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Genitourinary syndrome of menopause: Clinical manifestations, pathophysiology, evaluation, and management

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Abstract
Background: Genitourinary Syndrome of Menopause (GSM) is a multifactorial condition associated with the hypoestrogenic state of menopause, encompassing genital, urinary, and sexual symptoms that significantly impair quality of life in post-menopausal women.
Aim and objective: To study the clinical manifestations, pathophysiology, etiology, evaluation, and management strategies of GSM, and to compare findings with current literature.
Material and Methods: A case-control study was conducted on 60 postmenopausal women (30 GSM cases and 30 controls) over 12 months (jan 2024 to jan 2025) in Department of Obstetrics and gynaecology at tertiary care centre. Symptoms, clinical findings, vaginal pH, Vaginal Maturation Index (VMI), and estradiol levels were analyzed.
Results: GSM was significantly associated with vaginal dryness (100%), dyspareunia (86.7%), and urinary symptoms (90%) affecting more than 50% of post-menopausal patient. Vaginal pH was elevated in cases (6.57 vs 4.70), while VMI (18.7 vs 65.1) and estradiol levels (8.6 vs pg/18.5mL) were markedly reduced compared to controls (all $p<0.001$).
Conclusion: These findings confirm GSM as a distinct hypoestrogenic disorder characterized by both clinical and biochemical abnormalities. Vaginal dryness emerged as the most consistent symptom, while pH and VMI provide reliable diagnostic support. The results highlight the importance of early recognition and management of GSM, particularly with localized estrogen therapy, main cornerstone of treatment and other options like laser therapy and selective estrogen receptor modulator are being explored.

Keywords: Genitourinary syndrome of menopause, GSM, hypoestrogenism, menopause, estrogen therapy

Introduction

Menopause represents a natural biological transition characterized by the permanent cessation of menstruation due to ovarian follicular depletion, leading to a decline in estrogen production [1]. While vasomotor symptoms such as hot flashes and night sweats are well recognized, genitourinary manifestations remain underreported and undertreated. Genitourinary Syndrome of Menopause (GSM), a term introduced jointly by the International Society for the Study of Women's Sexual Health (ISSWSH) and the North American Menopause Society (NAMS), replaced older terminology such as 'vulvovaginal atrophy (VVA)' and 'atrophic vaginitis' [2]. The revised terminology was necessary because GSM more accurately encompasses the broad spectrum of genital, urinary, and sexual symptoms that arise due to hypoestrogenism, affecting not only the vagina but also the urethra, bladder, and pelvic floor tissues [3].

The prevalence of GSM ranges between 50% and 70% of postmenopausal women worldwide [4, 5]. Unlike vasomotor symptoms, which tend to diminish with time, GSM symptoms persist or worsen without treatment [6]. These include vaginal dryness, irritation, dyspareunia, urinary urgency, dysuria, and recurrent urinary tract infections, all of which substantially affect sexual health, intimate relationships, and overall quality of life [7]. Despite this, GSM remains underdiagnosed due to stigma, cultural barriers, normalization of symptoms by patients, and inadequate enquiry by healthcare providers [8, 9]. Pathophysiologically, GSM results from estrogen deficiency leading to thinning of the vaginal epithelium, reduced glycogen, loss of lactobacilli, increased vaginal pH, and diminished collagen and elastin, all contributing to structural and functional impairment [10]. The clinical consequences extend beyond the genitourinary tract, affecting psychosocial wellbeing and self-esteem [11]. Given that women today spend nearly one-third of their lives in the postmenopausal state,

the recognition and management of GSM is essential for promoting healthy aging [12]. This study was conducted to evaluate the clinical manifestations, pathophysiology, evaluation methods, and management strategies of GSM in women attending a tertiary care center in North India.

Material and Methods

- **Study Design:** Case-control study conducted at Rama Medical College Hospital and Research Centre.
- **Population:** 60 postmenopausal women (30 GSM cases, 30 controls).

Inclusion criteria

1. Women age 45-65 years, post menopause for at least 12 month.
2. Cases: Women presenting with symptoms of GSM such as vaginal dryness, irritation, dyspareunia, urinalysis symptoms confirmed by clinical examination.
3. Controls: Postmenopausal women without symptoms or signs of GSM attending outpatient department for routine checkup or unrelated gynaecological complaints.

