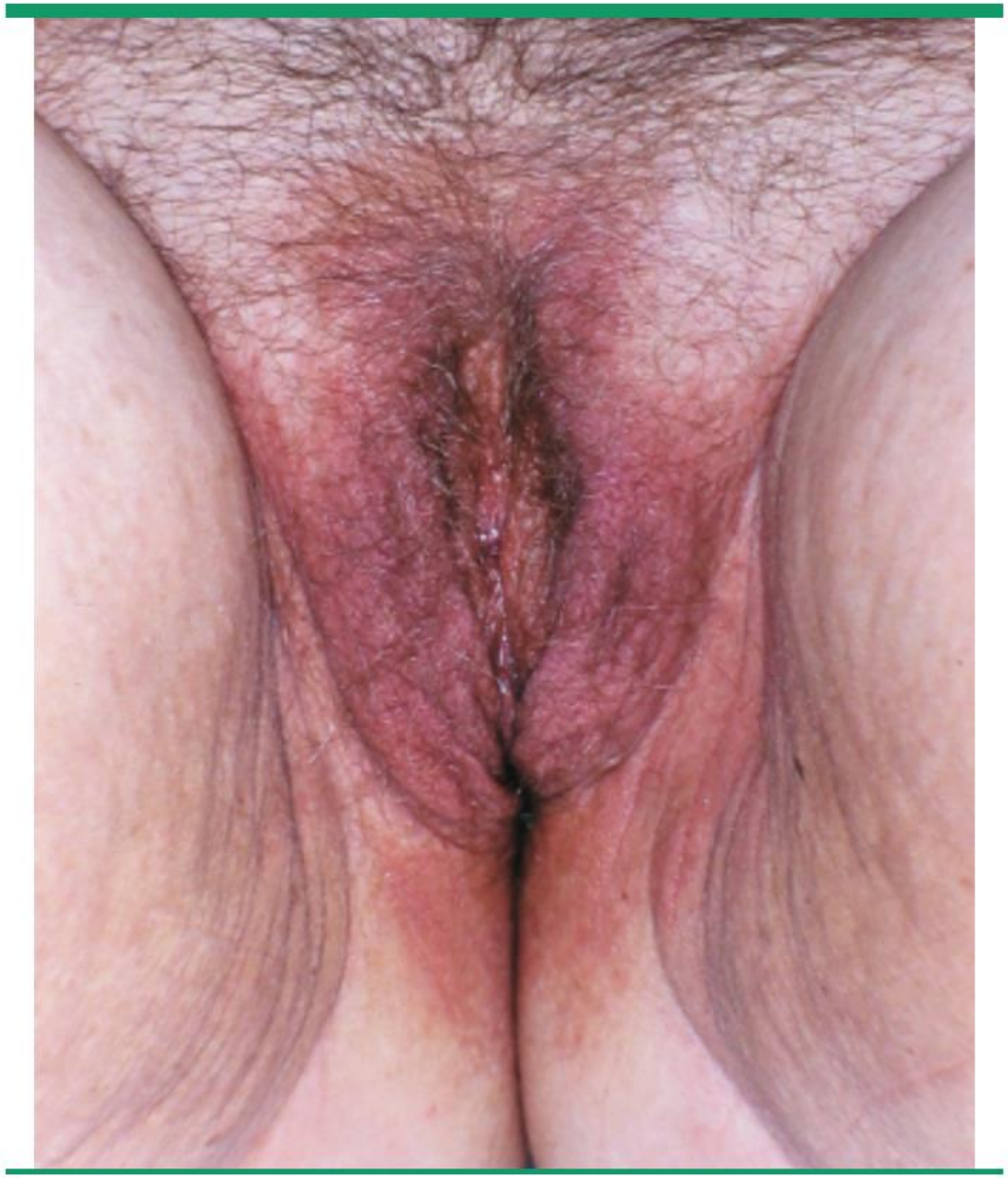
# LSC Treatment

- 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

WOMEN'S HEALTH COLLECTIVE

# Contact dermatitis vulva



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WOMEN'S HEALTH COLLECTIVE

# 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 women's views of the impact of GSM
  - Consistent finding of negative impact of GSM on sexual health
  - Barriers to treatment

