

# Genitourinary syndrome of menopause

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## Background

Genitourinary syndrome of menopause (GSM) is the new term for vulvovaginal atrophy (VVA). Oestrogen deficiency symptoms in the genitourinary tract are bothersome in more than 50% of women, having an adverse impact on quality of life, social activity and sexual relationships. GSM is a chronic and progressive syndrome that is underdiagnosed and undertreated.

## Objective

The aim of this article is to increase knowledge and understanding of GSM, improving the ability of healthcare professionals to discuss and obtain an appropriate history sensitively, and treat accordingly.

## Discussion

GSM includes conditions of the vagina, vulva, pelvic floor tissues, urinary tract, and sexual dysfunction and loss of libido. Many women are reluctant to report these symptoms to their healthcare professional for many reasons.

**G**enitourinary syndrome of menopause (GSM) is a more accurate and inclusive term that describes the multiple changes occurring in the external genitalia, pelvic floor tissues, bladder and urethra, and the sexual sequelae of loss of sexual function and libido, caused by hypoestrogenism during the menopause transition and postmenopause.<sup>1</sup> These genitourinary changes primarily occur in response to reduced oestrogen levels and ageing, and do not settle with time.

## Pathophysiology and anatomical changes

Oestrogen receptors are present in the vagina, vestibule of the vulva, urethra and trigone of the bladder, and on autonomic and sensory neurons in the vagina and vulva. The highest concentration of oestrogen receptors is in the vagina, with

oestrogen receptor alpha almost solely active postmenopause. Testosterone receptors are concentrated mainly in the vulval tissues and less in the vagina, whereas progesterone receptors are found only in the vagina and at the vulvovaginal epithelial junction.

The loss of oestrogen causes anatomical and functional changes, leading to physical symptoms in all of the genitourinary tissues (Box 1). The tissues lose collagen and elastin; have altered smooth muscle cell function; have a reduction in the number of blood vessels and increased connective tissue, leading to thinning of the epithelium; diminished blood flow; and reduced elasticity. Thinning is also related to the change in the vaginal epithelial cells. Premenopausally, the predominant cells are intermediate and superficial, and there are few parabasal cells, whereas after

### Box 1. Anatomical and functional changes in the genitourinary tissues

- Loss of labial and vulval fullness
- Contraction of labia majora and clitoral hood
- Narrowing and stenosis of the introitus
- Loss of hymenal remnants or reduced elasticity
- Vaginal shortening and narrowing
- Prolapse
- Pelvic floor weakening
- Vaginal epithelium dry and thin with petechiae
- Loss of superficial cells and increase in parabasal cells
- Loss of vaginal rugae
- Inflamed vaginal tissues
- Alkaline pH changes the vaginal microbiome with loss of *Lactobacilli* (vaginal pH >4.5)
- Persistent or recurrent discharge with odour (not *Candida* in postmenopause)
- Urethral meatal prominence and prolapse with thinning of the urethral epithelium
- Touch perception altered either hypersensitive or decreased feeling
- Loss of clitoral stimulation

menopause, the number of parabasal cells increase, and sometimes there is an increase in intermediate cells and loss of superficial cells.<sup>2</sup>

## Symptoms

GSM symptoms are manifestations of the changes that occur during menopause and lead to complaints of vaginal dryness, loss of lubrication, dyspareunia, vaginal wall prolapse, vaginal bleeding and discharge. Vulval burning, dryness, irritation or itching, and entry dyspareunia with fissuring are some of the vulval symptoms. Urinary symptoms include recurrent urinary tract infections, urgency and urge incontinence, stress incontinence, dysuria, and voiding issues. There may be loss of libido, dyspareunia on entry, within the vagina or deep in the pelvis, and sexual dysfunction of arousal and orgasm. Bleeding or spotting may occur during or after intercourse. Risk factors for GSM are listed in Box 2.

## Frequency of symptoms

Many studies have surveyed the frequency, type of symptoms, and their impact on health and quality of life. In the Melbourne Women's Midlife Study, the prevalence of vaginal dryness increased with age – 4% in early perimenopause, rising to 25% at one year postmenopause and 47% three years after the menopause. The symptoms range from mild, moderate to debilitating.<sup>3</sup> Other studies have found that 50% of women aged 50–60 years report symptoms, increasing to 72% in women aged older than 70 years, but only 4% associated

their symptoms with loss of oestrogen at menopause.<sup>4</sup>

The most bothersome symptoms reported were vaginal dryness and dyspareunia; some women have multiple symptoms, whereas others are asymptomatic. In the Women's Health Initiative Study, 60% of participants had physical evidence of vaginal atrophy, but only 10% declared they had symptoms. Estimations suggest that only 7% of women are treated.<sup>5</sup> Many women were unaware that there were treatments available.<sup>6</sup> Symptoms after surgical menopause, treatment for breast cancer and premature menopause are often more severe and debilitating.

