



## ATROPHIC VAGINITIS

Priyanka Kantivan Goswami<sup>1\*</sup>, Mayuri Samant<sup>2</sup>, Rashmi Srivastava<sup>3</sup>, Anubha Khale<sup>1</sup><sup>1</sup>Humera Khan College of Pharmacy, Oshiwara, Jogeshwari (W), Mumbai, India<sup>2</sup>School of Pharmacy and Technology Management, NMIMS University, Vile Parle (W), Mumbai, India<sup>3</sup>Mumbai Education Trust's Institute of Pharmacy, Bandra (W), Mumbai, India

\*Corresponding Author Email: priyanka8408@gmail.com

Article Received on: 29/09/13 Revised on: 28/10/13 Approved for publication: 13/11/13

DOI: 10.7897/2230-8407.041104

IRJP is an official publication of Moksha Publishing House. Website: www.mokshaph.com

© All rights reserved.

## ABSTRACT

Atrophic vaginitis is a condition that arises when there is insufficient estrogen, resulting in a failure of the maturation of the vaginal epithelium. This is seen in any condition in which there is a significant decrease in estrogen production. (E.g. breast-feeding, natural menopause, women younger than 50 who have had a bilateral salpingo-oophorectomy, and women receiving progesterone therapy in the absence of estrogen). Atrophic vaginitis can also result from women receiving therapy that suppresses ovarian function thereby causing depletion in estrogen. The patient with atrophic vaginitis typically presents with vulvovaginal burning, itching, dysuria, dyspareunia and vaginal bleeding. The introitus and vagina become traumatized during sexual intercourse. These patients often experience bleeding during and after sexual intercourse. The bladder, urethra and vagina share a common embryonic origin. These organs are all hormones dependent and suffer the same consequences when estrogen is no longer available. The estrogen deprived patient can develop urinary frequency, urgency, bladder irritation and dysuria. The diagnosis can be established by noting that the vaginal epithelium is pale pink to almost white, rugae are absent, and the vaginal walls appears smooth. The pH >5, and discharge is dirty gray to green. In this review an attempt has been made to focus on treatment for atrophic vaginitis condition. As, in countries like India patients are not very open to talk about this condition.

**Keywords:** Atrophic Vaginitis, Estrogen, Genital, Menopause

## INTRODUCTION

Atrophic vaginitis is an inflammation of the vagina due to the thinning and shrinking of the tissues, as well as decreased lubrication. This is all due to a lack of the reproductive hormone estrogen. The symptoms can include vaginal soreness and itching, as well as painful intercourse, and bleeding after sexual intercourse. The shrinkage of the tissues can be extreme enough to make intercourse impossible. 10 to 40 % of patients experience urogenital atrophy after menopause, although only 25 % of these report with symptoms to the gynecologist. Generally, the prevalence of vaginal atrophy has been reported to range from 7 % to 57 % in healthy peri and postmenopausal women. Approximately 40 % of women with vaginal atrophy report dyspareunia which is defined as persistent, recurrent urogenital pain occurring before, during, or after sexual intercourse (or penetration)<sup>1-3</sup>.

## Role of Estrogen in Health

Estrogen deficiency can impair vaginal function and impede the physiologic responses that characterize sexual arousal, such as smooth muscle relaxation, vasocongestion, and vaginal lubrication<sup>4</sup>. Decreased blood flow, reduced vaginal secretions, and delayed onset of lubrication during sexual stimulation due to estrogen deficiency may contribute to sexual dysfunction observed in some postmenopausal women. Estrogen deficiency may result in reduction in superficial epithelial cells in the vagina results in less exfoliation of cells, reduced release of glycogen, and reduced conversion into lactic acid by the vaginal flora<sup>1</sup>. Estradiol, the primary form of estrogen produced by a woman's ovary during her reproductive years, plays an essential role in maintaining the elasticity and health of her genital tissues. This fluid makes sexual intercourse more comfortable and helps decrease vaginal irritation. Thinning or shrinking of the vaginal tissue causes dryness and inflammation. Declining levels of estrogen, increase tissue fragility and the risk for