WOMEN'S HEALTH COLLECTIVE

# 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

WOMEN'S HEALTH COLLECTIVE

# 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% |

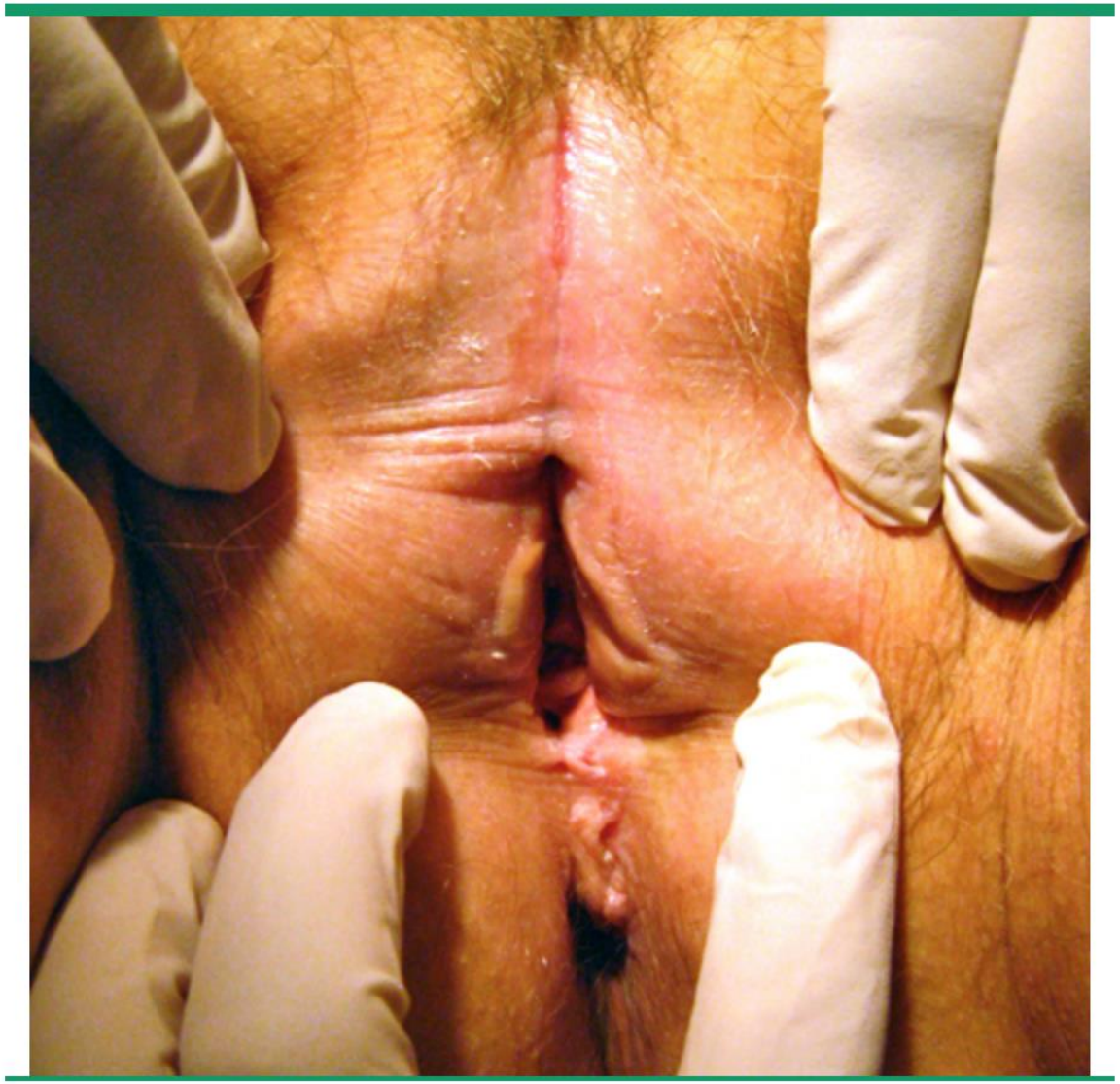
WOMEN'S HEALTH COLLECTIVE

# Estrogens!

| E1 | E2 | E3 |
| --- | --- | --- |
| • Estrone | • Estradiol | • Estriol |

WOMEN'S HEALTH COLLECTIVE

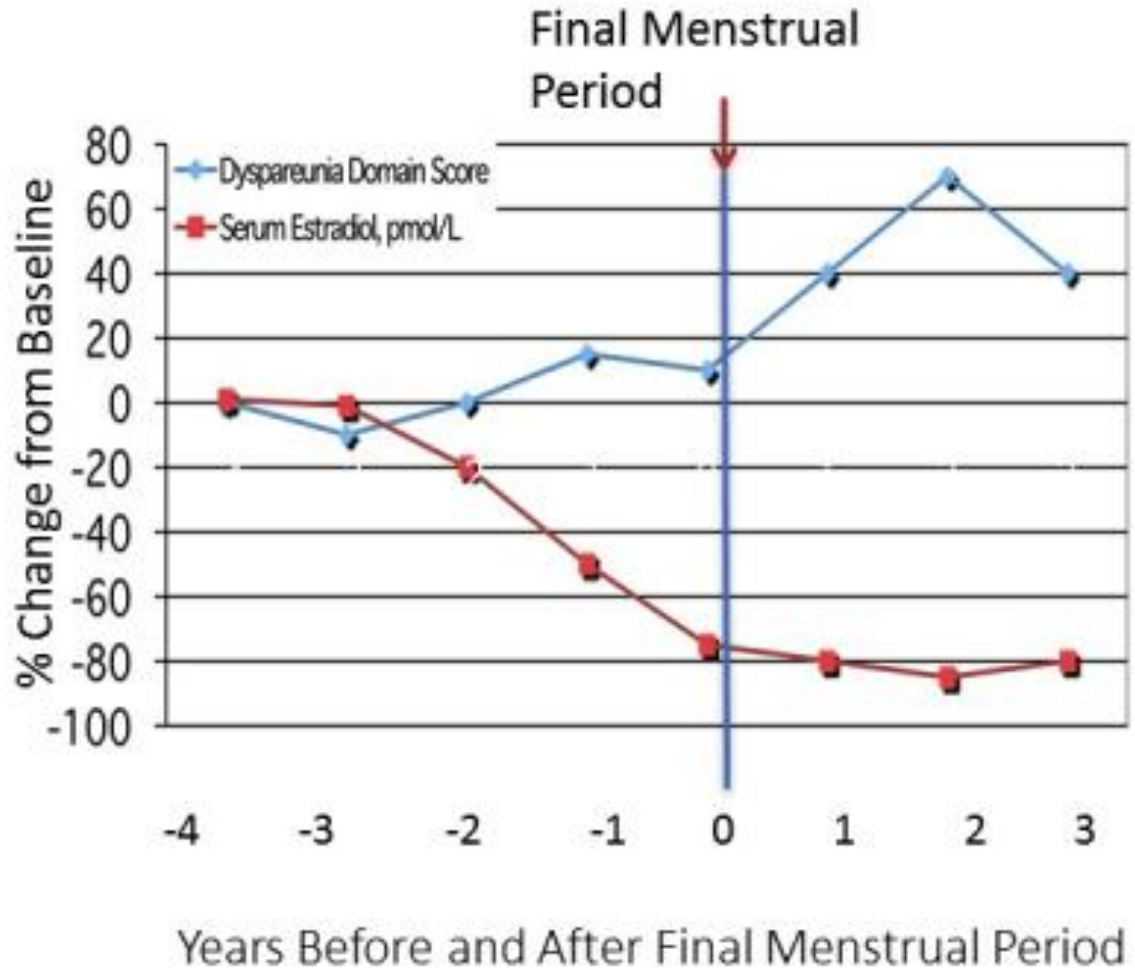
# Atrophic vaginitis



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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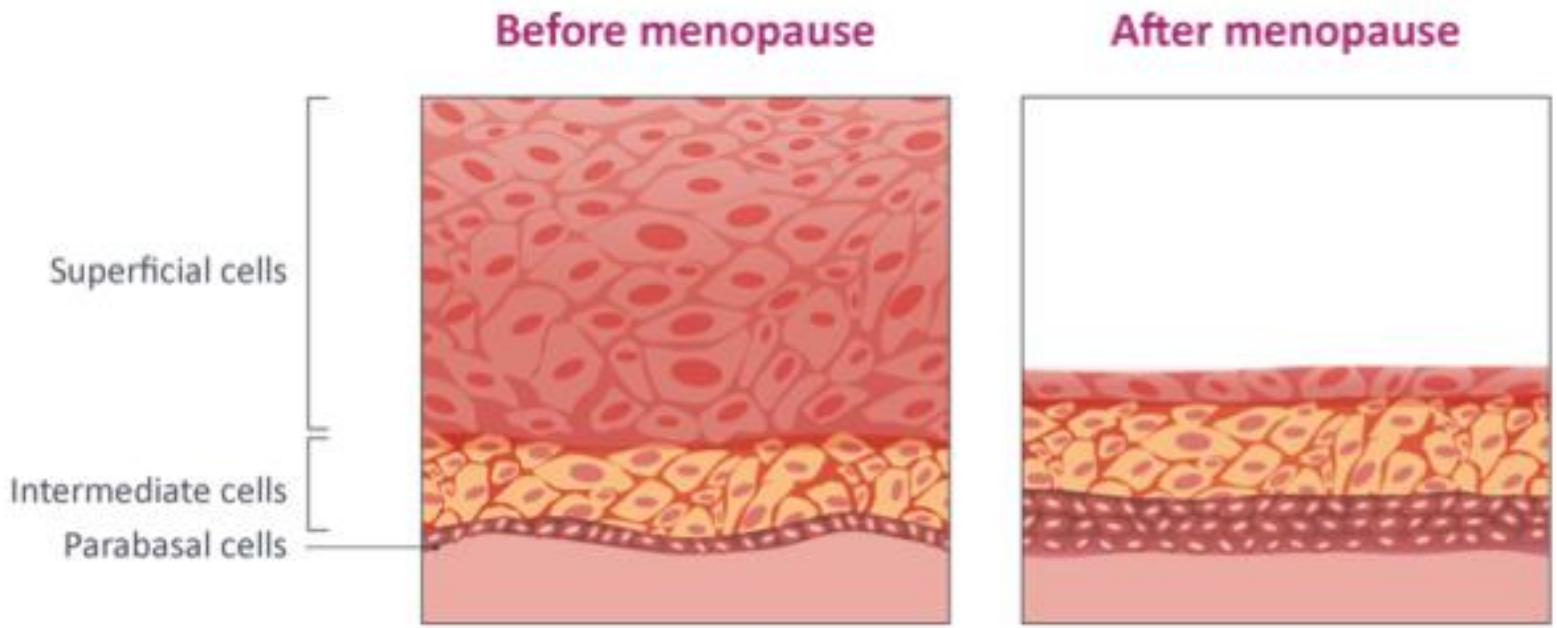
# Diagnosis

- 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
- Vaginal Maturation Index
  - Assess quantity and type of vaginal epithelium cells present on smear per 100
  - Premenopausal:
    - 40-70 intermediate cells
    - 30-60 superficial cells
    - 0 parabasal cells

WOMEN'S HEALTH COLLECTIVE

# Vaginal Maturation Index[1-3]

**Postmenopausal vaginal epithelium:** ↑ % parabasal cells ↓ % superficial cells




Images adapted from: 1. Reiter S. *Int J Gen Med*. 2013;6:153-158. 2. Kingsberg SA, et al. *J Sex Med*. 2013;10(7):1790-1799. 3. Parks DM, Levine J. *Nurs Womens Health*. 2015;19(4):298-312.

# GSM Signs and Symptoms

- Dryness and insufficient moisture
- Dyspareunia
- Itching
- Burning
- Soreness
- Tightness
- Loss of elasticity
- Recurrent UTIs
- 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

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# Non-prescription therapies for GSM

- Moisturization
- Lubrication
- Dilation
- Massage
- Vibration

WOMEN'S HEALTH COLLECTIVE

# Prescription therapies for GSM

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

WOMEN'S HEALTH COLLECTIVE

# Vaginal estrogen preparations

- Low dose local treatment
  - <= 50mcg estradiol or <=0.3mg conjugated estrogen/0.5mg cream
- Estradiol 10mcg tablets (*Vagifem*) 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!!!

