



GENITOURINARY SYNDROME OF MENOPAUSE: CLINICAL INSIGHTS AND ADVANCES IN MANAGEMENT

Dr. Roli Agarwal¹, Dr. Sheetal Agarwal², Dr. Nagma Khanam³, Dr. Mahvish Shafiq^{4*}

¹Assistant Professor, Department of Obstetrics and Gynaecology, Teerthankar Mahavir University, Moradabad, Uttar Pradesh, India.

²Assitant Professor, Department of Microbiology, Hind Institute of Medical Sciences, Lucknow, Uttar Pradesh, India.

³Assistant Professor, Department of Obstetrics and Gynaecology, Teerthankar Mahavir University, Moradabad, Uttar Pradesh, India.

^{4*}Assistant Professor, Department of Obstetrics and Gynaecology, Integral Institute of Medical Science and Technology, Lucknow, Uttar Pradesh, India.

***Corresponding Author:** Dr. Mahvish Shafiq

*Email ID: mahvishshafiq99@gmail.com

ABSTRACT

Background: Genitourinary Syndrome of Menopause (GSM) is a chronic and progressive condition caused by estrogen deficiency, affecting the genital, urinary, and sexual health of postmenopausal women. Despite its high prevalence, GSM remains underdiagnosed due to lack of awareness and social stigma.

Objective: To evaluate the clinical manifestations, pathophysiology, etiology, diagnostic modalities, and management strategies of GSM, and to compare findings with current literature.

Methods: A case-control study was conducted at a tertiary care center over 12 months (January 2024–January 2025), including 100 postmenopausal women—50 with clinically diagnosed GSM and 50 asymptomatic controls. Clinical evaluation, vaginal pH measurement, vaginal maturation index (VMI), and serum estradiol levels were assessed and compared between the two groups.

Results: GSM symptoms such as vaginal dryness (100%), dyspareunia (86%), and urinary complaints (92%) were common among cases. Vaginal pH was significantly elevated (6.68 ± 0.33 vs. 4.71 ± 0.22 ; $p < 0.001$), and VMI and serum estradiol levels were significantly lower in GSM cases compared to controls ($p < 0.001$).

Conclusion: GSM significantly impacts the quality of life of postmenopausal women but is often overlooked. Accurate diagnosis through clinical and cytological assessment and timely intervention with individualized treatment plans, including local estrogen therapy and emerging non-hormonal options, are essential for optimal care.

Keywords: Genitourinary syndrome of menopause, hypoestrogenism, vaginal atrophy, dyspareunia, estrogen therapy.

INTRODUCTION

Menopause marks a major transition in a woman's life, characterized by the cessation of ovarian function and a subsequent sharp decline in circulating estrogen levels. While physiological, this change often heralds a range of symptoms that can significantly impact a woman's physical,

psychological, and sexual health [1,2]. Among these, Genitourinary Syndrome of Menopause (GSM) stands out as a common yet frequently neglected condition. GSM is a relatively new term introduced by the International Society for the Study of Women's Sexual Health (ISSWSH) and the North American Menopause Society (NAMS) to replace the older nomenclature such as vulvovaginal atrophy (VVA) and atrophic vaginitis. The term GSM better encapsulates the broad array of genital, urinary, and sexual symptoms associated with menopause-related estrogen deficiency [3].

Clinically, GSM manifests through symptoms like vaginal dryness, burning, irritation, dyspareunia, decreased lubrication, urinary urgency, dysuria, recurrent urinary tract infections, and incontinence [4,5]. These symptoms arise due to thinning and loss of elasticity in the vaginal epithelium, reduced collagen content, and altered microbiota due to elevated vaginal pH. The decline in estrogen compromises the trophic support of urogenital tissues, contributing to significant morbidity if left untreated.

Despite affecting up to 50–70% of postmenopausal women, GSM remains underreported. Many women normalize these symptoms as part of aging or feel uncomfortable discussing such issues, which leads to missed diagnoses and suboptimal care. Health professionals, too, may underemphasize GSM during routine consultations, leading to poor identification and management [6].