vaginal and urinary infections, irritation, dryness, urogenital pain, and the probability of vaginal tissue trauma<sup>5,6</sup>. Atrophic vulvovaginitis is characterized by genital mucosa that has compromised elasticity, decreased moisture, and compromised integrity as well as tissue erythema and inflammation<sup>7,8</sup>. (Figure 1) Estrogen stimulation increases the glycogen content of vaginal epithelial cells. Glycogen metabolized by organism in the vagina to lactic acid which acts to maintain the pH at about 3.5 to 4.5<sup>9-10</sup>. This acidic pH is an important component of a woman's nonspecific defense against pathogens<sup>11-12</sup>.

## Causes of low estrogen levels which leads to atrophic vaginitis

- Medications or hormones used to decrease estrogen levels in women, as part of the treatment for breast cancer, endometriosis, fibroids, or infertility
- Radiation treatment to the pelvic area or chemotherapy
- Severe stress, depression, or rigorous exercise
- Atrophic vaginitis may occur in younger women who have had surgery to remove their ovaries. Some women develop the condition immediately after childbirth or while breastfeeding, since estrogen levels are lower at these times
- The vagina can also become further irritated from soaps, laundry detergents, lotions, perfumes, or douches. Certain medications, smoking, tampons, and condoms may also cause or worsen vaginal dryness<sup>13-15</sup>

## Signs and Symptoms

A decrease in vaginal lubrication is an early hallmark of hormone insufficiency leads to following signs and symptoms:

- Vaginal dryness, burning, dyspareunia
- Loss of vaginal secretions, leukorrhea, vulvar pruritus

- Feeling of pressure, itching and yellow malodorous discharge
- Urethral discomfort, frequency, hematuria, urinary tract infection
- Dysuria and stress incontinence
- All atrophic vaginitis symptoms can be exacerbated by a simultaneous infection of candidiasis, trichomoniasis or bacterial vaginosis<sup>16</sup>.



**Figure 1:** External genitalia of a 67-year-old woman who is naturally menopausal for two years and is not on estrogen replacement therapy. Loss of labial and vulvar fullness, pallor of urethral and vaginal epithelium, and decreased vaginal moisture<sup>13</sup>

### Diagnosis

On physical examination, the vagina is dry, with pale, frail tissue, and lacking the normal mucosal ridges and folds. The expected elasticity and pliability associated with a well estrogenized vagina maybe absent. There is minimal lubrication due to decreased vaginal blood flow, and the tissues are easily traumatized with digital or pelvic examination. There may also petechiae or small hemorrhages on the vaginal lining. The vaginal introitus may be narrowed; the epithelial surface is typically very friable and may be ulcerated. Vulvar tissue may appear diminished, obliterated, or even fused, and irritation and erythema evident. Pubic hair is often diminished and there can be clitoral tissue shrinkage; pelvic organ prolapse is not uncommon<sup>17</sup>.

### Laboratory Examination

Laboratory diagnostic testing, including serum hormone levels and Papanicolaou smear, can confirm the presence of urogenital atrophy. Cytological examination of smear from the upper one third of the vagina shows an increased proportion of parabasal cells and a decreased percentage of superficial cells. An elevated pH level (postmenopausal pH levels exceeding 5) monitored by a pH strip in the vaginal vault, may also be a sign of vaginal atrophy. In addition, a vaginal ultra sonogram of the uterine lining that demonstrates a thin endometrium measuring between 4 and 5 mm signifies loss of adequate estrogenic stimulation<sup>18</sup>.

### Prevention

Regular sexual activity, either with or without a partner, may help prevent vaginal atrophy. Sexual activity increases blood flow to your vagina, which helps keep vaginal tissues healthy<sup>19</sup>.

