Vulvovaginal Atrophy: A Common—and Commonly Overlooked— Problem

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Mrs. K is a 67-year-old woman presenting for a brief follow-up visit. You treated her for an E. coli urinary tract infection last month, but she feels well today and offers no complaints. Her blood pressure and lipids are well controlled on low doses of a single antihypertensive and a lipid lowering agent. She still struggles with smoking, but has cut down to a few cigarettes a day. She also reports her husband has finally turned over the family business to their children, and they are enjoying spending more time together. When you ask if there is anything else she needs, she hesitates for a moment before asking, "Is there anything I can do to make sex more comfortable?"

On further questioning, Mrs. K states she and her husband have become more intimate since his retirement, but that attempts at intercourse have been painful and caused bleeding. At times her vagina is dry and burns, but at other times there is a thin yellow discharge. An over-the-counter douche made the burning worse. A friend suggested an herbal supplement which she tried for a few weeks without success. She used to enjoy sex but is concerned that part of her life "is over for good." You suspect her complaints are related to vulvovaginal atrophy.

Vulvovaginal atrophy, also known as *atrophic vaginitis*, results from the decline in endogenous estrogen secretion after menopause, which induces thinning of the vulvovaginal epithelium with associated inflammatory changes. It is common in older women but not always symptomatic. Unlike vasomotor symptoms, which occur early in menopause and usually resolve, vulvovaginal atrophy presents later and is persistent and progressive. True incidence and prevalence are unknown. Estimates suggest up to half of postmenopausal women are symptomatic, but a quarter of these will not seek treatment.

Estrogen is essential to maintaining the urogenital environment. After menopause, the vaginal epithelium thins while subepithelial connective tissue increases, resulting in loss of rugal folds and elasticity. Vaginal epithelium is a rich source of glycogen, which in turn supports lactic-acid producing bacteria. The loss of lactobacilli and subsequent increase in vaginal pH that accompany estrogen deficiency allows overgrowth of gram negative rods, which may predispose to urinary tract infection. Finally, blood flow is reduced, producing a decline in vaginal secretions.

All postmenopausal women are at risk for vaginal atrophy. Smokers are more estrogen deficient compared with nonsmokers and may be at higher risk. Engaging in regular sexual activity, whether through intercourse or masturbation, appears to decrease risk, possibly through increased blood flow. Women using anti-estrogen medications, such as aromatase inhibitors for adjuvant treatment of breast cancer, are more likely to experience severe symptoms.

Women may not volunteer symptoms related to vulvovaginal atrophy. The symptomatic woman can experience vaginal dryness, burning, and pruritus; yellow, malodorous discharge; urinary frequency and urgency; and pain during intercourse and bloody spotting afterward. With advanced atrophy, penetration during intercourse may be impossible. Recurrent urinary tract infections may occur.

Typical findings on external genital exam include sparse pubic hair, decreased turgor and elasticity of the vulva, fusion of the labia minora, and eversion of the urethral mucosa. The vaginal exam should be approached carefully, with evaluation of the width and depth of the introitus before attempting to insert a speculum. A narrow Pederson speculum is a better choice than the broader Graves speculum. The vaginal exam shows pale, smooth, shiny mucosa that may be friable and bleed with minimal trauma. The vagina may be dry or there may be watery to serosanguinous discharge. Fissures, diffuse or patchy erythema, petechiae, or visible vessels are common findings. Cystocele, rectocele, or uterine prolapse may also be present.

Vulvovaginal atrophy is primarily a clinical diagnosis in older women, but select testing can help rule out coexisting conditions suggested by specific symptoms:

- Urinary urgency or frequency: urinalysis and culture to rule out urinary tract infection
- Vaginal discharge: microscopy of saline and potassium hydroxide wet preps to evaluate for bacterial vaginosis and vaginal candidiasis
- Postcoital spotting: cervical cultures or urine testing for gonorrhea and chlamydia
- Vaginal bleeding: transvaginal ultrasound to evaluate for endometrial overgrowth
- Labial or vaginal wall lesions: biopsy to evaluate for dermatologic conditions such as lichen planus or malignancy

