

**Original Article**

**Clinicopathological analysis of ovarian tumors in perimenopausal women: A study in a rural teaching hospital of eastern India**

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**Abstract**

**Introduction:** Ovarian tumors are important in perimenopausal women as they are more likely to be malignant. **Aim:** The aim was to study the various histological pattern of ovarian tumors and their clinical presentation in perimenopausal age group. **Materials and Methods:** The study was carried out in the departments of Gynaecology and Obstetrics and Pathology in a teaching hospital for two years from June 2007 to May 2009. All patients presented with ovarian tumors of perimenopausal age group (40-50 years) were included. Detailed clinical information, radiological findings and histopathological reports were recorded. **Results:** A total 52 ovarian tumors were included in this study. Most common histological types were surface epithelial tumors (92.3%), out of which 54.2% were benign, 41.7% were malignant and 4.2% were borderline. Serous cystadenoma was the most common benign tumor and serous cystadenocarcinoma was the commonest malignant tumor. Abdominal discomfort was the commonest presenting symptom both in benign and malignant tumors (85.7% and 45.4% respectively). Most of the malignant tumors were presented in stage III (50%), followed by stage II (27.3%). **Conclusion:** In this study, we found a relatively higher proportion of ovarian malignancies. So, any ovarian tumor in perimenopausal age group is more likely to be malignant and that require a thorough evaluation and management. Further research should be advocated in this field.

**Key words:** Ovarian tumor, perimenopausal age group, histological type

**Introduction**

Ovarian cancer is the second most common gynaecological malignancy after cervical cancer in India<sup>1</sup>. Asian countries have rate of 2-6 new cases per 1,00,000 women per year<sup>2</sup>. Approximately 25% of all gynaecologic malignant tumors are of ovarian origin, but ovarian cancer is the most common fatal gynaecologic malignancy<sup>3</sup>. Ovarian carcinoma accounts for the greatest number of deaths from malignancies of the female genital tract and is the fifth leading cause of cancer fatalities in women<sup>4</sup>. Although ovarian cancers affect all age groups, primarily it is seen in postmenopausal women<sup>3,5</sup>. Perimenopausal women are also at high-

er risk of developing ovarian malignancies as postmenopausal women. The term perimenopause should include the period immediately before the menopause (when the endocrinological, biological and clinical features of approaching menopause commence) and the first year after menopause<sup>6</sup>. Variability is the hallmark of the menopausal transition and no operational definition was given of those features by the WHO<sup>6</sup>. However a better practical definition is the phase preceding the onset of menopause, generally occurring around 40-50 years of age during which the regular cycle of a woman transitions to a pattern of irregular cycles<sup>7</sup>. In India, the mean age of menopause is 45 years<sup>8</sup>.

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During this time, in addition to the various perimenopausal symptoms including menstrual disorders as a result of anovulation, women also become at increased risk of developing various ovarian pathologies.

Various studies revealed that malignant ovarian tumor is common after 40 years<sup>9,12</sup>. Surface epithelial tumors account for majority of malignancies<sup>3,13</sup>. Ovarian cancers are usually fatal when diagnosed because of delay in diagnosis. Symptoms are usually absent in early stages and nonspecific in advanced cases. Common presenting symptoms are abdominal lump or distension of abdomen, pain in abdomen, pressure effects and menstrual disturbances<sup>8,10,14</sup>. In this background, this study was undertaken to determine clinical presentation and histological pattern of ovarian tumor in perimenopausal age group in a rural teaching hospital of eastern India.

### **Materials and methods**

The study is a prospective study of two years duration undertaken in a teaching hospital of eastern India, in the departments of Gynaecology and Obstetrics and department of Pathology from June 2007 to May 2009. Before starting the study, clearance from ethical committee was obtained. A total 52 ovarian tumors of perimenopausal age group, diagnosed histopathologically were included. All oophorectomy specimens as well as hysterectomy with bilateral or unilateral salpingoophorectomy specimens in perimenopausal age group were included in this study. Ovarian tumors in which histological typing could not be done due to torsion were excluded from this study.

