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Original Article

Obstetrics and Gynaecology Section

Onset and Progression of Urogenital Symptoms after Surgical Menopause: A Prospective Cohort Study

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ABSTRACT

Introduction: Surgical menopause is the cessation of menstruation resulting from the surgical removal of the uterus and bilateral ovaries, which leads to a sudden decrease in oestrogen levels and its subsequent effects. Urogenital symptoms are chronic and progressive, but only a few women seek medical care for these symptoms, which are often overlooked during routine follow-ups.

Aim: To investigate the onset and progression of various urogenital symptoms after surgical menopause.

Materials and Methods: A prospective cohort study was conducted in the Department of Obstetrics and Gynaecology at Government Medical College, Thrissur, Kerala, India from January 2020 to December 2020. A total of 110 women who underwent Total Abdominal Hysterectomy (TAH) and Bilateral Salpingo-Oophorectomy (BSO) for benign conditions were included in the study. The women were asked about the onset of urogenital symptoms at six weeks and 12 weeks after surgery. They were required to indicate whether they experienced four urogenital symptoms (vaginal dryness, frequent urination, urinary incontinence, and reduced sexual desire) using a menopause rating scale. The severity of symptoms was categorised as none (0), mild (1), moderate (2), severe (3), or very severe (4). The progression of symptom severity from six weeks and 12 weeks of follow-up was analysed using Chi-square tests.

Results: Urogenital symptoms that developed after surgery included vaginal dryness, dyspareunia, bladder symptoms, and reduced sexual desire. At least one of these symptoms developed in 95 (86.4%) women by 12 weeks. Vaginal dryness was reported by 40 subjects (36.4%) at six weeks, with 36 (32.7%) reporting mild symptoms, 4 (3.6%) reporting moderate symptoms, and none reporting severe or very severe symptoms. At 12 weeks, vaginal dryness was reported by 61 subjects (55.5%), with 21 (19.1%) reporting mild symptoms, 18 (16.4%) reporting moderate symptoms, 20 (18.2%) reporting severe symptoms, and 2 (1.8%) reporting very severe symptoms (p-value <0.05). Other symptoms showed a similar pattern of progression.

Conclusion: Urogenital symptoms can start as early as six weeks after surgery and can worsen in severity if left untreated.

Keywords: Dyspareunia, Menopause rating scale, Urinary incontinence, Vaginal dryness

INTRODUCTION

Menopause is defined as the point in time that follows one year after the complete cessation of menstruation [1]. This can occur naturally or be induced by surgery, chemotherapy, or radiation. Although many conservative procedures are available for managing benign conditions of the uterus, hysterectomy remains one of the most commonly performed surgical procedures [2]. Bilateral oophorectomy is often performed concurrently with hysterectomy for benign conditions, even when the ovaries are normal. This procedure can protect women from the risk of developing ovarian cancer later in life. Another reason for performing bilateral oophorectomy is to avoid potential surgeries for benign ovarian pathologies in the future [3].

In natural menopause, there is a period of menopausal transition. Additionally, the postmenopausal ovary remains intact and continues to produce a limited amount of hormones [4,5]. However, surgical menopause results in the complete absence of any steroid production and can cause menopausal symptoms to appear at an earlier age and with greater severity [4,5]. This abrupt decline in oestrogen levels can lead to many short-term and long-term complications. Women experiencing surgical menopause often present with vasomotor and urogenital symptoms that significantly impact their quality of life. The surgical removal of ovaries also eliminates the protective effect of estradiol on bone metabolism and the cardiovascular system. Long-term observational studies have demonstrated that surgical menopause is associated with accelerated cardiovascular changes and increased cardiovascular mortality [6-8].

Urogenital symptoms are common problems faced by women after undergoing surgical menopause. These symptoms are chronic and progressive, worsening if not properly addressed. They encompass a range of physical changes and symptoms associated with oestrogen deficiency, such as vulvovaginal dryness, burning or irritation, dyspareunia, and urinary symptoms including urgency, dysuria, and recurrent urinary tract infections [7,8]. Women who undergo surgical menopause often experience more severe urogenital symptoms compared to those experiencing natural menopause, due to the abrupt and persistent decline in hormone levels and an additional 50% decrease in circulating androgen levels [9].

Despite the abundance of literature on urogenital symptoms and their prevention [9-11], it has been found that only 25% of women seek medical care for these symptoms [12]. This underdiagnosis is primarily due to sexual embarrassment and the sensitive nature of discussing these topics [12]. However, it can have negative effects on partner relationships and self-esteem. This study sheds light on these undisclosed problems, which may later impact the psychosocial well-being of women. The study also emphasises the importance of specifically inquiring about these symptoms using well-phrased questions during early follow-up visits. The majority of women undergoing oophorectomy do not receive necessary information, support, or treatment for sexual consequences [13].

There is the need to educate women undergoing surgical menopause about these symptoms. This study aims to explore various urogenital

symptoms after surgical menopause, their onset, and the progression of severity over a period of 6 to 12 weeks following surgery.