Societal views about women's sexuality at older ages are essentially negative, and sexual problems are often considered to be part of normal ageing leading to many women not seeking help for their symptoms.

There is a disparity between the number of women who experience bothersome symptoms and those who are treated. First, women are unwilling, shy or embarrassed to discuss their symptoms with their healthcare professional, especially if:

- the healthcare professional is young and male
- the patient has had a previous negative experience with a healthcare professional
- the patient regards her symptoms as a natural part of ageing that she should 'put up with'.

Women often wait for their healthcare professional to ask the questions.

Second, the healthcare professional may be embarrassed or reluctant to ask appropriate questions (especially about sexual function), dismiss the symptoms as part of normal ageing, or feel pressured for time. Healthcare professionals may also be unaware of available treatments or their recommended doses, and may treat inadequately and in the short term.<sup>7</sup>

## Assessment

A careful history and examination should be performed to identify bothersome symptoms, their impact on quality of life and sexual function. Acknowledging that GSM symptoms are common is a useful strategy to start the discussion. Being proactive by asking questions specifically or as part of a systematic review in a sensitive, respectful and culturally appropriate manner, and asking open-ended questions, may assist in gaining the woman's trust to inform you of her concerns and symptoms.

The woman's past history may reveal risk factors predisposing her to GSM. Her medical, surgical, menstrual, gynaecological and obstetric histories may be relevant to development of particular symptoms and subsequent management. Ask about vulval hygiene and the use of possible irritants such as soap, bath gels, powders, lubricants, condoms, panty liners or pads that could cause symptoms.

Identify and document the onset of symptoms, their description, duration, how bothersome or distressing the symptoms are, and their impact on quality of life. The patient's psychosocial and sexual history should include the presence of a long-term or new partner, partner relationship, frequency of sexual activity, history of sexually transmissible infections (STIs) and the effect of her symptoms on her sexual intimacy.

Ask the woman's permission and explain how you will conduct the examination. Some conditions of the vulva and vagina may be identified or excluded by the examination. Using Box 1 as a checklist will help healthcare professionals to determine the extent and severity of the changes.

### Box 2. Risk factors for genitourinary syndrome of menopause

- Menopause
- Bilateral oophorectomy
- Premature ovarian failure
- Smoking
- Alcohol abuse
- Decreased sexual frequency or abstinence
- Lack of a vaginal birth
- Other causes of low oestrogen (eg postpartum period, hypothalamic amenorrhoea)
- Cancer treatments, including pelvic irradiation, chemotherapy and endocrine therapy

Where there is introital narrowing, visualisation of the vagina, cervix or vaginal vault may require a very small or paediatric speculum. Digital examination may elicit a narrowed introitus, especially of the posterior fourchette with reduced elasticity. The pelvic floor muscles may be relaxed, tense and painful or in severe spasm (vaginismus). The vaginal epithelium may feel thin, lacking in lubrication with loss of rugae. Palpating the vaginal vault, cervix and fornices will help to exclude pelvic pathology.

## Management

The aim of management and treatment of GSM is to provide symptom relief. However, the consultation is also an appropriate time to discuss lifestyle, diet and exercise, smoking cessation and appropriate alcohol consumption. Also use the time to perform routine cervical screening and STI tests, if indicated.

## Investigations

Investigations are not routinely performed, but are ordered depending on specific findings and possible differential diagnoses (Box 3). Investigation of any postmenopausal bleeding to exclude gynaecological malignancy is imperative.

A vaginal or vulval swab may be taken if there is a vaginal discharge or a vulvitis to exclude infection. A vulval biopsy may be necessary if the vulval findings are suspicious or do not respond to the recommended treatment. Urine investigations may be required if symptoms are related to bladder and urethra.

## Treatment

Treatment will depend on the symptoms and signs, and the degree of severity.

Non-hormonal therapies include personal lubricants, vaginal moisturisers and vaginal laser (long-term safety and efficacy have not been established). Hormonal therapies include vaginal oestriol cream or pessaries, vaginal oestradiol tablets, or systemic hormone therapy (menopause hormone therapy [MHT]).