Detailed clinical history was reviewed with regard to age, clinical features, mode of presentation and radiological findings. Information regarding signs and symptoms, fine needle aspiration (FNAC) findings of available cases, complete blood count, ultrasonography (USG)/ Computed tomography (CT) findings and biochemical investigation findings including serum tumor markers like CA125, fetoprotein and human chorionic gonadotrophin (HCG) levels were recorded in available cases.

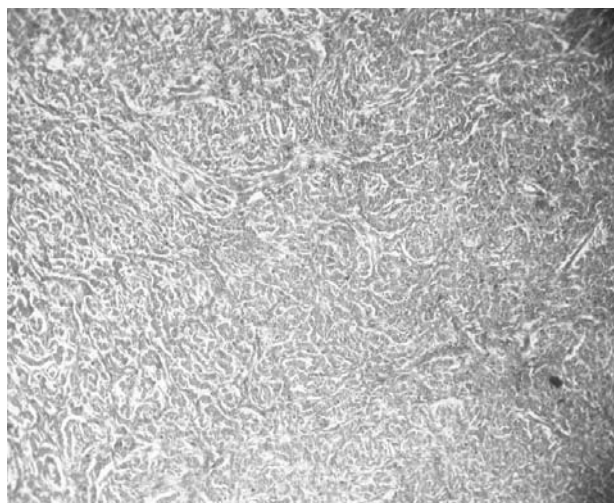
Histopathological typing of ovarian tumors were done according to World Health Organization classification<sup>15</sup>. We took 40-50 years age group as per-

imenopausal age group. Women, who were diagnosed with ovarian tumors after their menopause even if she falls in this age group, were excluded from the study.

### **Results**

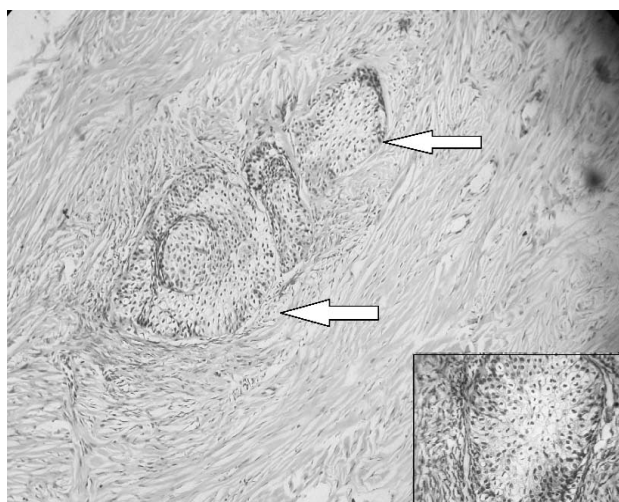
A total number of 52 cases were studied. Among them 28 (53.8%) were benign, 2 (3.8%) were borderline and 22 (42.3%) were malignant tumors. Surface epithelial tumors were the commonest ovarian tumor (92.3%), out of which 54.2% were benign, 41.7% were malignant and 4.2% were borderline [Table 1].

Among surface epithelial tumors serous tumors were the commonest (57.7%), followed by mucinous tumors (23.1%). The most common benign tumor was serous cystadenoma (53.6% of all benign tumors), which was also the commonest of all ovarian tumors (28.8%). Majority of malignant tumors were of surface epithelial origin, serous cystadenocarcinoma being the commonest (63.6% of all malignant tumors) followed by mucinous cystadenocarcinoma [Table 1]. Endometrioid tumors comprises 7.7% and Brenner tumor (Figure 1) comprises only 3.8% of all ovarian tumors. Only 2 cases of sex-cord stromal tumors were found,



**Figure 1:** Photomicrograph showing Brenner tumor with solid nests of epithelial cells (Arrows) embedded within fibrous tissue (H&E, 10x). Inset shows epithelial nest in high power (H&E, 40x)

one was benign fibroma and the other was malignant granulosa cell tumor (Figure 2).