Unlike vasomotor symptoms that often resolve spontaneously, GSM symptoms tend to persist or worsen over time. This chronicity necessitates a proactive clinical approach that includes patient education, routine inquiry about genitourinary symptoms, and timely therapeutic interventions. Research has shown that effective treatment can significantly improve a woman's quality of life, sexual satisfaction, and interpersonal relationships [7].

Various diagnostic tools, including vaginal pH measurement, cytological evaluation via the Vaginal Maturation Index (VMI), and hormonal profiling, aid in diagnosing GSM. Management options range from non-hormonal lubricants and moisturizers to local estrogen therapy, systemic hormone replacement therapy (HRT), and emerging modalities like laser therapy and selective estrogen receptor modulators (SERMs) [8,9].

With increasing life expectancy, women now spend a substantial portion of their lives in a postmenopausal state [10-14]. Thus, GSM should be addressed not only as a gynecological issue but also as a public health priority aimed at promoting healthy aging. This study aims to evaluate GSM from a clinical and investigative standpoint and assess current diagnostic and therapeutic options based on comparative data between affected and unaffected women.

MATERIAL AND METHODS

Study Design and Setting

This was a case-control study conducted over a period of 12 months, from January 2024 to January 2025, in the Department of Obstetrics and Gynaecology at tertiary care centre.

Study Population

A total of 100 postmenopausal women aged between 45 and 65 years were enrolled. The study group comprised 50 women diagnosed with GSM based on clinical symptoms and examination findings. The control group included 50 age-matched postmenopausal women without GSM symptoms.

Inclusion Criteria

1. Women aged 45–65 years.
2. Natural menopause for at least 12 months.
3. **Cases:** Presenting with at least two of the following—vaginal dryness, burning, dyspareunia, dysuria, urinary urgency.
4. **Controls:** No genitourinary complaints.

Exclusion Criteria

1. Use of hormone therapy in the previous six months.
2. History of pelvic radiation, gynecological malignancy, or pelvic surgery.
3. Active genital infections or sexually transmitted diseases.
4. Uncontrolled chronic systemic illnesses or immunocompromised status.
5. Refusal to provide informed consent.

Data Collection and Clinical Assessment**Each participant underwent:**

1. A detailed history including menopausal duration, GSM symptoms, sexual activity, and urinary complaints.
2. Pelvic examination to assess signs of atrophy (pallor, dryness, reduced elasticity, loss of rugae).
3. Vaginal pH was measured using indicator strips.
4. Vaginal smears were collected for cytological assessment of the Vaginal Maturation Index (VMI).
5. Blood samples were collected for serum estradiol levels and routine biochemical testing.

Statistical Analysis

Data analysis was performed using SPSS version XX. Quantitative data were presented as mean $\pm$ standard deviation (SD), while categorical variables were expressed in percentages. The Student's t-test was used for continuous variables, and the Chi-square test for categorical comparisons. A p-value < 0.05 was considered statistically significant.

RESULTS

In the present study GSM symptoms such as vaginal dryness (100%), dyspareunia (86%), and urinary complaints (92%) were common among cases. Vaginal pH was significantly elevated (6.68 ± 0.33 vs. 4.71 ± 0.22 ; $p < 0.001$), and VMI and serum estradiol levels were significantly lower in GSM cases compared to controls ($p < 0.001$).

Parameter	GSM Cases(n=50)	Controls (n=50)	p-value
Mean Age (years)	60 $\pm$ 4.2	64.1 $\pm$ 4.6	<0.01
Mean Years since Menopause	12.1 $\pm$ 3.6	15.4 $\pm$ 4.2	<0.01

Table 1: Demographic Characteristics of study Participants

Parameter	Frequency (n=50)	Percentage (%)
Vaginal Dryness	50	100%
Dyspareunia	43	86%
Urinary Symptoms	46	