### Treatment for Atrophic vaginitis

Symptoms, medical history, personal lifestyle, and treatment goals should all be taken into account when constructing the patient management schema and selecting a treatment agent. To be approved by the FDA, new treatments for vulvovaginal atrophy are required to demonstrate efficacy in three areas: improvement in vaginal maturation; change in vaginal pH; and change in severity of the most bothersome vulvovaginal symptom, or MBS<sup>20</sup>.

### Estrogen Therapy

Cardozo *et al* found in a meta-analysis of 10 clinical trials of estrogen therapy that vaginal estrogen therapy provided the greatest symptom relief and improvement in atrophic changes<sup>21</sup>.

### Vaginal estrogen products

Vaginal estrogen products for the treatment of atrophic vaginitis include creams, tablets, suppositories, and rings. Initial trials of a 25- $\mu$ g estradiol tablet for 52 weeks comparing once- versus twice-weekly therapy, after a 2-week induction period, found that there was better symptom relief with the twice-weekly therapy, and safety was comparable, with only weakly proliferative endometrium in some subjects at a year<sup>22</sup>. There are 2 vaginal rings available today for estrogen therapy: Estring (Pfizer) and Femring (Warner Chilcott). Vaginal rings are worn for 3 months at a time, which many women may find advantageous. When initially inserted, there is a burst increase in hormone release that stabilizes within the first 3 hours after insertion.

### Vitamin E

Prescription estrogen is very effective in treating atrophic vaginitis. It is available as a cream, tablet, suppository, or ring, all of which are placed directly into the vagina. These medicines deliver estrogen directly to the vaginal area. Vitamin E facilitates to enhance the defense system in addition to defend our body against dangerous bacteria. This kind of vitamin is additionally a powerful moisturizer. It can support to recover genital lubrication. Scientists haven't identified that eating vitamin E and by mouth tablets enable to boost genital lubrication or lessen warning signs of genital atrophy. Many health care centers recommend Vitamin E to treat atrophic vaginitis. Chosen as a genital suppository, it can support to relieve inflamed and swollen cell walls and boost genital moisture. Vitamin E gel caps can be punctured and the gel placed in the vagina. Replens, a polycarboxyl-based vaginal moisturizing gel, is typically placed in the vagina up to 3 times weekly. It acts as a bioadhesive and produces a moist film that adheres to the vaginal surface. Replens has been shown to restore vaginal pH and improve cytological morphology<sup>23</sup>.

### Herbal Remedies for Vaginal Atrophy

#### Black cohosh

It may help to stimulate blood flow to female sex organs including the uterus and vagina, helping to alleviate vaginal atrophy. According to the "Prescription for Herbal Healing" it should not be taken while pregnant or nursing or by those who may have hormone dependent cancers such as uterine, breast or ovarian

#### Aloe Vera

When used as a topical gel, extract from the aloe vera plant may help to relieve vaginal dryness often associated with vaginal atrophy. It may also have an anti-inflammatory effect which may help to relieve itching and inflammation

#### Calendula

It is widely used as an additive to cosmetic skin creams and may stimulate the production of collagen which may help to support atrophied vaginal tissue. It is also thought to alleviate the itching which may come with vaginal atrophy and dryness associated with menopause.

**Isoflavones**

Isoflavones, some of which are phytoestrogens, may help to simulate the presence of estrogen in the body. Extracts or supplements may be obtained from sources such as soy and red clover. Taking phytoestrogens in the form of soy or red clover extract may help to eliminate symptoms of vaginal atrophy by acting as a natural estrogen replacement<sup>24</sup>.