Table 1. Topical estrogen therapy for vaginal atrophy

Dosing form	Strength	Dose	Comments
Conjugated estrogens vaginal cream (Premarin)	0.625 mg/gram	0.5-2 grams vaginally daily for 3 weeks, then tapered to lowest effective dose twice weekly; administer cyclically (3 weeks on, 1 week off)	• Less acceptable to women than vaginal tablet or ring, which may affect adherence • Highest association with systemic absorption • Difficult to accurately measure lower doses
Estradiol vaginal cream (Estrace)	0.01 mg/gram	2-4 grams vaginally daily for 1-2 weeks, then tapered to lowest effective dose over 1-2 weeks; administer 1-3 times weekly for maintenance	
Estradiol tablet (Estrace)	0.01 mg	1 tablet vaginally daily for 2 weeks, then twice weekly for maintenance	• Less systemic absorption compared with cream
Estradiol-impregnated silicone vaginal ring (Estring)	2 mg	Ring placed vaginally every 3 months (delivers approximately 0.0075 mg/day)	• May be inserted by patient • Lowest association with systemic absorption • May not be appropriate for women with narrow, short, or stenosed vagina • Expulsion more common in women with prior hysterectomy

Whether treatment is needed in asymptomatic women is unknown. Lifestyle modification and over-the-counter vaginal moisturizers and lubricants should be considered as first-line treatment. Women should be counseled to avoid tight-fitting clothing, synthetic undergarments, and contact irritants such as scented soaps and feminine hygiene products. Regular use of vaginal moisturizers (such as Replens) can help relieve vaginal itching and irritation, while water- or silicone-based personal lubricants (such as Astroglide or Eros) during intercourse can reduce dyspareunia.

Estrogen-based treatment restores vaginal epithelium, pH, and moisture, and should be considered when non-hormonal treatments fail. Although there are few well-designed trials, topical therapy is preferred for isolated vaginal symptoms given concern for long-term risks of malignancy and cardiovascular disease with systemic **hormone replacement therapy** (**HRT**).

Local estrogen treatment may also be helpful in women taking ultra-low-dose HRT for vasomotor symptoms. If urogenital symptoms are not relieved, the addition of topical estrogen may limit total estrogen dose compared with use of higher dose HRT.

Topical estrogen is available in several forms (see table). There are insufficient data to recommend any single treatment as superior, so patient preference should guide selection. Vaginal symptoms typically respond within a few weeks. Side effects may include breast and perineal pain, local irritation, and endometrial proliferation.

Estrogen exposure is assumed to be minimized with topical therapy, but systemic absorption does occur. Creams have the highest association with systemic absorption, followed by tablets then rings. Safety beyond one year is unknown. Use of the lowest effective dose for the shortest duration possible is recommended.

Although endometrial protection is not routinely recommended, addition of a cyclic or daily progestin to prevent endometrial hyperplasia should be considered with long-term or higher dose (>0.5 mg estradiol or >0.5 g conjugated estrogens/day) topical therapy.

Estrogen is contraindicated in known or suspected breast or other estrogen-dependent cancers, undiagnosed vaginal bleeding, history of thromboembolism, or active thrombophlebitis. Use in a woman with breast cancer with severe urogenital atrophy unresponsive to non-hormonal treatment should be considered only after careful discussion of risks with the woman and her oncologist. There is additional concern for women using adjuvant therapy for breast cancer as there may be sufficient systemic absorption from topical estrogen to counteract the anti-estrogenic effects of aromatase inhibitors.

Estrogen use should be reviewed every 3 to 6 months, with an attempt to taper or discontinue its use. Discontinuation often results in symptom recurrence. Women using estrogen should have an annual clinical breast exam and mammography. Vaginal bleeding should prompt transvaginal ultrasound to evaluate for endometrial overgrowth, with endometrial biopsy as indicated.

The need for surveillance ultrasound in asymptomatic women is unknown.

There has been considerable interest in bioidentical hormones as well as complementary medications, including phytoestrogens, black cohosh, dong quai, ginseng, and red clover, but data on their effectiveness are limited.

Vulvoaginal atrophy is a common, but often unrecognized, condition in older women that can significantly affect daily life. Clinicians who care for older women should be alert to possible clues and specifically inquire about symptoms. Effective interventions are available, although more study is needed regarding the long-term safety of topical estrogens. Given concerns for systemic effects of topical estrogens, there is significant research interest in more targeted therapies, such as vaginally delivered selective estrogen response modifiers.

For Mrs. K, her symptoms provided the motivation to quit smoking. Lifestyle modification and a topical moisturizer were not completely effective, but she experienced significant improvement after treatment with the estradiol vaginal tablet.

Resources

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