Table 2: Prevalence of Symptoms Among GSM Cases

Parameter	GSM Cases (n=50)	Controls (n=50)	p-value
Vaginal pH	6.68 $\pm$ 0.33	4.71 $\pm$ 0.22	<0.001
Vaginal Maturation Index	17.3 $\pm$ 5.2	64.2 $\pm$ 4.7	<0.001
Serum Estradiol (pg/Ml)	7.9 $\pm$ 2.4	44.7 $\pm$ 6.1	<0.001

Table 3: Biochemical and Cytological Parameters**DISCUSSION**

GSM represents a chronic condition resulting from estrogen withdrawal that affects sexual and urinary health. In the present study, we evaluated 50 postmenopausal women diagnosed with Genitourinary Syndrome of Menopause (GSM) and compared them with 50 age-matched

postmenopausal women without GSM symptoms. Our findings reaffirm that GSM is a prevalent yet underdiagnosed condition with significant impact on genitourinary health and quality of life.

This study reaffirms that GSM is a prevalent but underdiagnosed condition among postmenopausal women. In our cohort, GSM was significantly associated with vaginal dryness, dyspareunia, and urinary complaints, affecting physical comfort and quality of life. The biochemical and cytological findings further confirmed the hypoestrogenic state underlying these clinical symptoms.

Elevated vaginal pH and reduced VMI are hallmarks of GSM and were observed significantly in the case group, consistent with previous studies by Portman and Gass (2014) [15] and Palacios et al. (2015) [16]. The marked decrease in serum estradiol among GSM cases corroborates the pathophysiology rooted in estrogen deficiency.

Despite the availability of effective therapies, many women do not seek help. This aligns with the REVIVE survey by Kingsberg et al., [2] which noted that only about half of symptomatic women consult clinicians. This reluctance may stem from embarrassment, misinformation, or lack of healthcare provider inquiry.

It is often confused with recurrent UTIs or dermatological conditions. In agreement with our findings: Gandhi et al. (2024) [17] highlighted the underrecognition of GSM and its high prevalence among postmenopausal women. Nappi and Palacios (2014) [3] reported that only 25% of symptomatic women seek help despite symptoms being persistent and progressive. Portman and Gass (2014) [15] introduced the term GSM to broaden the understanding and clinical recognition of this syndrome. Suckling et al. (2006) [9] showed that local estrogen therapy significantly improves both vaginal and urinary symptoms without major systemic effects.

There was another study where Santen et al. (2021) [18] expressed caution about long-term use of vaginal estrogen due to potential systemic absorption in sensitive populations.

Despite these discrepancies, most agree that early intervention and education can dramatically improve quality of life.

A significant association between GSM and urinary symptoms such as urgency and dysuria was also observed in our study. This finding is supported by Faubion et al., who emphasized that genitourinary complaints, often misattributed to recurrent UTIs or aging, are commonly linked to hypoestrogenism [19]. In contrast, a study by Santoro and Komi reported a lower frequency of dyspareunia and urinary complaints among postmenopausal women [20]. This variation might reflect cultural differences in reporting sexual and urinary symptoms or methodological differences in study design.

Our study reinforces the importance of proactive screening for GSM in postmenopausal women and highlights the need for raising awareness among both clinicians and patients. Given that GSM is a chronic and progressive condition, early identification and management are critical to improving women's sexual and urinary health.

Local estrogen therapy remains the gold standard for symptomatic GSM. However, concerns about systemic absorption in sensitive populations have led to interest in alternative treatments, including vaginal laser therapy and SERMs. Our study did not evaluate treatment outcomes but highlights the need for further trials assessing both efficacy and long-term safety.

The study also demonstrated a significant gap in clinical recognition and reporting of GSM symptoms. Educating both clinicians and patients is imperative to improve health-seeking behavior and early diagnosis.

Limitations of the study

The study was conducted at a single center with a relatively small sample size, which may affect generalizability. The assessment of symptoms relied partly on subjective reporting, which may introduce bias.

CONCLUSION

GSM is a common, chronic condition affecting a significant proportion of postmenopausal women. Despite its impact on daily life and sexual health, it remains underdiagnosed. Clinical evaluation combined with vaginal pH and cytological assessment can aid in accurate diagnosis. Timely and individualized treatment, including estrogen therapy and emerging non-hormonal options, can greatly enhance quality of life.