**CONCLUSION**

In countries like India, women are not so open to talk about this problem. If this condition of atrophic vaginitis persists then it may lead to serious infections. Vaginal atrophy is not just long term estrogen loss. Quick diagnosis and therapy may prevent development of atrophic vaginitis or overcome existing symptoms. Awareness towards delivery of estrogen replacement, as well as alternative therapies, greatly increases a physician's ability to prescribe treatment that is compatible with a patient's physical needs and lifestyle. In the appropriate circumstances, encouragement of sexual activity and continued coital relations is also an important source of non-pharmacological treatment about which many patients may not be informed.

**REFERENCES**

- Mac Bride MB, Rhodes DJ, Shuster LT. Vulvovaginal atrophy. *Mayo Clin Proc* 2010; 85(1): 87-94. <http://dx.doi.org/10.4065/mcp.2009.0413> PMID:20042564 PMCID:PMC2800285
- Levine KB, Williams RE, Hartmann KE. Vulvovaginal atrophy is strongly associated with female sexual dysfunction among sexually active postmenopausal women. *Menopause* 2008; 15(4): 661-666. <http://dx.doi.org/10.1097/gme.0b013e31815a5168> PMID:18698279
- Dennerstein L, Dudley EC, Hopper JL, Guthrie JR, Burger HG. A prospective population-based study of menopausal symptoms. *Obstet Gynecol* 2000; 96(3): 351-358. [http://dx.doi.org/10.1016/S0029-7844\(00\)00930-3](http://dx.doi.org/10.1016/S0029-7844(00)00930-3)
- Goldstein I. Recognizing and treating urogenital atrophy in postmenopausal women. *J Women's Health (Larchmt)* 2010; 19(3): 425-432. <http://dx.doi.org/10.1089/jwh.2009.1384> PMID:20156082
- Nyirjesy P. Postmenopausal vaginitis. *Curr Infect Dis Rep* 2007; 9: 480-484. <http://dx.doi.org/10.1007/s11908-007-0073-5> PMID:17999884
- Bachmann G, Eberg GA, Burd ID. Vulvovaginal complaints. In: Lobo RA, editor. *Treatment of the Postmenopausal Woman: Basic and Clinical Aspects*. Philadelphia PA: Lippincott Williams and Wilkins; 1999. p. 195-201.
- Society of Obstetricians and Gynecologists of Canada. SOGC clinical practice guidelines. The detection and management of vaginal atrophy. Number 145, May 2004. *Int J Gynaecol Obstet* 2005; 88(2): 222-228. <http://dx.doi.org/10.1016/j.ijgo.2004.11.003> PMID:15779109
- Katz A. When sex hurts: menopause-related dyspareunia. Vaginal dryness and atrophy can be treated. *Am J Nurs* 2007; 107(7): 34-6, 39. <http://dx.doi.org/10.1097/01.NAJ.0000279264.66906.66> PMID:17589227
- North American Menopause Society. The role of local vaginal estrogen for treatment of vaginal atrophy in postmenopausal women: 2007