## Personal lubricants and vaginal moisturisers

Lubricants and vaginal moisturisers are effective in relieving discomfort, friction and pain with penetrative sex. Lubricants are used at the time of intercourse, whereas vaginal moisturisers provide longer term relief. Lubricants can be water-based or silicone-based. Water-based lubricants are non-staining and have fewer side effects than silicone-based lubricants. However, the efficacy of lubricants depends on the osmolality, pH and additives of each individual product. High osmolality, >1200 mOsm/kg, is associated with irritation, contact dermatitis and cytotoxicity. Oils, such as olive or sweet almond oil, are alternatives.

Moisturisers rehydrate dry tissues by changing the fluid content in the vaginal epithelium, absorbing and adhering to it, mimicking vaginal secretions, and lowering the pH. The effect lasts about three days. Moisturisers contain polymers for adherence and other additives that effect osmolality and pH.<sup>8</sup>

## Hormonal therapies

Oestrogen vaginal preparations reduce symptoms and reverse the atrophic changes in pelvic tissues, and improve blood flow and the thickness of the epithelium in the vagina, bladder and urethra. There is minimal systemic absorption, with an initial peak, then almost no further absorption. Vaginal oestriol preparations of cream and pessaries provide a human oestrogen. Oestriol is the weakest oestrogen and has one-tenth of the potency of oestradiol. There is minimal absorption systemically and oestriol cannot be metabolised to oestradiol or oestrone.

Low-dose vaginal oestradiol tablets are also very effective in relieving atrophic symptoms. The individual dose is 10 µg, and studies have found that the annual absorption of oestradiol is only 1.14 mg.<sup>9</sup>

There are no studies on the long-term risks of vaginal oestrogen preparations, but absorption is negligible once the atrophic changes are reversed. Added progestogens are not needed to prevent endometrial

### Box 3. Differential diagnosis

- Dermatological conditions of the vulva (eg lichen sclerosus or planus, eczema, dermatitis, chronic vulvovaginitis)
- Vulvodynia, vaginismus
- Autoimmune disorders
- Malignancy
- Chronic pelvic pain
- Trauma, foreign bodies
- Diabetes
- Lupus

stimulation. The safety in breast cancer survivors is not established, especially with aromatase inhibitors, because of the possible risk of recurrence.<sup>10</sup>

In women with breast cancer, vaginal oestriol preparations are prescribed on an individual basis, in consultation with the woman and her breast physicians, depending on symptoms and their impact on quality of life.

Systemic hormone therapy (ie MHT) will improve the vasomotor symptoms of menopause and may improve genitourinary symptoms; however, in some women, a vaginal oestrogen may also be needed. Individualising the vaginal oestrogen therapy, discussing which preparation the woman would prefer and instructing her in how to use it, will increase the woman's adherence to therapy. The recommended therapy is daily use (at night) for two weeks, then a maintenance dose of two to three times per week. After improvement is noted in the woman's symptoms, it may be possible to reduce the frequency to the lowest effective dose.

## Sexual dysfunction

Management of a woman with sexual dysfunction, including loss of libido, dyspareunia due to vulvovaginal atrophy and pelvic floor tension, requires a more complex and multidisciplinary approach. The severity of the symptoms will determine the therapies required. Lubricants and moisturisers may be recommended initially for dryness and loss of lubrication with intercourse. Vaginal

oestrogens are prescribed when severe atrophic changes are present.

If there is pelvic floor dysfunction, pelvic pain or urinary symptoms, referral to a pelvic floor physiotherapist for pelvic floor training and relaxation will help to reduce symptoms. Sometimes, vaginal trainers will help dilate the vaginal introitus.

Consider changing regular medications that affect sexual function (eg antidepressants), and referral to a sexual therapist and/or couple counseling may be necessary.

### Newer or other treatments

Newer treatments are becoming available. Vaginal laser therapy is being trialled for vaginal dryness, but long-term data are not available.

A number of preparations that improve atrophic symptoms, but are currently not available in Australia, are ospemifeme, an oral selective oestrogen receptor modulator (SERM), and a vaginal gel of dehydroepiandrosterone (DHEA). Research is ongoing into new and improved vaginal oestrogen preparations.

### Follow-up

Follow-up visits should be regular to review the woman's response to treatment and her ongoing needs. The frequency will depend on whether the management strategies are successful.

### Conclusion

GSM is a chronic complex syndrome of multiple changes in the genitourinary tissues in response to the loss of oestrogen with menopause. The experience of atrophic symptoms varies and ranges from mild to debilitating, with effects on genitourinary function, sexual function, relationships and quality of life. Treatments, ranging from simple measures (eg lubricants, moisturisers) to vaginal oestrogen preparations and hormone replacement therapy, are available to reduce symptoms. A multidisciplinary approach may be necessary where there are complex problems, including sexual dysfunction.