WOMEN'S HEALTH COLLECTIVE

# 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

# Ospemefine

- 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

WOMEN'S HEALTH COLLECTIVE

# Vaginal DHEA

- Prasterone (Intrarosa) 6.5mg inserts PV q hs
- Approved 11/16
- 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

WOMEN'S HEALTH COLLECTIVE

# 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

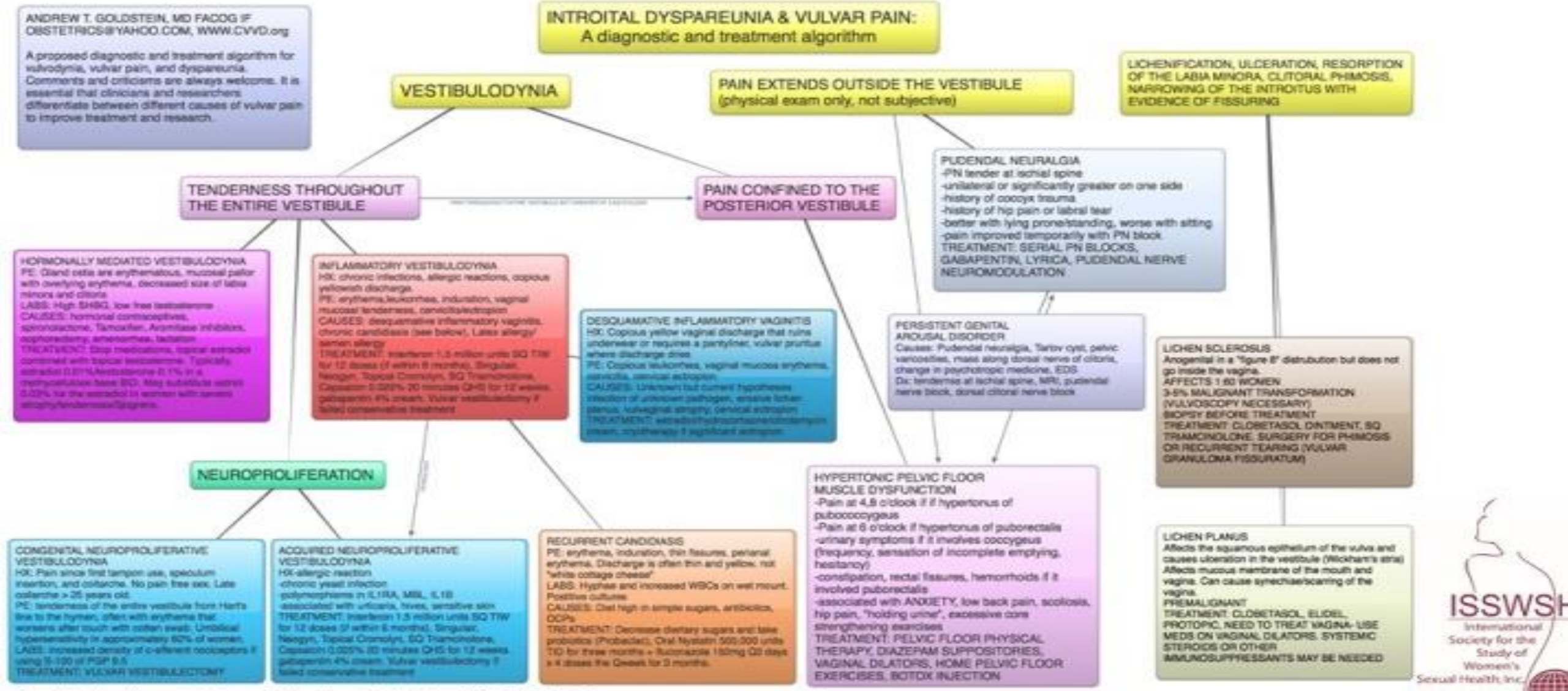
WOMEN'S HEALTH COLLECTIVE

# Associated factors

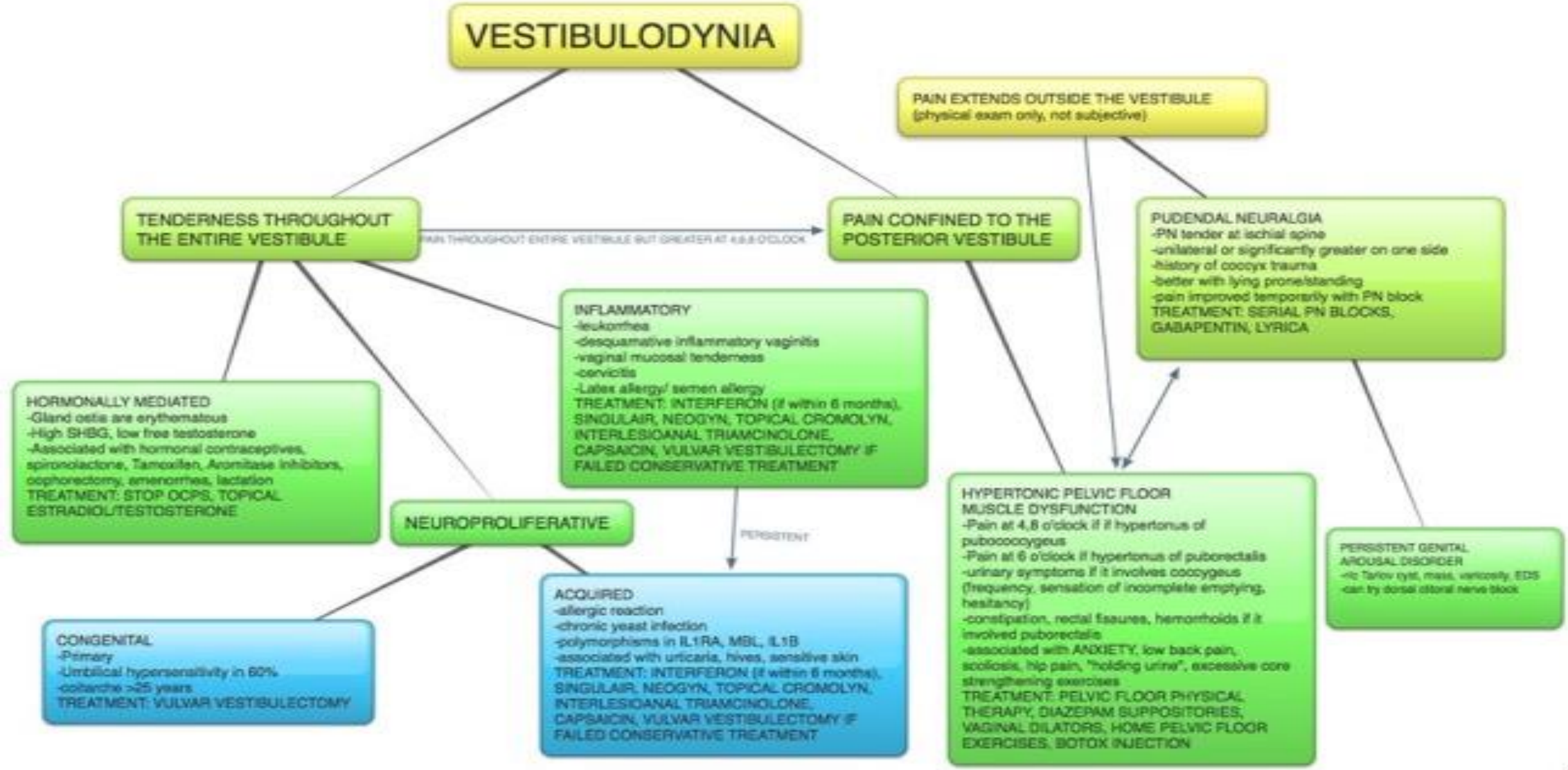
- Co-morbid with other pain syndromes (BPS, fibromyalgia, IBS, TMJ)
- Genetics
- Hormonal factors
- Inflammation
- Musculoskeletal (overactive pelvic floor)
- Neurologic (Central or Peripheral)
- Psychosocial
- Structural defects