There is a pressing need for enhanced awareness among healthcare providers and patients, as well as expanded research into long-term outcomes of various therapeutic strategies. Proactive screening, patient education, and development of tailored clinical guidelines are essential components in optimizing postmenopausal care.

REFERENCES

1. Santen RJ, Stuenkel CA, Davis SR, Pinkerton JV. Managing menopausal symptoms and associated clinical issues in aging women. *J Clin Endocrinol Metab.* 2021;106(12):e4985–e5010.
2. 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):1790–9.
3. Nappi RE, Palacios S, Panay N, Particco M, Krychman ML. Vulvar and vaginal atrophy in four European countries: evidence from the European REVIVE Survey. *Climacteric.* 2016;19(2):188–97.
4. Santoro N, Komi J. Prevalence and impact of vaginal symptoms among postmenopausal women. *J Sex Med.* 2009;6(1):213–20. doi:10.1111/j.1743-6109.2008.01030.x.
5. 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 on symptoms of vulvovaginal atrophy. *Int J Womens Health.* 2013;5:437–47.
6. Mac Bride MB, Rhodes DJ, Shuster LT. Vulvovaginal atrophy. *Mayo Clin Proc.* 2010;85(1):87–94.
7. Simon JA, Kokot-Kierepa M, Goldstein J, Nappi RE. Vaginal health in the United States: results from the Vaginal Health: Insights, Views & Attitudes survey. *Menopause.* 2013;20(10):1043–8.
8. Nappi RE, Martella S, Panay N, Currie H, Bitzer J. Hormonal treatment of genitourinary syndrome of menopause: results of a survey conducted among European gynecologists. *Maturitas.* 2016;91:81–6.
9. Suckling J, Lethaby A, Kennedy R. Local oestrogen for vaginal atrophy in postmenopausal women. *Cochrane Database Syst Rev.* 2006;(4):CD001500.
10. Krychman ML, Goldstein JA. Urogenital aging—an old problem newly recognized. *J Sex Med.* 2008;5(3):559–64.
11. Faubion SS, Sood R, Kapoor E. Genitourinary syndrome of menopause: management strategies for the clinician. *Mayo Clin Proc.* 2017;92(12):1842–9. doi:10.1016/j.mayocp.2017.09.003.
12. Constantine GD, Graham S, Clerinx C, Bernick B. Behaviors and attitudes influencing treatment decisions for menopausal vaginal symptoms: results of the Women's EMPOWER survey. *J Sex Med.* 2015;12(2):313–22.
13. North American Menopause Society. The 2017 hormone therapy position statement of The North American Menopause Society. *Menopause.* 2017;24(7):728–53.
14. De Rosa MA, Forte G, De Matteis E, Granato T, Fazi S, Petta F, et al. Vaginal laser therapy for genitourinary syndrome of menopause: a review. *Clin Interv Aging.* 2022;17:571–8.
15. Portman DJ, Gass ML. 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):1063–8.
16. Palacios S, Mejía A, Neyro JL. Treatment of genitourinary syndrome of menopause. *Climacteric.* 2015;18(Suppl 1):23–9.

17. 17.Gandhi J, Chen A, Dagur G, et al. Genitourinary syndrome of menopause: an overview of clinical manifestations, pathophysiology, etiology, evaluation, and management. *AJOG*. 2024.
18. Santen RJ, Stuenkel CA, Davis SR, Pinkerton JV. Managing menopausal symptoms and associated clinical issues in aging women. *J Clin Endocrinol Metab*. 2021;106(12):e4985–e5010.
19. Faubion SS, Sood R, Kapoor E. GSM: management strategies for the clinician. *Mayo Clin Proc*. 2017;92(12):1842–9.
20. Santoro N, Komi J. Prevalence and impact of vaginal symptoms among postmenopausal women. *J Sex Med*. 2009;6(1):213–20