Exclusion criteria

1. Women on prior HRT or vaginal estrogen treatment within last 6 months.
2. pelvic surgery history, history of pelvic radiation or any gynaecological malignancy
3. Women's with uncontrolled systemic illness such as diabetes Mellitus, autoimmune disease, or immunosuppression
4. presence of active genital infection and STDs
5. Women unwilling to participate or provide inform consent

Data Collection

Demographic details, GSM symptoms, pelvic examination, vaginal pH, Vaginal Maturation Index (VMI), estradiol levels.

Statistical Analysis

Continuous variables expressed as mean ± SD; categorical variables as percentages. Student's t-test and Chi-square test applied; $p<0.05$ considered significant.

Results

Parameter	Cases(n=30)	Controls (n=30)	p-value
Mean Age (years)	60.2	63.7	0.04*
Years Since Menopause	11.4	14.7	0.03*
Vaginal Dryness (%)	100	0	<0.001*
Dyspareunia (%)	86.7	0	<0.001*
Urinary Symptoms (%)	90	0	<0.001*
Vaginal pH	6.57	4.70	<0.001*
Vaginal Maturation Index	18.7	65.1	<0.001*
Estradiol (pg/mL)	8.6	18.5	<0.001*

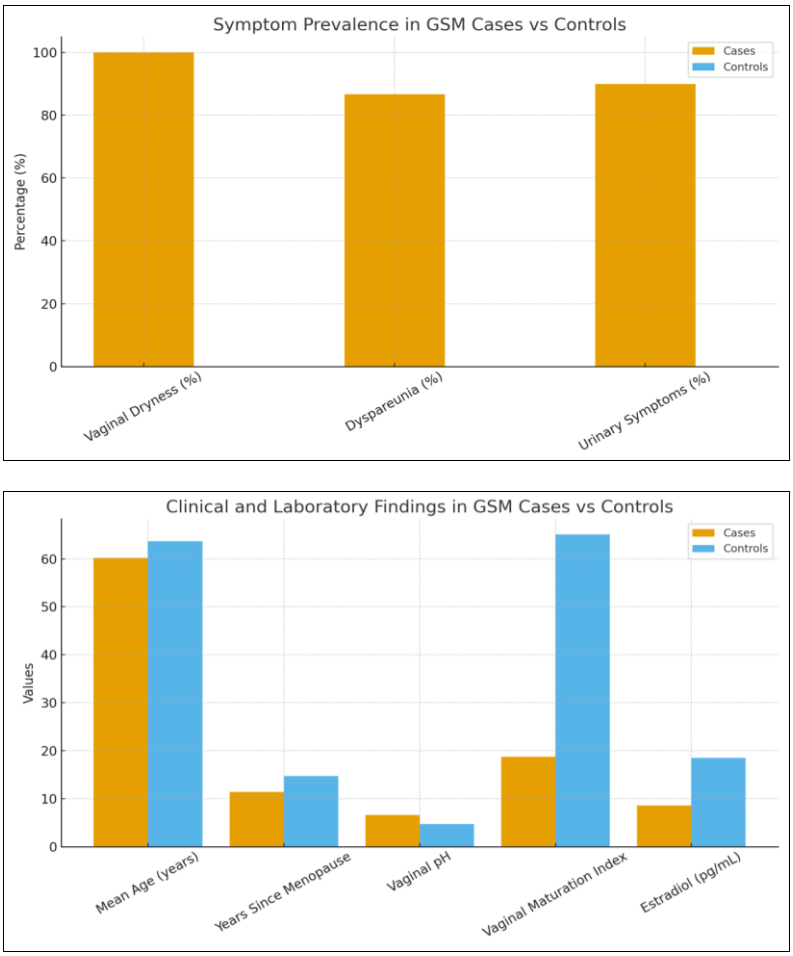

Fig 1: Comparative charts showing symptom prevalence, vaginal pH, VMI, and estradiol levels in GSM cases vs controls.

Interpretation of results

The study demonstrates that GSM is strongly correlated with hypoestrogenism, as evidenced by both symptoms and laboratory markers. Vaginal dryness was universally present in GSM cases, making it the most reliable clinical indicator. Dyspareunia and urinary symptoms were also highly prevalent, underscoring the syndrome's multifaceted impact on sexual and urinary health.