- position statement of The North American Menopause Society. *Menopause* 2007; 14(3 Pt 1): 355-369. PMID:17438512
- Roy S, Caillouette JC, Roy T, Faden JS. Vaginal pH is similar to follicle-stimulating hormone for menopause diagnosis. *Am J Obstet Gynecol* 2004; 190(5): 1272-1277. <http://dx.doi.org/10.1016/j.ajog.2003.12.015> PMID:15167829
  - Milsom I, Arvidsson L, Ekelund P, Molander U, Eriksson O. Factors influencing vaginal cytology, pH and bacterial flora in elderly women. *Acta Obstet Gynecol Scand* 1993; 72(4): 286-291. <http://dx.doi.org/10.3109/00016349309068039> PMID:8389516
  - Pandit L, Ouslander JG. Postmenopausal vaginal atrophy and atrophic vaginitis. *Am J Med Sci* 1997; 314: 228-31. <http://dx.doi.org/10.1097/0000441-199710000-00004>
  - Mettler L, Olsen PG. Long-term treatment of atrophic vaginitis with low-dose oestradiol vaginal tablets. *Maturitas* 1991; 14: 23-31. [http://dx.doi.org/10.1016/0378-5122\(91\)90144-F](http://dx.doi.org/10.1016/0378-5122(91)90144-F)
  - Dupont A, Dupont P, Cusan L, Tremblay M, Rioux J, Cloutier D, et al. Comparative endocrinological and clinical effects of percutaneous estradiol and oral conjugated estrogens as replacement therapy in menopausal women. *Maturitas* 1991; 13: 297-311. [http://dx.doi.org/10.1016/0378-5122\(91\)90238-L](http://dx.doi.org/10.1016/0378-5122(91)90238-L)
  - Kalogeraki A, Tamiolakis D, Relakis K, Karvelas K, Froudarakis G, Hassan E, et al. Cigarette smoking and vaginal atrophy in postmenopausal women. *In vivo* 1996; 10: 597-60. PMID:8986469
  - Bachmann GA, Nevadunsky NS. Diagnosis and treatment of atrophic vaginitis. *Am Fam Physician* 2000; 61(10): 3090-3096. PMID:10839558
  - Osmers R, Volksen M, Schauer A. Vaginosonography for early detection of endometrial carcinoma? *Lancet* 1990; 335: 1569-71. [http://dx.doi.org/10.1016/0140-6736\(90\)91387-P](http://dx.doi.org/10.1016/0140-6736(90)91387-P)
  - <http://www.mayoclinic.com/health/vaginal-atrophy/DS00770/DSECTION=prevention>
  - Ettinger B, Hait H, Reape KZ, Shu H. Measuring symptom relief in studies of vaginal and vulvar atrophy: the most bothersome symptom approach. *Menopause* 2008; 15(5): 885-889. <http://dx.doi.org/10.1097/gme.0b013e318182f84b> PMID:18779677
  - Cardozo L, Bachmann G, Mc Clish D, Fonda D, Birgerson L. Meta-analysis of estrogen therapy in the management of urogenital atrophy in postmenopausal women: second report of the Hormones and Urogenital Therapy Committee. *Obstet Gynecol* 1998; 92(4 Pt 2): 722-727. [http://dx.doi.org/10.1016/S0029-7844\(98\)00175-6](http://dx.doi.org/10.1016/S0029-7844(98)00175-6)
  - Phyllis A. Balch, the Prescription for Herbal Healing; CNC; 2005.
  - Mettler L, Olsen PG. Long-term treatment of atrophic vaginitis with low-dose oestradiol vaginal tablets. *Maturitas* 1991; 14(1): 23-31. [http://dx.doi.org/10.1016/0378-5122\(91\)90144-F](http://dx.doi.org/10.1016/0378-5122(91)90144-F)
  - Eckert LO, Lentz GM. Infections of the lower genital tract: vulva, vagina, cervix, toxic shock syndrome, HIV infections. In: Katz VL, Lentz GM, Lobo RA, Gershenson DM, eds. *Comprehensive Gynecology*. 5<sup>th</sup> ed. Philadelphia, Pa: Mosby Elsevier; 2007: chap 22. <http://dx.doi.org/10.1016/B978-0-323-02951-3.50025-X>
  - Lobo RA. Menopause: endocrinology, consequences of estrogen deficiency, effects of hormone replacement therapy, treatment regimens. In: Katz VL, Lentz GM, Lobo RA, Gershenson DM, eds. *Comprehensive Gynecology*. 5<sup>th</sup> ed. Philadelphia, Pa: Mosby Elsevier; 2007: chap 42. <http://dx.doi.org/10.1016/B978-0-323-02951-3.50045-5>

**Cite this article as:**

Priyanka Kantivan Goswami, Mayuri Samant, Rashmi Srivastava, Anubha Khale. Atrophic vaginitis. *Int. Res. J. Pharm.* 2013; 4(11):17-19 <http://dx.doi.org/10.7897/2230-8407.041104>