WOMEN'S HEALTH COLLECTIVE

# Persistent Vulvar Pain: Diagnostic and Treatment Algorithm



# Vestibulodynia: Common Etiological Pathways

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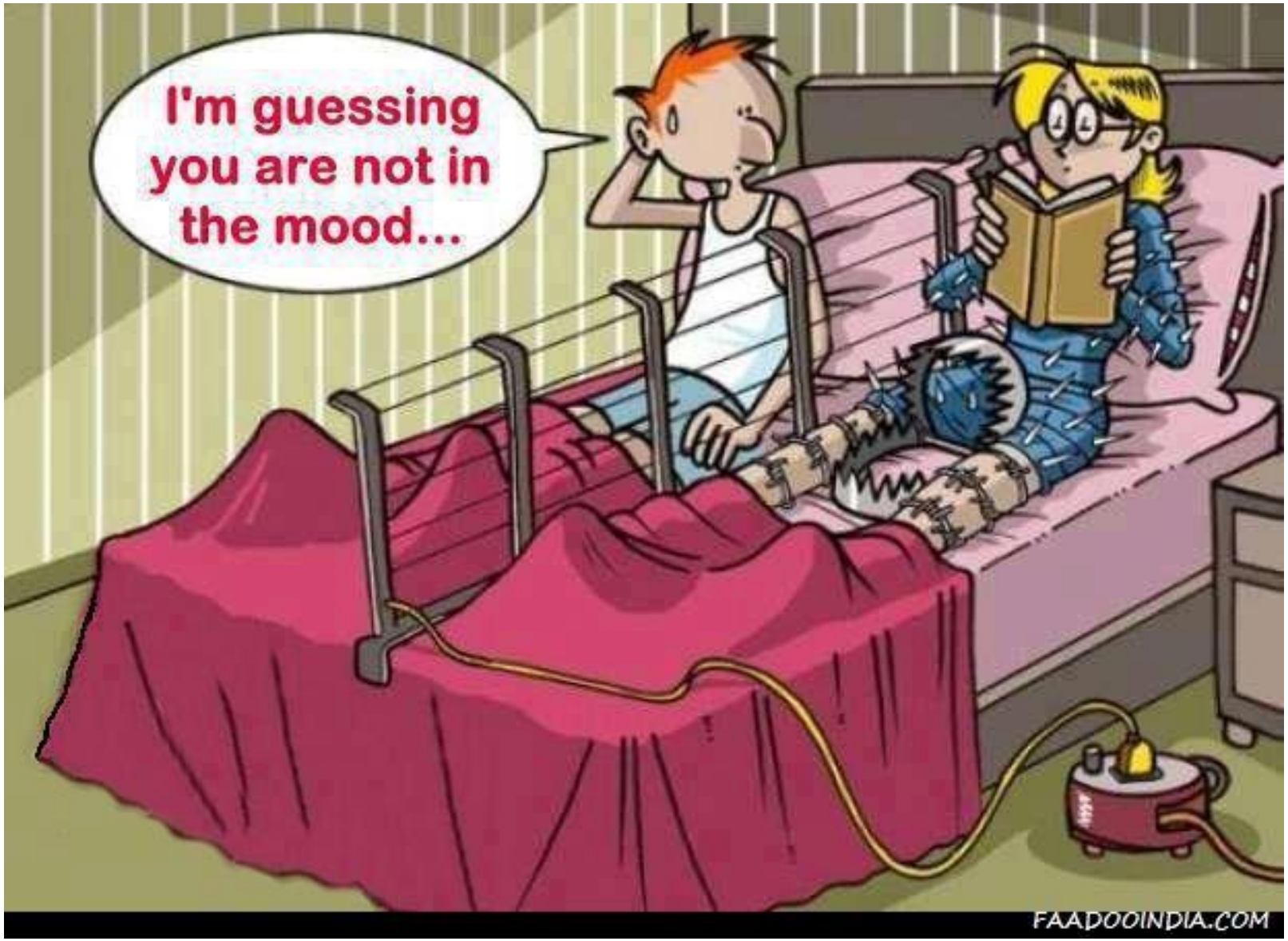


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# Vulvodynia physical exam

- Let the patient know she is in charge
- Ask her to let you know if she needs a break or if she would like you to stop the exam at any time
- NEVER say the word “relax”
- Let her know when and where you plan to touch her
- Demonstrate the pressure you will use on another body part
- Significantly important with a history of abuse
- Ask if she does yoga – recommend yoga breaths
  - If not, walk her through some breathing techniques

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# 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
- Vulvalgesiometer
  - Research purposes
  - Standardized pressures

WOMEN'S HEALTH COLLECTIVE

# 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

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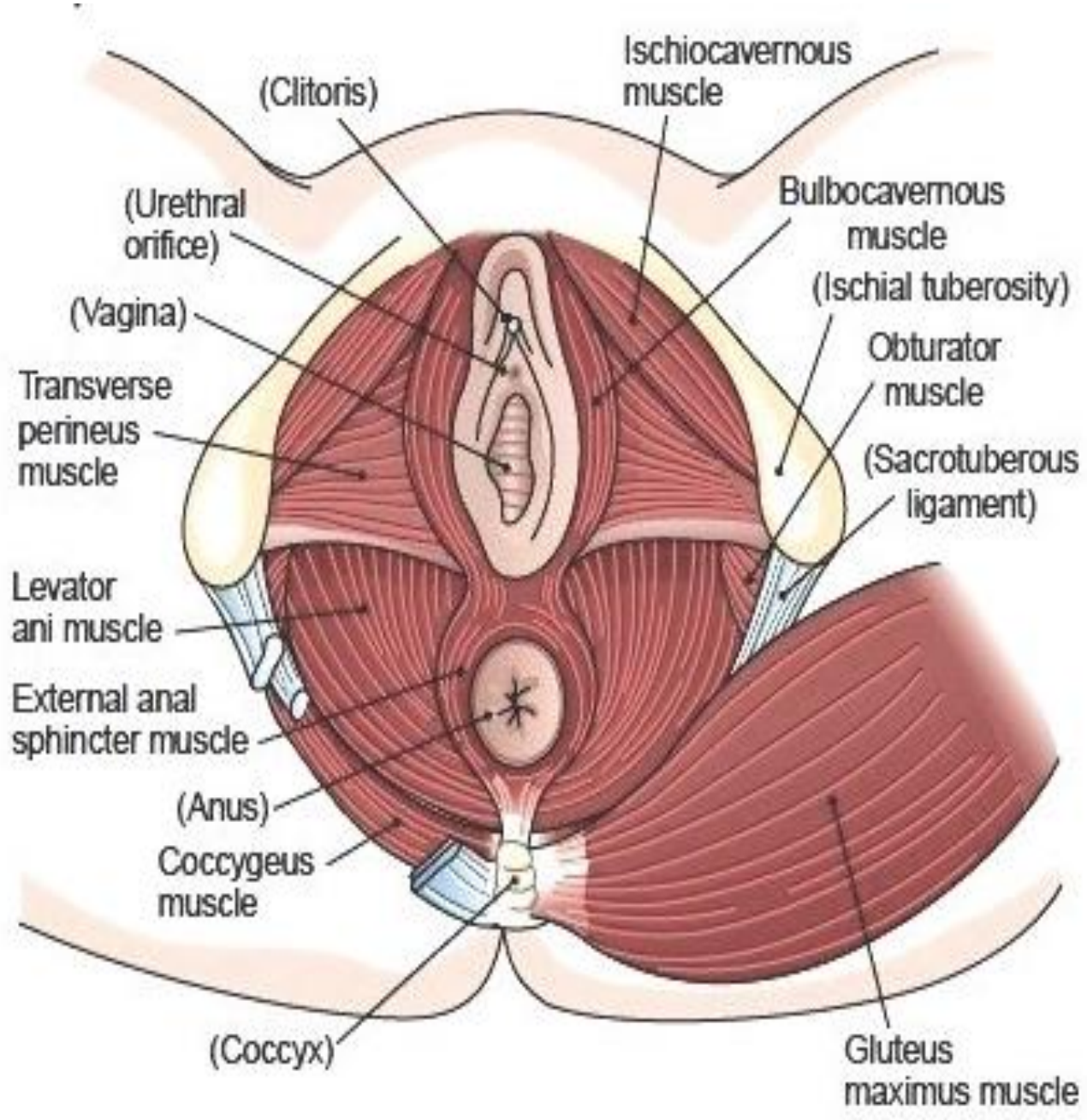


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# Symptoms of overactive pelvic floor

