ORIGINAL ARTICLE

To study the menstrual pattern in cases of women with ovarian masses

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ABSTRACT:
Aim: To study the menstrual pattern in cases of women with ovarian masses. **Material and Methods:** A prospective, randomized study was conducted in the Department of Obstetrics and Gynecology after obtaining approval from the protocol review committee and institutional ethics committee. A total of 110 patients presenting with palpable abdominal or pelvic adnexal masses of ovarian origin were included in the study. Patients with uterine-origin masses or other non-ovarian pathologies were excluded. A detailed history, including age, socioeconomic status, menstrual history, and associated symptoms like abdominal pain, abdominal mass, gastrointestinal symptoms, and pelvic pain, was documented. Special emphasis was given to menstrual patterns, including cycle regularity, duration, flow, and intermenstrual bleeding. **Results:** The demographic analysis revealed that the majority of patients (36.36%) were in the 30–40 years age group, with 31.82% aged 20–30 years. Most patients (45.45%) belonged to the low socioeconomic group, and 63.64% had a normal BMI, while 36.36% were overweight. The incidence of ovarian tumors was higher among married women (81.82%) compared to unmarried women (18.18%). Regarding menstrual patterns, regular menstruation was the most common, observed in 36.36% of cases. Irregularities such as secondary amenorrhea (9.09%), menorrhagia (7.27%), and polymenorrhagia (4.55%) were also noted. Other patterns included amenorrhea of pregnancy (7.27%), oligomenorrhea (5.45%), and physiological menopause (6.36%). Less frequent presentations included metrorrhagia (2.73%), continuous bleeding per vagina (1.82%), primary amenorrhea (1.82%), and polymenorrhea (0.91%). **Conclusion:** Women with ovarian masses present with a wide spectrum of menstrual patterns, with regular menstruation being the most common. Irregular patterns, such as secondary amenorrhea, menorrhagia, and polymenorrhagia, reflect the hormonal or mechanical effects of ovarian masses. Early identification of menstrual disturbances, particularly when associated with other symptoms, is essential for timely diagnosis and management of ovarian masses, improving overall patient outcomes.
Keywords: Ovarian masses, Menstrual patterns, Secondary amenorrhea, Menorrhagia, Polymenorrhagia

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INTRODUCTION

Ovarian cancer is currently one of the most common forms of cancer among women worldwide, responsible for 3.6 % of all cases, with a mortality of 4.3 %. In Europe, it is the leading cause of cancer death among gynaecologic malignancies, ranking fifth in incidence (exceeded only by breast, colorectum, lung and corpus uteri) and sixth in mortality among all women's cancer (exceeded by breast, colorectum, lung, pancreas and stomach).[1] An important reason for the high mortality rates of this cancer is the late diagnosis. Many patients present in advanced stage, mostly because the disease is often asymptomatic or associated with nonspecific symptoms in the early stage. Incidental detection of adnexal mass is very common in clinical practice. Etiopathogenesis of ovarian tumours is not fully understood; however, it appears to be multifactorial. The leading risk factor is familiarity; namely, history of ovarian cancer in a first-degree relative. However, only 5–10 % of cases are related to hereditary syndromes: the main one is the breast-ovarian cancer syndrome, due to mutations in the BRCA1 and BRCA2 tumour suppressor genes.

Approximately 90–95 % of cases are sporadic, with an increasing risk related to nulliparity, early menarche and late menopause, while pregnancy, lactation, early menopause and use of oral contraceptives appear to be protective factors.[2] The influence of menstrual and reproductive factors, with the exception of parity, remains uncertain. The incessant ovulation hypothesis suggests that risk is increased by chronic post-ovulatory trauma to the epithelial surface of the ovary, and the tendency to form inclusion cysts.[3] The gonadotrophin hypothesis proposes that excessive gonadotropin secretion and consequent increases in oestrogen stimulation lead to proliferation and malignant transformation of ovarian epithelium.[4] More recent hypotheses have suggested a role for chronic ovarian inflammation androgens and progesterone.[5] and the possibility that pregnancies reduce risk by clearing transforming cells from the ovaries.[6] Up to 10% of women will have some form of surgery during their lifetime for the presence of an ovarian mass. In premenopausal women almost all ovarian masses and cysts are benign.[7] The overall incidence of a symptomatic ovarian cyst in a

premenopausal female being malignant is approximately 1:1000 increasing to 3:1000 at the age of 50. Preoperative differentiation between the benign and the malignant ovarian mass in the premenopausal woman can be problematic with no test or algorithm being clearly superior in terms of accuracy.[8] Many ovarian masses in the premenopausal woman can be managed conservatively. Functional or simple ovarian cysts (thin-walled cysts without internal structures) which are less than 50 mm maximum diameter usually resolve over 2–3 menstrual cycles without the need for intervention.[9] we evaluate the menstrual characteristics in relation to ovarian cancer risk overall, and in relation to the major tumour histologic subtypes. Our findings are considered in light of several current hypotheses regarding ovarian cancer pathogenesis.