**Figure 2:** Photomicrograph showing malignant granulosa cell tumor with trabecular and microfollicular (with Call-Exner bodies) growth pattern (H&E, 20x).

Other varieties includes only 1 case of germ cell tumor (mature cystic teratoma) and 1 Krukenberg tumor.

Abdominal discomfort was the commonest presenting symptom both in benign and malignant tumors (85.7% and 45.4% respectively) [Table 2]. Abdominal swelling was present in 12 (42.8%) and 9 (40.9%) of benign and malignant cases respectively. Menstrual abnormalities like dysmenorrhoea, menometrorrhagia and metrorrhagia were also found both in benign and malignant tumors.

**Table 1: Showing distribution of ovarian tumors according to histological types (n=52)**

Histogenesis	Histological Types	Total Number	Percentage
Surface epithelial tumors (n=48) 92.3%	Serous tumors	30	57.7
	Benign	15	28.8
	Borderline	1	1.9
	Malignant	14	26.9
	Mucinous tumors	12	23.1
	Benign	5	9.6
	Borderline	1	1.9
	Malignant	6	11.5
	Endometrioid tumors	4	7.7
	Benign	4	7.7
	Transitional cell tumors	2	3.8
	Brenner	2	3.8
	Sex cord-stromal tumors (n=2) 3.8%	Fibroma	1
Granulosa cell tumor (malignant)		1	1.9
Germ cell tumors (n=1) 1.9%	Teratoma (Benign)	1	1.9
Others (n=1) 1.9%	Krukenberg tumor	1	1.9

Metrorrhagia was the commonest menstrual abnormality which was present in 35.7% and 27.3% of benign and malignant categories. Cachexia was present only in few malignant cases (13.6%).

Cystic tumors were most commonly benign 23(82.1%) while most hard lumps were malignant 14(63.6%) [Table 3]. Most benign tumors had smooth surface (92.8%) while most malignant tumors had irregular surface (81.8%). Most benign tumors were mobile (85.7%) while most malignant tumors had restricted mobility (77.3%).

Most of the malignant tumors were presented in stage III (50%), followed by stage II (27.3%) disease. Only 3 cases (13.6%) presented in stage I and 2 cases (9.1%) presented in stage IV disease.

### Discussion

The incidence, clinical appearances and the behaviour of different types of ovarian tumors are extremely variable<sup>14</sup>. Ovarian tumors also displays histological heterogeneity<sup>16,17</sup>.

In our study, benign tumors accounted for 28 (53.8%), malignant ovarian tumors 22 (43.2%) and 2 (3.8%) of borderline. This result is similar to the findings of other studies<sup>12,14,18</sup>. Similar studies by Mondal *et al* found 63.1% benign, 29.6% malignant and 7.3% borderline tumors<sup>9</sup>. Again

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Gupta *et al* reported 72.9% benign, 22.9% malignant and 4.1% borderline ovarian tumors<sup>19</sup>. The slight increased proportion of malignant tumors in our study is because our study population comprised of perimenopausal age group (40-50 years). Previous studies also showed that malignant tumors are common in 41 to 50 years age group which was our study population<sup>9</sup>. Ovarian cancer incidence rises as the age of the patient increases. Ovarian cancer rises sharply between ages 45 and 54 years and remains elevated for the remainder of a women's life, paralleling gonadotropin levels over this period<sup>20</sup>.