The healthcare professional is in a unique position to sensitively discuss symptoms, such as incontinence, sexual pain, prolapse, vaginal irritation and dryness, and to advise, educate and manage accordingly, providing long-term follow-up.

### Key points

- GSM is very common and does not improve with time after menopause.
- Symptoms can have a severe impact on quality of life, sexual function and relationships.
- Women are often embarrassed or reluctant to inform healthcare professionals.
- Direct questioning, initially with open-ended questions, is needed.
- Examination of the vulva and vagina is necessary to provide appropriate treatments.
- Non-hormonal and hormonal therapies are available.
- A multidisciplinary team improves outcomes.
- Use the consultation to discuss lifestyle and health.

### Resources

#### Australasian Menopause Society

- [www.menopause.org.au](http://www.menopause.org.au)
- [www.menopause.org.au/images/stories/infosheets/docs/AMS\\_Genito\\_urinary\\_syndrome\\_of\\_menopause.pdf](http://www.menopause.org.au/images/stories/infosheets/docs/AMS_Genito_urinary_syndrome_of_menopause.pdf)
- [www.menopause.org.au/for-women/information-sheets/974-vaginal-health-after-breast-cancer-a-guide-for-patients](http://www.menopause.org.au/for-women/information-sheets/974-vaginal-health-after-breast-cancer-a-guide-for-patients)

#### Jean Hailes for Women's Health

- [https://jeanhailes.org.au/contents/documents/Resources/Booklets/The\\_vulva.pdf](https://jeanhailes.org.au/contents/documents/Resources/Booklets/The_vulva.pdf)
- <https://jeanhailes.org.au/health-a-z/vulva-vagina-ovaries-uterus/vulva-vaginal-irritation>

#### North American Menopause Society

- [www.menopause.org](http://www.menopause.org)
- [www.menopause.org/docs/default-source/2013/vva-position-statement.pdf?sfvrsn=0](http://www.menopause.org/docs/default-source/2013/vva-position-statement.pdf?sfvrsn=0)

#### International Menopause Society

- [www.imsociety.org](http://www.imsociety.org)

#### Dermnet NZ

- [www.dermnetnz.org](http://www.dermnetnz.org)

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#### References

1. Portman DJ, Gass ML, Vulvovaginal Atrophy Terminology Consensus Conference Panel. Genitourinary syndrome of the menopause: New terminology for vulvovaginal atrophy from the International Society for the Study of Women's Sexual Health and The North American Menopause Society. *Climacteric* 2014;17(5):557–63.
2. Gandhi J, Chen A, Dagur G, et al. Genitourinary syndrome of menopause: An overview of clinical manifestations, pathophysiology, etiology, evaluation, and management. *Am J Obstet Gynecol* 2016;215(6):704–11.
3. Dennerstein L, Dudley E, Hopper J, Guthrie J, Burger H. A prospective population-based study of menopause symptoms. *Obstet Gynecol* 2000;96(3):351–58.
4. Nappi RE, Kokot-Kierepa M. Vaginal Health: Insights, views and attitudes (VIVA): Results from an international survey. *Climacteric* 2012;15(1):36–44.
5. Archer DF, Labrie F, Bouchard C, et al. Treatment of pain at sexual activity (dyspareunia) with intravaginal dehydroepiandrosterone (prasterone). *Menopause* 2015;22(9):950–63.
6. Nappi, M. Kokot-Kierepa. Women's voices in the menopause: Results from an international survey on vaginal atrophy. *Maturitas* 2010;67(3): 233–38.
7. Archer DF. Efficacy and tolerability of local estrogen therapy for urogenital atrophy. *Menopause* 2010;17:194–203
8. Edwards D, Panay N. Treating vulvovaginal atrophy/genitourinary syndrome of menopause: How important is vaginal lubricant and moisturizer composition? *Climacteric* 2016;19(2):151–61.
9. Simon J, Nachtigall L, Ulrich LG, Eugster-Hausmann M, Gut R. Endometrial safety of ultra-low-dose estradiol vaginal tablets. *Obstet Gynecol* 2010;116:876–83.
10. Moegele M, Buchholz S, Seitz S, Ortman O. Vaginal estrogen therapy in postmenopausal breast cancer patients treated with aromatase inhibitors. *Arch Gynecol Obstet* 2012;285(5):1397–402.

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