**Vulvar Pain**

**Vulvodynia**

**Dyspareunia**

**Superficial or deep**

**Vaginismus**

**Pain with tampon use**

**Pelvic Pain**

**Abdominal** pain

**Hip pain**

**Low back** pain

**Coccodynia**

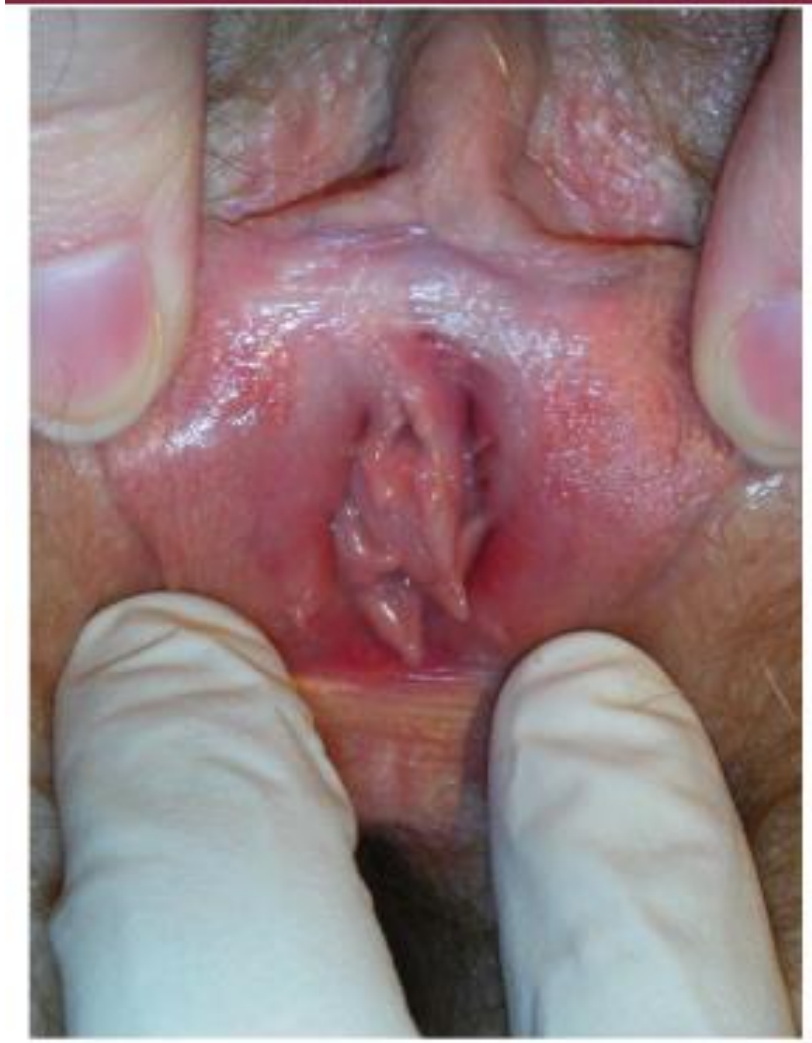
**Rectal pain/fullness**

**Vulvovaginal burning**

**Urinary urgency/frequency**

WOMEN'S HEALTH COLLECTIVE

# 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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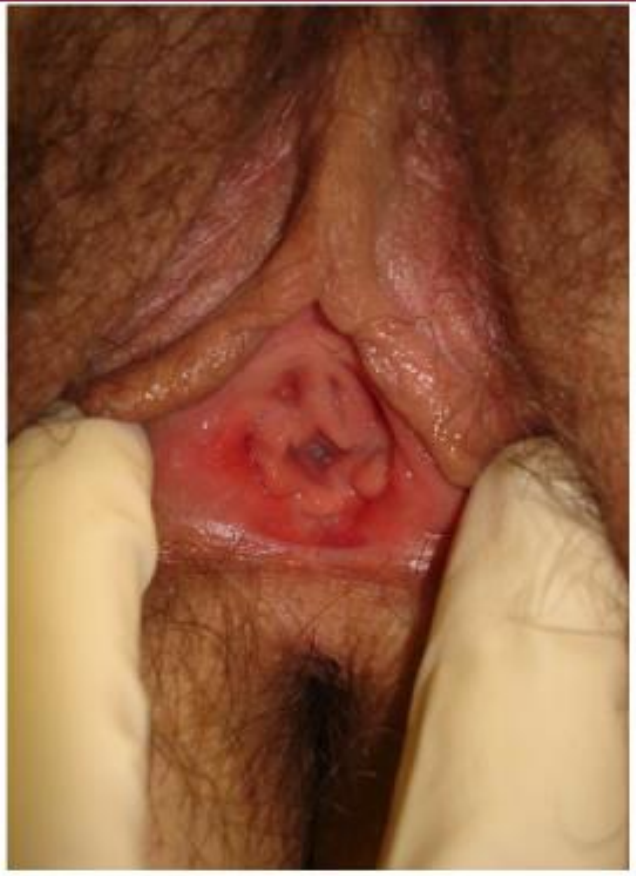
# Hormonally Mediated Vestibulodynia

## 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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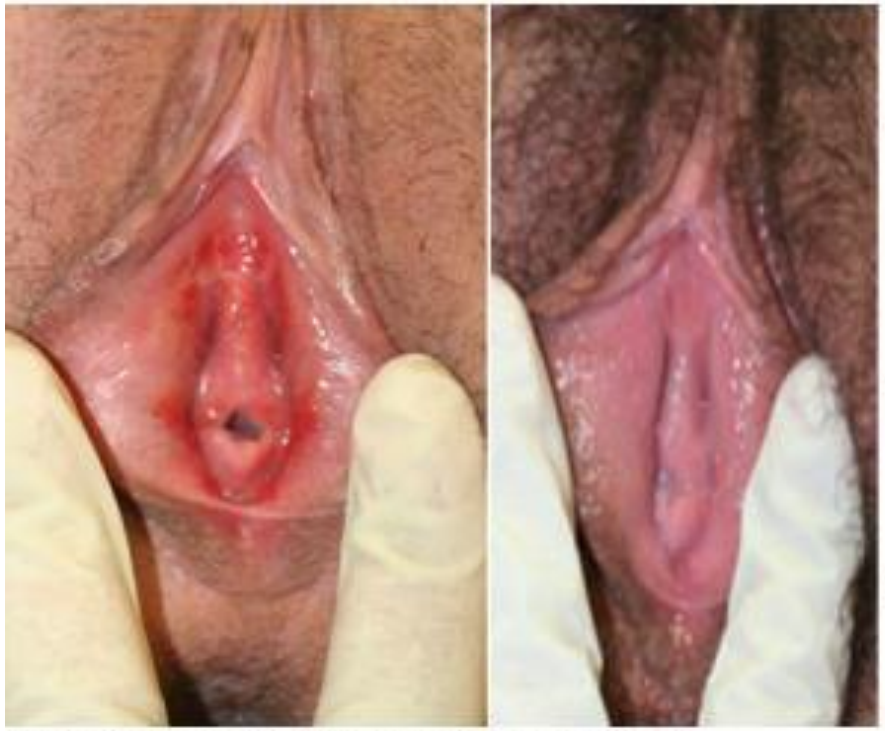
# Hormonally-Medicated Vestibulodynia



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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
- Consider topical estradiol 0.03%/testosterone 0.01% in base (e.g. methylcellulose) twice daily to vestibule
- Clinical experience suggests estradiol 0.01%/testosterone 0.01% may also be effective.