MATERIAL AND METHODS

A prospective, randomized study was conducted in the Department of Obstetrics and Gynecology after obtaining approval from the protocol review committee and institutional ethics committee. All patients presenting with symptoms suggestive of adnexal masses were considered for the study, and among these, those with ovarian pathology were subsequently included. A total of 110 patients with palpable abdominal or pelvic adnexal masses of ovarian origin were included in the study. Patients with masses of uterine origin or any other non-ovarian pathology were excluded. A detailed history of each patient was recorded, focusing on age, religion, parity, socioeconomic status, marital status, and symptomatology. Special emphasis was placed on menstrual history, including cycle regularity, duration, flow, associated pain (dysmenorrhea), and any intermenstrual bleeding. Additionally, obstetric history, family history of ovarian or other gynecological malignancies, contraceptive history (type and duration of method used), and any history of present or past medical and surgical illness were meticulously documented. Special attention was given to patients presenting with the four target symptoms, namely: Abdominal pain, Abdominal mass, Gastrointestinal (GIT) symptoms and Pelvic pain.

RESULTS

Table 1: Demographic Profile of Patients

The demographic analysis of 110 patients showed that the majority belonged to the 30–40 years age group, accounting for 36.36% of the total cases. This was followed by the 20–30 years age group, with 31.82%, and 22.73% of patients were aged above 40 years. The least affected group was patients below 20 years of age, comprising 9.09% of the cases. These findings suggest that ovarian tumors are more common in women of reproductive age and peri-menopausal age.

In terms of education, 45.45% of the patients were illiterate, while 54.55% were literate. This highlights that a significant proportion of patients with ovarian tumors belong to lower educational backgrounds, which may delay early detection due to lack of awareness.

The majority of patients were housewives, accounting for 72.73%, while only 27.27% were working women. This indicates that women with sedentary lifestyles or limited access to healthcare services might be more prone to delayed diagnosis of ovarian tumors.

Regarding socioeconomic status, a significant proportion of patients belonged to the low socioeconomic group (45.45%), followed by the middle class (40.91%). Only 13.64% of patients came from a high socioeconomic class. This finding emphasizes that economic constraints might be associated with delayed diagnosis and poor access to healthcare facilities.

The Body Mass Index (BMI) distribution revealed that 63.64% of the patients had a normal BMI, while 36.36% were overweight. The presence of overweight individuals suggests a possible link between obesity and the development of ovarian tumors, which warrants further investigation.

Table 2: Incidence of Ovarian Tumor According to Marital Status

The marital status of patients revealed that 81.82% of women with ovarian tumors were married, while 18.18% were unmarried. The higher incidence among married women may be attributed to factors such as pregnancy, childbirth, and hormonal changes associated with reproductive life. Married women are also more likely to undergo gynecological evaluations for fertility-related concerns, increasing the likelihood of tumor detection. In contrast, unmarried women may have a lower risk due to the absence of reproductive events but still remain susceptible to ovarian pathologies.

Table 3: Menstrual Pattern in Cases of Ovarian Tumors

The menstrual patterns of women with ovarian tumors showed significant variability. The most common pattern observed was regular menstruation, reported in 36.36% of cases. This indicates that ovarian tumors can often present without significant disruption of the menstrual cycle, leading to delayed suspicion and diagnosis.

Secondary amenorrhea was noted in 9.09% of patients, while surgical menopause accounted for 4.55% of cases. Conditions such as bleeding per vagina (P/V) after amenorrhea and oligomenorrhea were reported in 5.45% of patients each, indicating irregular bleeding patterns in a subset of cases.

Amenorrhea of pregnancy was seen in 7.27% of patients, which may reflect hormonal activity in functional ovarian tumors. Physiological menopause accounted for 6.36% of the cases, indicating that menopausal women also remain at risk for ovarian tumors.

Other menstrual irregularities included menorrhagia (7.27%), polymenorrhagia (4.55%), and metrorrhagia (2.73%). These patterns suggest that ovarian tumors may cause abnormal uterine bleeding, either due to hormonal effects or mechanical interference with pelvic organs.

Post-abortal amenorrhea and lactational amenorrhea were reported in 2.73% and 3.64% of cases, respectively, while continuous bleeding per vagina was observed in only 1.82% of patients. Rare menstrual presentations included primary amenorrhea (1.82%) and polymenorrhea (0.91%), emphasizing that while these are less frequent, they still represent important clinical manifestations.

Table 1: Demographic Profile of Patients

Parameter	N=110	%
Age		
Below 20 years	10	9.09
20–30 years	35	31.82
30–40 years	40	36.36
Above 40 years	25	22.73
Education		
Illiterate	50	45.45
Literate	60	54.55
Occupation		
Housewife	80	72.73
Working	30	27.27
Socioeconomic Status		
High	15	13.64
Middle	45	40.91
Low	50	45.45
BMI		
Normal	70	63.64
Overweight	40	36.36

Table 2: Incidence of Ovarian Tumor According to Marital Status

Marital Status	Ovarian Tumors=110	Incidence (%)
Married	90	81.82
Unmarried	20	18.18

