Vulvar Rash:
A Complete Workup

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Patients and physicians frequently presume a "red itchy vulvar rash" is a sign of an acute infectious vulvovaginitis. However, a recent review reported that the analysis of individual symptoms, signs, and office laboratory tests are not very efficient in identifying the cause of vaginal symptoms.[1]

What is the diagnostic process?

Table 1 lists the differential diagnoses for vulvar rash. Table 2 lists five key diagnostic steps in a vulvar rash workup.[2-4]

What should I ask about on history?

A focused medical history will alert you to the possibility of dermatologic or systemic conditions that may affect the vulva. It is useful to ask questions regarding skin care and vulvar hygiene measures. Many patients try to "wash away their symptoms" and may be using chemical irritants and/or synthetic pads that may be causing or aggravating their condition.

Patients should be asked about any skin, hair, and/or nail conditions. Patients are often unaware dermatoses affecting other areas of the body can affect the vulvar skin as well. Finally, systemic diseases, such as Crohn's disease, pyoderma gangrenosum, or erythema multiforme may have cutaneous manifestations that affect vulvar skin.

Elena's case

Elena, 45, presents with a six-month history of itchy vulvar rash. The rash involves her groins, as well as her vulvar and perianal skin.

She has tried numerous over-the-counter anti-yeast preparations and antibacterial soaps, with poor results. She denies any other hair, skin, and/or nail conditions. She has trouble sleeping at night and she often wakes up scratching the skin. She has been unable to engage in sexual activity for several months because she feels too sore.

Elena's physical exam reveals a bright red rash with a sharp border that involves the groins, labia majora and minora, as well as the perianal skin. The inflamed skin has a wrinkled and thinned appearance. Excoriations are noted.

The labia minora are shrunken and the interlabial folds are difficult to distinguish. The vestibule and the vagina are not inflamed. The pH of the vaginal discharge is 4.5. The gram stain report notes mature epithelial vaginal cells and no white blood cells.

For a followup on Elena, go to page 71.

What do I look for on physical exam?

With a differential diagnosis in mind, a physical exam must be performed systematically.

Table 1

Differential diagnoses for inflammatory vulvar rash

Infectious	Non-infectious

• Vaginitis (yeast, trichomoniasis)
• Skin candidiasis
• Tinea cruri
• Impetigo
• Intertigo
• Erythema
• Cellulitis
	• Dermatitis
	  • Irritant dermatitis
	  • Atopic dermatitis
	  • Seborrheic dermatitis
	• Dermatoses
	  • Psoriasis
	  • Lichen planus
	  • Lichen sclerosus
	• Pre/malignant lesions
	  • Vulvar intraepithelial lesion
	  • Adenocarcinoma in situ (Paget's)
	  • Squamous cell carcinoma
	  • Basal cell carcinoma

1. Inspect the rest of the body

Hair, skin, oral mucosa, and nails often reveal valuable clues about dermatologic conditions that may also be affecting the vulva.

2. Survey the vulvar skin

The vulva can be easily inspected with an articulated light source. Magnification is rarely needed.

Survey the skin, including the groin and perianal skin, and identify what areas are involved. Inspect the colour, texture, and integrity of the skin. Note any physical lesions. If vulvar intraepithelial neoplasia is suspected, apply 3% to 5% acetic acid and reinspect after three minutes. Acetic acid will highlight areas of epithelial hyperkeratosis and hyperplasia, but its use is not recommended as a routine step, as it can be extremely uncomfortable for those patients with an inflammatory rash.

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Inspect the anatomy and skin and note the presence of any lesions. The dermatoses, lichen sclerosus and lichen planus, can destroy the normal vulvar architecture. Both can cause shrinking/loss of the labia minora, burying of the glans of the clitoris, and eventually narrowing of the introitus.

After inspecting the skin, palpate the external genitalia. Table 3 lists the appearance of some forms of dermatitis and some dermatoses that affect the vulvar skin.

3. Examine the rest of the lower genital tract

Most vulvar dermatoses and dermatitis do not involve the vestibular and vaginal skin. A vulvar rash in the presence of a normal appearing vagina and cervix strongly suggests a skin condition, rather than an infectious vulvovaginitis.

Examine the vaginal discharge. Note its characteristics, perform a pH test, whiff test and, if possible, a wet mount of the vaginal discharge. If office microscopy is not available, send a vaginal specimen for a gram stain.

Is there a role for a vaginal culture?

The gold standard diagnostic test for vaginitis is microscopy or vaginal gram stain. There is a very limited role for culture unless it identifies a true pathogen.

Bacterial microorganisms routinely found on the skin surfaces may be reported in a vaginal culture, but these organisms are not pathogenic in reproductive-aged women. Furthermore, the vaginas of

Table 2

5 Key diagnostic steps in a vulvar rash workup

1. Generate a broad differential diagnosis for the patient's presentation.
2. Focus the medical history (vulvar hygiene, skin disorders, systemic diseases).
3. Examine all skin surfaces (genital and extragenital).
4. Apply gold standard diagnostic tests:
   - Assess vaginal discharge (pH, wet mount/ gram stain).
   - Assess skin (biopsy or skin scrapings).
5. Schedule a followup exam.

healthy, asymptomatic women can be colonized with certain microorganisms (*e.g.*, Gardnerella, Candida); their presence on culture is not diagnostic of vaginitis.

With regard to gram stains, reports ideally include information on white blood cells, vaginal epithelial cells, and microorganisms. The absence of lactobacilli and an increase in gram negative bacilli strongly suggest bacterial vaginosis.