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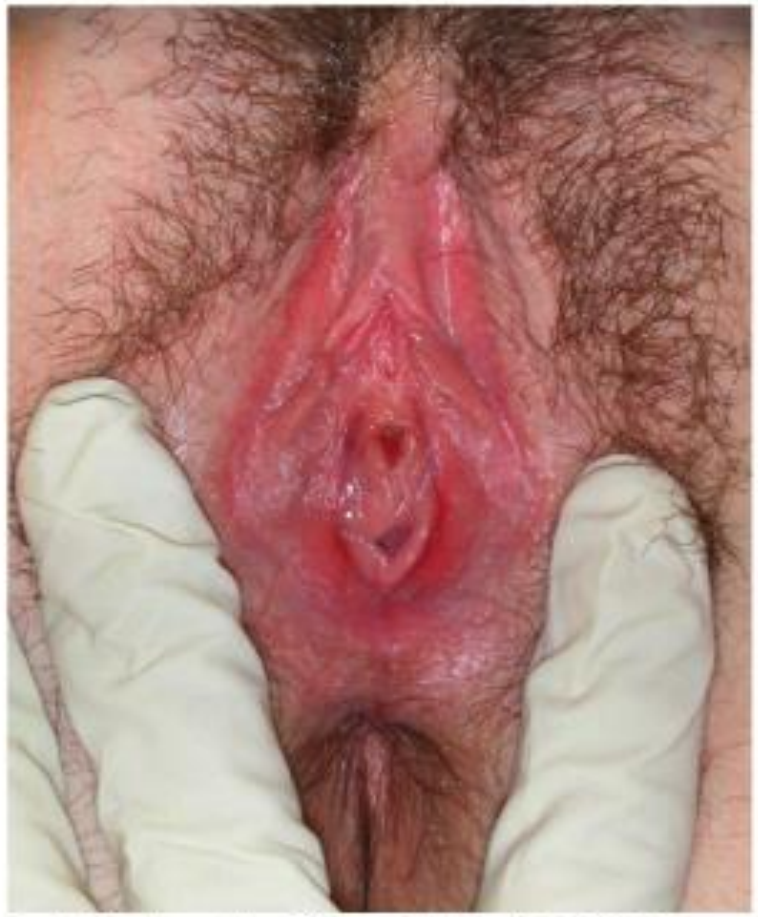
# Congenital Neuroproliferative Vulvodynia



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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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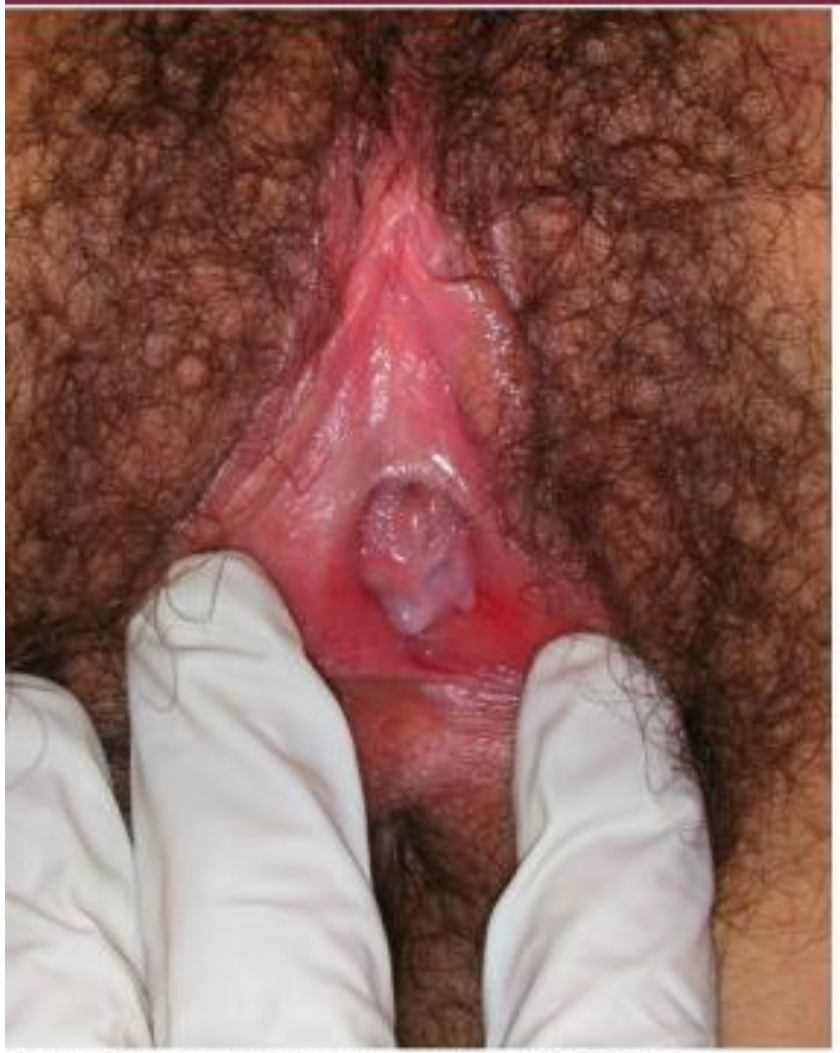
# Acquired Neuroproliferative Vulvodynia



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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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# VIN

- Potential precursor to vulvar cancer
- No routine screening for this
- HPV detected in 86.7% of VIN in a review of > 2,000 specimens
  - HPV 16 most commonly
  - Followed by 33 and 18
- Study in 2000 showed incidence of VIN 3 was 2.86 per 100,000 women
- Low-grade squamous intraepithelial lesion (LSIL) of the vulva (flat condyloma, HPV effect)
  - Not a precancerous lesion – no tx necessary unless symptomatic
- High-grade squamous intraepithelial lesion (HSIL) of the vulva (VIN unusual type)
- VIN differentiated type (dVIN)

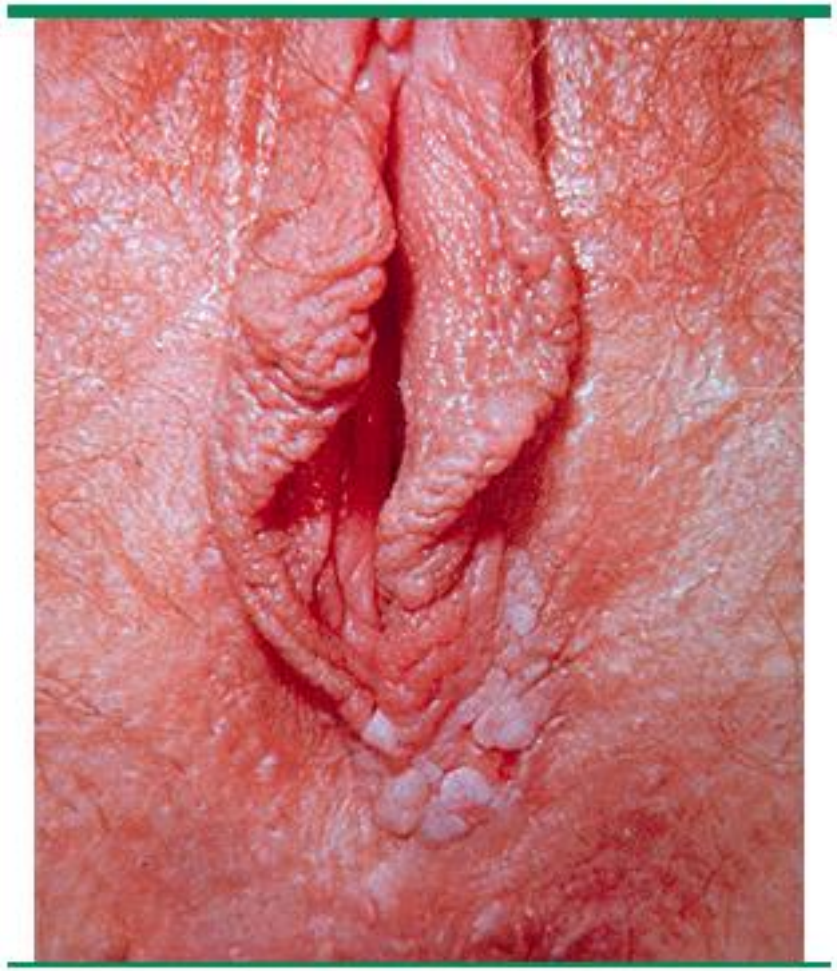
Judson et al, Obstet Gynecol, 2006

# VIN

- Average age at diagnosis is 46
- Risk factors:
  - HPV
  - Cigarette smoking
  - Immunodeficiency
- dVIN is associated with vulvar LS
- Typically asymptomatic
- Surgical excision
  - May consider ablative therapy or pharmacologic treatment for some