MATERIALS AND METHODS

A prospective cohort study was conducted among 110 women who underwent TAH and BSO for benign conditions at the Department of Obstetrics and Gynaecology, Government Medical College, Thrissur, Kerala, India during a one-year study period (January 2020 to December 2020). The study protocol was submitted to the Institutional Research Committee and Ethical Committee of Government Medical College, Thrissur, and approval was obtained on 20-12-2019 (Order no.B6-155/2019/MCTCR(16)).

Inclusion criteria: Patients who underwent TAH+BSO for benign conditions (only patients who had not reached natural menopause were included). Patients who provided informed written consent were included in the study.

Exclusion criteria: Patients who were unable to comprehend and respond to the questionnaire, those who received any hormone replacement treatment after surgery, those who had already reached menopause or had urogenital symptoms prior to surgery were excluded from the study.

Sample size: According to Özdemir S et al., hot flushes were observed in 76.5% of women after surgical menopause. Changes in sexual desire were reported by 64.8%, vaginal dryness by 53.1%, and urinary complaints by 48.9% [14]. Vaginal dryness was selected as the major problem to calculate the prevalence. The sample size was calculated using the formula- $N=4pq/d^2$

q=100-p=100-53.1=46.9.

d=allowable error, 20% of p=10.62.

n=4*53.1*46.9/10.62*10.62=88.3.

Considering a 20% potential loss to follow-up.

88.3*20/100=17.66.

Sample size=88.3+17.66=105.96.

Therefore the sample size for this study was rounded to 110.

Data collection and analysis: All patients enrolled in this study received standard care. Awareness regarding the study and its relevance in the present scenario was provided to all participants. Strict confidentiality was maintained, and the investigator alone handled all data containing personal identification details of the patients.

The patients were followed-up and interviewed using a questionnaire at six weeks and 12 weeks after surgery during their routine follow-up visits. They were asked to respond "yes" or "no" to four urogenital symptoms: vaginal dryness, frequent urination, urinary incontinence, and reduced sexual desire at six weeks and 12 weeks. The severity of urogenital symptoms was assessed using the Menopause Rating Scale [15], which consists of 11 questions related to menopausal symptoms, including urogenital symptoms. The respondents marked their personal perception of severity by checking the five possible boxes for each item and recorded their responses in the corresponding columns. The severity was assessed using the Menopause Rating Scale, focusing only on urogenital symptoms.

STATISTICAL ANALYSIS

Chi-square tests were used to analyse the onset and progression of symptoms. Data was entered into Microsoft Excel sheets and analysed using Statistical Package for Social Sciences (SPSS) Statistics Version 20.0.

RESULTS

A total of 110 patients who underwent hysterectomy and BSO for benign conditions were included in the study. Among them, 95 developed at least one urogenital symptom after 12 weeks (86.4%). The mean age of the study population was 45.20±3.881 years. The majority of the study subjects (90 out of 110) underwent hysterectomy for fibroids (81.8%) [Table/Fig-1].

Variable	n (%)
Age group (years)	
30-39	10 (9.1)
40-49	87 (79.1)
>50	13 (11.8)
BMI (kg/m²)	
18.5-22.9	25 (22.7)
23-24.9	56 (50.9)
25-29.9	28 (25.5)
>30	1 (0.9)
Presenting complaints	
Heavy menstrual bleeding	80 (72.7)
Dysmenorrhoea	19 (17.2)
Abdominal distention	15 (13.6)
Abdominal pain	15 (13.6)
Irregular cycle	6 (5.4)
Ovaries in USG	
Normal	67 (60.9)
Abnormal	43 (39.1)
Indication for hysterectomy	
Fibroid	90 (81.8)
Adenomyosis	5 (4.6)
Benign ovarian mass	11 (10)
Endometriosis	4 (3.6)
Indication for oophorectomy	
Elective	60 (54.5)
Benign cyst	46 (41.9)
Adhesions	4 (3.6)
Urological injury during surgery	
Yes	0
No	110 (100)

[Table/Fig-1]: Demographic and perioperative characteristics of the study subjects.

Out of the 95 individuals who developed at least one urogenital symptom after 12 weeks of surgery, 40 (36.4%) reported vaginal dryness at six weeks. Among them, 36 (32.7%) classified it as mild, and 4 (3.6%) had moderate symptoms. None of the patients had severe or very severe symptoms at six weeks. At 12 weeks, 61 subjects (55.5%) experienced vaginal dryness, with 21 (19.1%) reporting it as mild, 18 (16.4%) as moderate, 20 (18.2%) as severe, and 2 (1.8%) as very severe [Table/Fig-2,3].

Symptoms	None	Mild	Moderate	Severe	Very severe
Vaginal dryness	70 (63.6)	36 (32.7)	4 (3.6)	0	0
Frequent urination	91 (82.7)	19 (17.3)	0	0	0
Urinary incontinence	109 (99.1)	1 (0.9)	0	0	0
Reduced sexual desire	73 (66.4)	35 (31.8)	2 (1.8)	0	0

[Table/Fig-2]: Urogenital symptoms after six weeks.