What is the best way to perform a vulvar biopsy?

The majority of vulvar skin conditions can be diagnosed with a simple skin biopsy. Many physicians are reluctant to biopsy the sensitive vulvar skin, but patient discomfort can be reduced by using a buffered solution of lidocaine (mix 1% lidocaine with epinephrine with 1 cc of sodium bicarbonate).

Alternatively, the physician can ask the patient to apply a topical preparation, such as eutectic mixture of local anesthetic cream to the intended biopsy site 30 to 45 minutes prior to the exam. The area can then be painlessly injected with further local anesthetic, as needed. A 25-gauge needle is used to infiltrate the skin with sufficient local anesthetic (1 cc to 3 cc) to create a wheal.

A followup on Elena

Elena's history of external constant vulvar itching "partially" responsive to topical anti-yeast and antibacterial treatments suggests a non-infectious etiology. These topical medications were likely aggravating her skin condition.

The exam reveals changes to her vulvar anatomy and skin, suggesting a diagnosis of vulvar dermatoses. Inspection of the vagina, cervix, and vaginal discharge is normal and a gram stain report is negative for yeast.

A vulvar skin biopsy is indicated in this patient and a subsequent biopsy reveals lichen sclerosus and noted fungal elements in the superficial epidermis. It is common that patients who scratch the skin can get a secondary skin candidiasis.

The patient is treated with oral antifungal and then started on a topical, grade 1 corticosteroid (betamethasone), to manage her dermatoses.

One month later, Elena is asymptomatic and her skin shows marked improvement.

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Table 3

Forms of dermatitis and dermatoses that affect the vulvar skin

Diagnosis	Associated signs	Anatomy	Appearance of vulvar skin	Vaginal involvement
Irritant or atopic dermatitis	For atopic dermatitis, asthma, allergic rhinitis; rash elsewhere	Normal	Dry, red, scaling, edema, excoriations lichenification, symmetric rash, ill-defined border	No
Lichen simplex chronicus	May occur elsewhere	Normal	Thick leathery plaques, excoriations, lichenification, symmetric, ill-defined border	No
Lichen sclerosus	Extragenital dermatoses may be present, but not common	Keyhole distribution shrinkage or loss of labia minora, loss of interlabial fold, burrying of clitoral hood, introital narrowing	Red rash often associated with white atrophic "cigarette paper skin", excoriations common, subcutaneous hemorrhages seen, distinct border	No
Psoriasis	Scalp, knee, elbows, sacrum, nail disease	Normal	Intense red homogeneous rash, thick red plaques may be present, symmetric pattern of involvement, distinct border	No
Tinea cruri	Foot disease may be present	Normal	Red, homogeneous, scaly rash with distinct serpentine border	No
Skin candidiasis	Oral thrush, other skin folds (axillae, breast)	Normal	Red diffuse rash, edema, satellite lesions, indistinct border	Maybe
Intertrigo		Normal	Dull, red, moist, weepy rash, indistinct border	No
Cutaneous lichen planus	Oral, "lacy" lesions, alopecia, nail dystrophy	Normal	Distinct, purple, polygonal pruritic plaques	No
Erosive lichen planus	Gingivitis	Anatomic changes similar to lichen sclerosus may be seen	Dramatic, red erosive vestibules and vagina, bleeds on contact sharp border	Yes, friable mucosa adhesions, stenosis in advanced cases

The biopsy technique applied depends on the depth of the biopsy specimen needed. The majority of papillomatous lesions involve only the epidermal layer of the skin and can be easily removed with a "snip or slice" biopsy. Tent the skin with a pair of forceps and then use scissors or a #15 blade to "snip" or "slice" off a specimen. For small, superficial specimens, stitches are rarely needed. Hemostasis can be achieved by applying either a silver nitrate stick or Monsel's solution to the site.

Suspected dermatoses or premalignant lesions may need a layer of dermis to aid in the diagnosis. The keys punch biopsy (3 mm to 4 mm) inserted to its full depth can be useful for obtaining deeper specimens. The deeper the biopsy, the more discomfort to the patient. Deeper biopsies require a

stitch of 4-0 absorbable suture and result in longer healing times for patients.

A biopsy may not be necessary to diagnose dermatitis. In these situations, the exam reveals a diffuse, mild, inflammatory rash with normal skin texture.

The subsequent skin biopsy is likely to report non-specific inflammation and adds little to the clinical impression. However, a skin biopsy is particularly helpful in diagnosing dermatoses and premalignant lesions. In general, whenever the skin texture is noted to be abnormal, a biopsy should be performed.

If you suspect that a dermatophyte may be the cause of the rash, you may perform a skin scraping by adding 10% potassium hydroxide and looking for fungal elements under a microscope. Perhaps the most important reason to perform a skin biopsy is to identify premalignant or malignant diseases of the vulva. The premalignant lesion, vulvar intraepithelial neoplasia (VIN)/squamous cell carcinoma in situ, can have many different appearances—warts, red, white and or pigmented lesions. VIN can affect women of all reproductive ages.

Reluctance to perform a skin biopsy may delay the diagnosis of VIN and/or squamous cell carcinoma. As a rule, all ulcers associated with a chronic rash need to be biopsied to exclude squamous cell carcinoma.

In all of these cases, the physician should insist on a followup exam after the patient has completed the recommended course of treatment. If the patient has failed to improve, the diagnosis must be reconsidered.

Any persistent skin abnormalities noted upon followup exam should definitely be biopsied to rule out co-existing premalignant lesions. Dx

References

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