WOMEN'S HEALTH COLLECTIVE

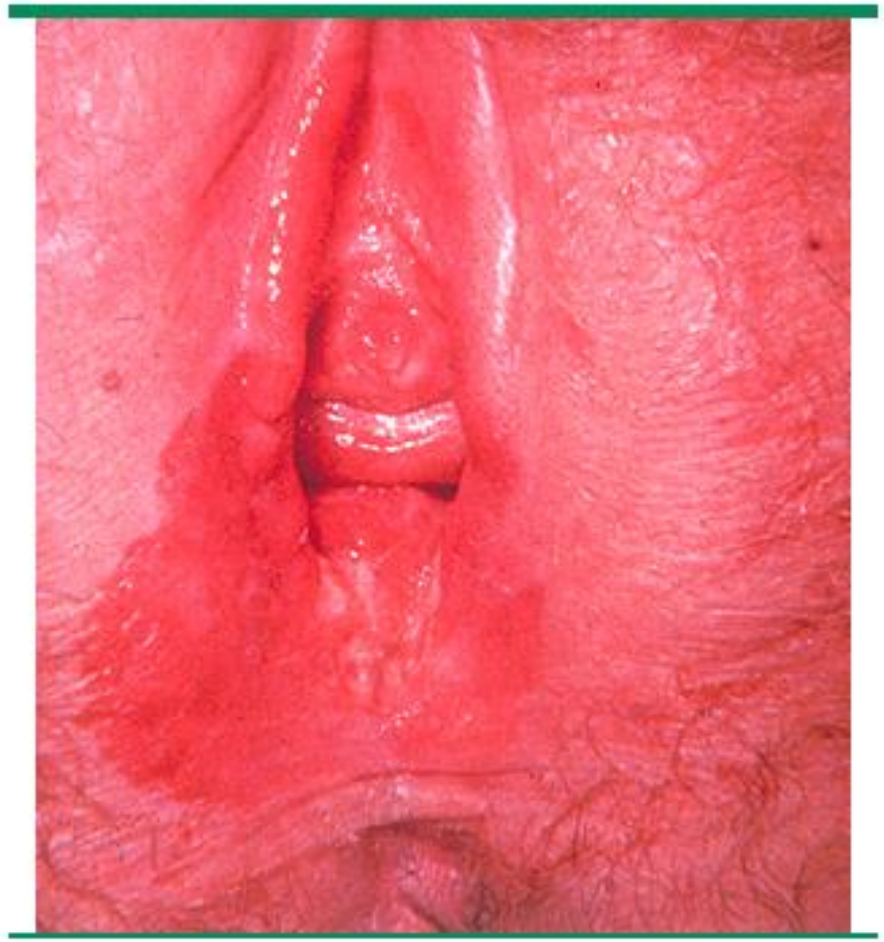
**White plaques of vulvar high-grade squamous intraepithelial lesions (HSIL)**



Raised whitish plaques as a manifestation of high-grade squamous intraepithelial lesions of the vulva (HSIL).

*Courtesy of Christine Holschneider, MD.*

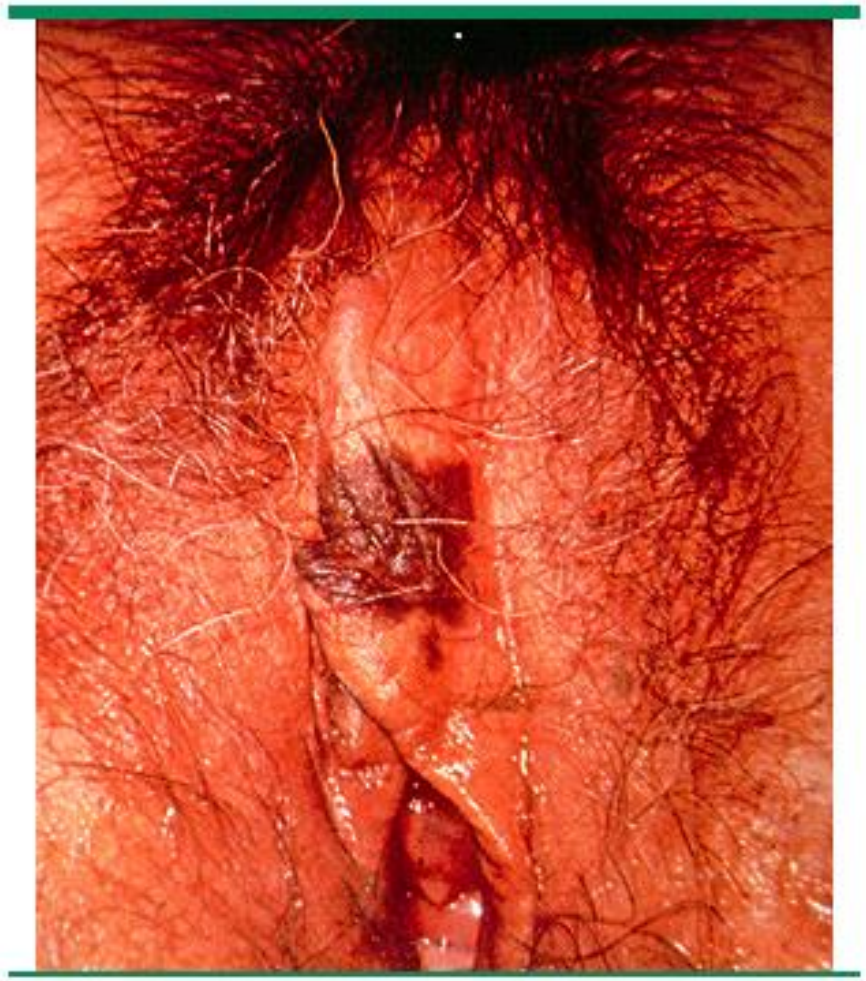
**Red macular high-grade squamous intraepithelial lesion (HSIL) of vulva**



Red macular lesion as a manifestation of a high-grade squamous intraepithelial lesion (HSIL) of the vulva.

*Courtesy of Christine Holschneider, MD.*

**Brown macular high-grade squamous intraepithelial lesion (HSIL) of vulva**



High grade squamous intraepithelial lesion (HSIL) manifesting as a brown macular lesion of the vulva.

*Courtesy of Christine Holschneider, MD.*

# Vulvar cancer

- Vulvar cancer is the 4th most common gyn malignancy in the US
  - Uterine, ovarian, and cervical top 3
- Squamous cell carcinoma is most common (75%)
  - Melanoma, basal cell carcinoma, Bartholin gland adenocarcinoma, sarcome, and Paget disease are others
- 6,000 cases and 1,000 deaths from vulvar cancer each year
- 0.3% lifetime risk of vulvar cancer in US
- Average age of diagnosis in US – 68 yrs
- 5 yr survival rate in US – 72.1%

WOMEN'S HEALTH COLLECTIVE

# Vulvar cancer risk factors

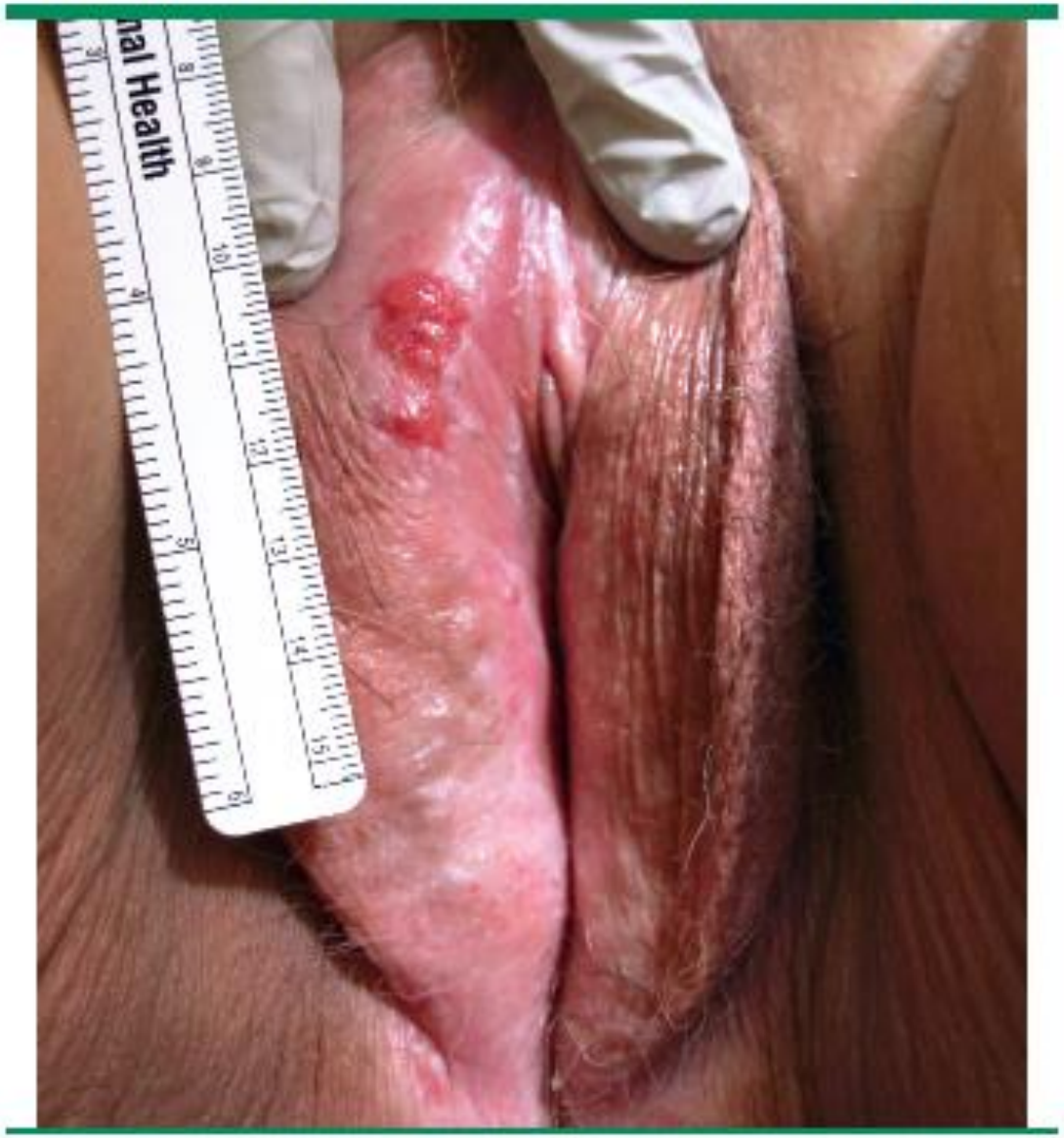
- Vulvar intraepithelial neoplasia
- Cervical intraepithelial neoplasia
- h/o cervical cancer
- Cigarette smoking
- Vulvar LS
- Immunodeficiency syndromes
- Northern European ancestry
- High risk HPV