Symptoms	None	Mild	Moderate	Severe	Very severe
Vaginal dryness	49 (44.5)	21 (19.1)	18 (16.4)	20 (18.2)	2 (1.8)
Frequent urination	72 (65.5)	18 (16.4)	19 (17.3)	1 (0.9)	0
Urinary incontinence	108 (98.2)	2 (1.8)	0	0	0
Reduced sexual desire	43 (39.1)	25 (22.7)	18 (16.4)	22 (20)	2 (1.8)

[Table/Fig-3]: Urogenital symptoms after 12 weeks.

Change in sexual desire at six weeks was reported by 37 women (33.6%), with the majority (35, 31.8%) having only mild symptoms. At 12 weeks, 67 women (60.9%) experienced a change in sexual desire, with 25 (22.7%) having mild symptoms, 18 (16.4%) having moderate symptoms, 22 (20%) having severe symptoms, and 2 (1.8%) having very severe symptoms [Table/Fig-2,3].

There was a significant progression of symptoms of vaginal dryness and reduced sexual desire from six weeks to 12 weeks [Table/Fig-4].

Symptoms	No. of women with symptom at 6 weeks (%)	No. of women with symptom at 12 weeks (%)	p-value
Vaginal dryness	40 (36.4)	61 (55.5)	0.001
Frequent urination	19 (17.3)	38 (34.5)	0.42
Urinary incontinence	1 (0.9)	2 (1.8)	0.11
Reduced sexual desire	37 (33.6)	67 (60.9)	0.001

[Table/Fig-4]: The comparison of onset and progression of symptoms at 6 weeks and 12 weeks.
Chi-square test was used

DISCUSSION

Vaginal physiology is predominantly regulated by oestrogen. During menopause, when oestrogen levels decrease, significant changes occur in the vulvovaginal tissues. Out of 110 cases, 36.4% of the study subjects had vaginal dryness at six weeks, and 55.5% experienced vaginal dryness at 12 weeks. It is noteworthy that the majority had mild symptoms at six weeks but later progressed to moderate, severe, and very severe symptoms at 12 weeks. This indicates a significant change (p-value <0.05). Studies have shown that urogenital symptoms after menopause may progress and worsen if left untreated [16].

The incidence of vaginal dryness has ranged from 53.1% to 80% in various studies [14,17,18]. In a study by Kokcu A et al., it was found that 66% of patients with surgical menopause reported vaginal dryness [17]. Özdemir S et al., in their study, found that 53.1% of women experience vaginal dryness after surgical menopause [14].

Bharadwaj et al., in their study on urogenital problems among menopausal women (both natural and surgical menopause) in Bhopal, found that 80% of them had vaginal dryness [18]. The differences in various studies may be due to socio-demographic changes and women's knowledge about symptoms.

Studies have shown that urinary symptoms such as dysuria, urinary urgency, urethral eversion or prolapse, frequency, and recurrent UTIs can be observed after surgical menopause, which can be attributed to the thinning of the urethral and bladder mucosa [10,19-21]. In this study, 17.3% had urinary symptoms at six weeks, and the severity of these symptoms was found to progress after 12 weeks. Özdemir et al., in their study, found that 48.9% of women experienced urinary complaints after surgical menopause [14].

The impact of surgical menopause on women's psychological well-being and sexuality varies and depends on factors such as their preoperative mental health and sexual function, indication of surgery, and type of surgery performed [22]. It has been found that there is an approximately 50% decline in testosterone levels, which is an important hormone for sexual desire, after ovary removal [23,24]. Kokcu A et al., in their study, found that 85% of patients reported a change in sexual desire [17]. In a study by Castelo-Branco C et al., nearly three out of four women who had undergone surgical menopause were at risk of hypoactive sexual desire syndrome [25]. In this study, 33.6% experienced a change in sexual desire at six weeks, with the majority having only mild symptoms that progressed at 12 weeks (p-value <0.05). This difference may be due to the fact that it was only three months after the surgery, and many may have considered it too early to resume sexual relations. It could also be due to a lack of awareness about sexual symptoms and the social and behavioural taboos associated with them. It has been found that approximately 50% of women experience urogenital symptoms after natural menopause. A study by Topatan S and Yıldız H has shown that the proportion, severity, and duration of urogenital symptoms were much higher in the surgical menopause group than in the natural menopause group [26].

There is a need to initiate hormone therapy as early as six weeks after surgery. Additionally, medical professionals should not overlook inquiring about urogenital symptoms during follow-up visits, as these symptoms can cause continued suffering and poor quality of life for women who may be reluctant to discuss them.

Limitation(s)

The findings of the study cannot be generalised as the follow-up duration was short.

CONCLUSION(S)

The various urogenital symptoms after surgical menopause include vaginal dryness, difficulty in intercourse, increased need to urinate, difficulty in initiating urination, urinary incontinence, and changes in sexual desire. These symptoms can start as early as six weeks after surgery and progress in severity if left untreated. This emphasises the need for our healthcare system to conduct follow-ups with patients and inquire about urogenital symptoms even in the postoperative period, as only a minority seek medical advice on their own.

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