Biochemical evaluation revealed significantly elevated vaginal pH in GSM patients, consistent with the loss of lactobacilli and altered vaginal flora. The Vaginal Maturation Index was markedly reduced, confirming epithelial atrophy and reduced estrogenic effect. Estradiol levels in GSM patients were four to five times lower than in controls, further establishing the hormonal basis of the condition. Importantly, GSM occurred in relatively younger postmenopausal women (mean 60 years, ~11 years since menopause), suggesting that symptoms often emerge early in the postmenopausal period. This emphasizes the need for proactive screening and intervention in routine gynecological care.

Discussion

Our findings confirm that GSM is a prevalent postmenopausal condition, presenting with vaginal dryness, dyspareunia, and urinary complaints. Vaginal pH elevation and reduced estradiol support hypoestrogenism as the key pathophysiological driver. This aligns with earlier reports (Portman & Gass [2], Nappi & Palacios [5], Kingsberg *et al.* [4]) that GSM impacts quality of life and requires proactive diagnosis. Local estrogen remains the cornerstone of treatment, though emerging therapies (SERMs, laser, stem-cell based interventions) are being explored. Limitations include single-center design and relatively small sample size. Larger, multicenter studies are recommended.

Conclusion

- GSM is a highly prevalent yet underdiagnosed syndrome in postmenopausal women.
- Comprehensive evaluation, early recognition, and tailored management strategies are essential.
- Local estrogen is the most effective therapy, with non-hormonal and novel modalities offering alternatives for select patients.

References

1. Santoro N, Komi J. Prevalence and impact of vaginal symptoms among postmenopausal women. J Sex Med. 2009;6(8):2133-2142. doi:10.1111/j.1743-6109.2009.01335.x
2. Portman DJ, Gass ML; Vulvovaginal Atrophy Terminology Consensus Conference Panel. Genitourinary syndrome of menopause: New terminology for vulvovaginal atrophy from the International Society for the Study of Women's Sexual Health and The North American Menopause Society. Menopause. 2014;21(10):1063-1068. doi:10.1097/GME.0000000000000329
3. Palacios S, Castelo-Branco C, Currie H, Mijatovic V, Nappi RE, Simon J, *et al.* Update on management of genitourinary syndrome of menopause: A practical guide. Maturitas. 2015;82(3):308-313. doi:10.1016/j.maturitas.2015.07.010
4. Kingsberg SA, Wysocki S, Magnus L, Krychman ML. Vulvar and vaginal atrophy in postmenopausal women: Findings from the REVIVE (REal Women's VIews of Treatment Options for Menopausal Vaginal ChangEs) survey. J Sex Med. 2013;10(7):1790-1799. doi:10.1111/jsm.12190
5. Nappi RE, Palacios S. Impact of vulvovaginal atrophy on sexual health and quality of life at postmenopause. Climacteric. 2014;17(1):3-9. doi:10.3109/13697137.2013.871696
6. Faubion SS, Sood R, Kapoor E. Genitourinary syndrome of menopause: Management strategies for the clinician. Mayo Clin Proc. 2017;92(12):1842-1849. doi:10.1016/j.mayocp.2017.08.019
7. Parish SJ, Nappi RE, Krychman ML, Kellogg-Spadt S, Simon JA, Goldstein JA, *et al.* Impact of vulvovaginal health on postmenopausal women: A review of surveys. Int J Womens Health. 2013;5:437-447. doi:10.2147/IJWH.S36373
8. Gandhi J, Chen A, Dagur G, Suh Y, Smith N, Cali B, *et al.* Genitourinary syndrome of menopause: An overview of clinical manifestations, pathophysiology, etiology, evaluation, and management. Am J Obstet Gynecol. 2016;215(6):704-711. doi:10.1016/j.ajog.2016.07.045
9. Bachmann GA, Nevadunsky NS. Diagnosis and treatment of atrophic vaginitis. Am Fam Physician. 2000;61(10):3090-3096. PMID:10839555
10. Suckling J, Lethaby A, Kennedy R. Local oestrogen therapy for vaginal atrophy in postmenopausal women. Cochrane Database Syst Rev. 2006;(4):CD001500. doi:10.1002/14651858.CD001500.pub2
11. Nappi RE, Davis SR. The use of local estrogen therapy in genitourinary syndrome of menopause. Steroids. 2020;153:108525. doi:10.1016/j.steroids.2019.108525
12. Sturdee DW, Panay N; International Menopause Society Writing Group. Recommendations for the management of postmenopausal vaginal atrophy. Climacteric. 2010;13(6):509-522. doi:10.3109/13697137.2010.522875

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