WOMEN'S HEALTH COLLECTIVE

# Vulvar cancer

- Typical presentation – vulvar lesion
- Typically unifocal vulvar plaque, ulcer, or mass – fleshy, warty, or nodular
- Many are asymptomatic, some present with vulvar pruritus or bleeding
- Dysuria, dyschezia, rectal bleeding, enlarged lymph node in groin, LE edema – all suggestive of advanced disease
- Often associated with a 2$^{nd}$ malignancy – most commonly cervical neoplasia
- Biopsy, vulvoscopy

# Vulvar squamous cell cancer and lichen sclerosus




*Reproduced with permission from Lynne J Margesson, MD.*

# Vaginal Intraepithelial Neoplasia (VaIN)

- Squamous cell atypia without invasion
- Carcinoma in situ (considered VaIN) encompasses full thickness epithelium – considered VaIN 3
- Estimated 0.1-0.3 cases per 100,000 women in the US
- Average patient is 43-60 yrs
- HPV common risk factor
  - Also immunosuppression
- Associated with prior or concurrent neoplasia elsewhere in GU tract 50-90% of the time

# VaIN diagnosis

Typically asymptomatic

Occasional postcoital spotting or vaginal discharge

Digital palpation to assess for thickening of the vaginal wall

Colposcopy with biopsy if indicated

Majority of lesions upper 1/3 of vagina

2-8% will progress to invasive vaginal carcinoma

Treatment

- Excision, ablation, topical therapy, radiation of lesions

VaIN 1 lesions often regress spontaneously, and no established malignant potential

f/u with cytology every 6 months for 1-2 years, then annually

WOMEN'S HEALTH COLLECTIVE

# Vaginal Carcinoma

## 3% of all malignant neoplasms of the female genital tract

- 4,000 cases and 900 deaths annually in US

## Mainly SCC

- Also melanoma, sarcoma, adenocarcinoma, and others

## Metastatic spread to vagina is not uncommon

- From endometrium, cervix, vulva, ovary, breast, rectum, and kidney

## Mean age at diagnosis 60 yrs

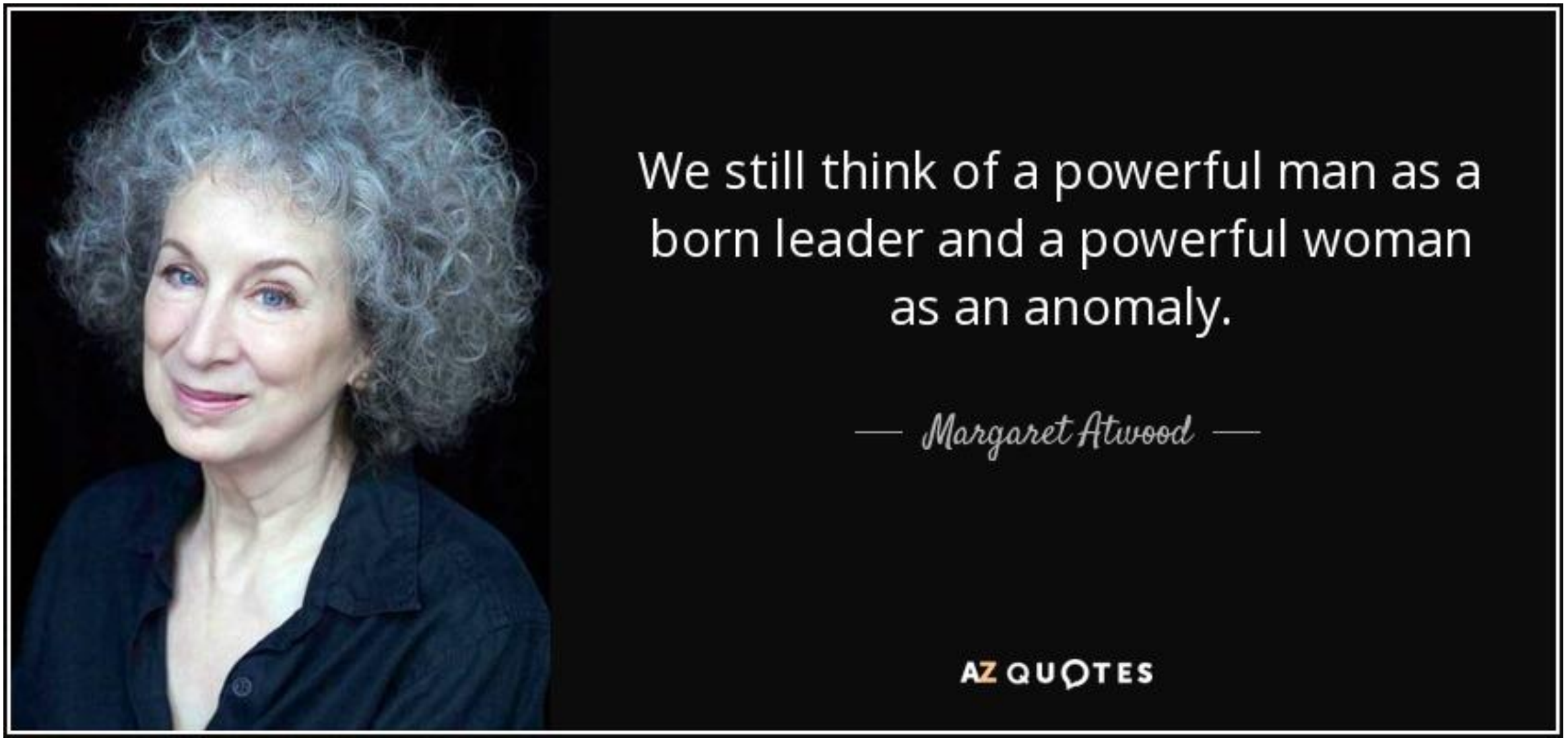
## Same risk factors as cervical neoplasia

- Multiple sexual partners
- Early age at coitarche
- Current smoker

WOMEN'S HEALTH COLLECTIVE

# Vaginal Carcinoma

- Many are asymptomatic
- Vaginal bleeding is the most common presentation
  - Post coital or post meno
- Diagnosis:
  - History – complete GU
  - Pelvic exam – may note a mass, plaque, or ulcer
  - Vaginal cytology
  - Vaginal biopsy
  - Examine inguinal canal for nodes

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