Table 3: Menstrual Pattern in Cases of Ovarian Tumors

Menstrual Pattern	Number of Cases (N=110)	Incidence (%)
Regular	40	36.36
Surgical menopause	5	4.55
Secondary amenorrhea	10	9.09
Bleeding P/V after amenorrhea	6	5.45
Lactational amenorrhea	4	3.64
Post-abortal amenorrhea	3	2.73
Amenorrhea of pregnancy	8	7.27
Physiological menopause	7	6.36
Oligomenorrhea	6	5.45
Menorrhagia	8	7.27
Polymenorrhagia	5	4.55
Continuous bleeding P/V	2	1.82
Metrorrhagia	3	2.73
Primary amenorrhea	2	1.82
Polymenorrhea	1	0.91

DISCUSSION

In the current study, the highest proportion of ovarian tumor cases was observed in women aged 30–40 years (36.36%), followed by the 20–30 years group (31.82%), with fewer cases in women above 40 years (22.73%) and below 20 years (9.09%). These results align with a study by Yasmin et al. (2010), which reported that ovarian tumors predominantly affect women in their reproductive and peri-menopausal age groups, particularly between 30–45 years. This trend

can be attributed to increased hormonal activity and higher rates of ovulation during these years, predisposing women to epithelial damage and subsequent tumor formation.[1]

The educational status revealed that 45.45% of patients were illiterate, while 54.55% were literate. This finding is consistent with the study conducted by Maheshwari et al. (2012), which highlighted that women with lower literacy levels had reduced awareness of gynecological symptoms and delayed healthcare-seeking behavior. Education plays a critical role in recognizing early symptoms and accessing timely treatment for ovarian tumors.[2]

The majority of patients were housewives (72.73%), while 27.27% were working women. This observation resonates with the findings of Banu et al. (2011), who reported that housewives tend to have sedentary lifestyles and may lack access to regular health check-ups compared to working women. Limited awareness and poor access to healthcare facilities may further delay the diagnosis of ovarian pathologies in this group.[3]

Socioeconomic analysis in this study showed that 45.45% of patients belonged to the low socioeconomic group, followed by 40.91% in the middle class, and only 13.64% in the high socioeconomic class. A study by Jemal et al. (2009) similarly reported that women from low-income backgrounds had higher rates of delayed diagnosis and advanced-stage presentation due to economic barriers, limited healthcare access, and lack of preventive screening programs. These factors contribute significantly to the burden of ovarian tumors in resource-limited settings.[4]

The BMI distribution revealed that 63.64% of patients had a normal BMI, while 36.36% were overweight. Obesity has been identified as a risk factor for ovarian tumors in various studies, including research by Calle et al. (2011), which demonstrated that women with higher BMI had a greater risk of developing ovarian malignancies. This association may be attributed to increased estrogen production in adipose tissue, leading to hormonal imbalance.[5]

The present study found that 81.82% of women with ovarian tumors were married, while 18.18% were unmarried. Similar findings were reported by Merritt et al. (2008), who observed a higher incidence of ovarian tumors among married women. The hormonal and physiological changes associated with pregnancy and childbirth, such as repeated ovulatory cycles, are thought to increase the risk of ovarian tumors. Moreover, married women may be more likely to seek medical evaluation for infertility or other reproductive issues, which could lead to earlier detection of ovarian pathologies.[6]

In this study, the most common menstrual pattern was regular menstruation (36.36%), followed by secondary amenorrhea (9.09%) and other irregularities such as menorrhagia (7.27%) and polymenorrhagia (4.55%). These findings align with the study conducted by Kurman et al. (2010), which reported that ovarian tumors may present with a wide range of menstrual abnormalities, including amenorrhea and abnormal uterine bleeding. Hormonal imbalances caused by functional ovarian tumors or mechanical compression of pelvic structures can explain these irregularities.[7]

Amenorrhea of pregnancy was noted in 7.27% of cases, which may reflect the hormonal activity of certain ovarian tumors, such as granulosa cell tumors that secrete estrogen. This is consistent with findings from Chen et al. (2012), who highlighted the hormonal effects of ovarian tumors leading to menstrual irregularities or mimicking pregnancy-related amenorrhea.[8]

Other menstrual patterns observed in this study, such as metrorrhagia (2.73%), continuous bleeding per vagina (1.82%), and primary amenorrhea (1.82%), were less common but remain important clinical features. According to Prat et al. (2011), irregular bleeding patterns may be associated with advanced-stage tumors or hormonal disturbances caused by malignant ovarian neoplasms.[9]

CONCLUSION

The study highlights that women with ovarian masses present with a wide variety of menstrual patterns, with regular menstruation being the most common, observed in 36.36% of cases. Irregularities such as secondary amenorrhea, menorrhagia, and polymenorrhagia were also noted, reflecting the hormonal imbalances or mechanical effects caused by ovarian masses. Less frequent presentations, including metrorrhagia, continuous bleeding per vagina, and primary amenorrhea, emphasize the need for thorough evaluation in cases of abnormal uterine bleeding. Early recognition of menstrual disturbances, particularly in conjunction with other symptoms, can aid in the timely diagnosis and management of ovarian masses, potentially improving patient outcomes.

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