**Table 2: Table showing clinical presentations of ovarian tumors**

Symptoms	Benign tumors (%) (n=28)	Malignant tumors (%) (n=22)
Abdominal swelling	12(42.8%)	9(40.9%)
Abdominal discomfort/pain	24(85.7%)	10(45.4%)
Alimentary symptoms	5(17.8%)	6(27.3%)
Cachexia	---	3(13.6%)
Menstrual abnormalities		
Dysmenorrhoea	2(7.1%)	5(22.7%)
Menometrorrhagia	1(3.5%)	2(9.1%)
Metrorrhagia	10(35.7%)	6(27.3%)
Urinary symptoms	4(14.2%)	6(27.3%)
Nonspecific symptoms	4(14.2%)	8(36.4%)

Histologically, surface ovarian tumors are the commonest. In our study also surface epithelial tumors were the commonest ovarian tumors (92.3%) which is higher than previous studies<sup>5,9,10,11,21,22</sup>. This is because these tumors are more common in older age group. Among the surface epithelial tumors, serous cystadenoma is the commonest of all tumors (28.8%) and also the commonest in benign category (53.6%). In the study by Saeed *et al* and Ahmad *et al* found 38.09% and 31.42% of serous cystadenoma which is close to our study<sup>23,24</sup>. In other studies, benign germ cell tumors constitutes a major proportion of benign group, which is common in younger age group. This younger age group was excluded from our study. Majority of malignant tumors were of surface epithelial origin. serous cystadenocarcinoma being the commonest (63.6%) of all malignant tumors. This finding is similar to previous studies<sup>9,14</sup>. Endometrioid carcinoma ranges from 10-25% of all primary ovarian cancers<sup>25</sup>. However in India, its proportion is found to be low ranging

from 4.2% to 5%<sup>9,26</sup>. But we have not found any malignant endometrioid tumors. It may be due to small sample size of our study.

**Table 3: Showing clinical findings of different ovarian tumors**

Clinical findings	Benign tumors n=28 (%)	Malignant tumors n=22 (%)
Consistency of lump		
Cystic	23(82.1%)	2(9.1%)
Hard	-	14(63.6%)
Variable	5(17.8%)	6(27.3%)
Surface of lump		
Smooth	26(92.8%)	4(18.2%)
Irregular	2(7.1%)	18(81.8%)
Tenderness of lump		
Present	2(7.1%)	12(54.5%)
Absent	26(92.8%)	10(45.5%)
Mobility of lump		
Mobile	24(85.7%)	5(22.7%)
Restricted	4(14.3%)	17(77.3%)

Sex-cord stromal tumors were the second largest group of tumors in this study comprising 3.8% of tumors which is similar with previous study from eastern India<sup>9,26</sup>. Germ cell tumors in our study comprises only 1.9% of all tumors. This finding is contrary to the previous studies<sup>9-11,25</sup>. This is because germ cell tumors are mostly seen in children and young adults<sup>27</sup>. This age group is excluded from our study.

The majority of women with epithelial ovarian cancer have vague and non-specific symptoms<sup>28-30</sup>. In early stage, irregular menses (especially in premenopausal women), urinary frequency, constipation, lower abdominal distension, pressure or pain such as dyspareunia are usually seen<sup>28-30</sup>. In advanced stage, patients have symptoms related to the presence of ascites, omental metastasis or bowel metastasis. The symptoms include abdominal distension, bloating, constipation, nausea, anorexia and early satiety. Again menstrual abnormalities like menorrhagia, metrorrhagia are also seen. In our study, abdominal discomfort was the commonest presenting symptom both in benign and malignant tumors (85.7% and 45.4%) respectively. Abdominal swelling was also present in significant number of cases. In few studies, abdominal pain is the commonest presenting complaint, while in some other studies distension of the abdomen was commonest<sup>10,14,21,31,32</sup>. Menstrual abnormalities constitute the second commonest symptoms in our study. They are present in 46.3% benign cases and 59.1% malignant cases respectively. Metrorrhagia was the commonest menstrual abnormality seen in

35.7% and 27.3% of benign and malignant cases respectively. Other menstrual abnormalities like dysmenorrhoea and menometrorrhagia were also seen. This finding is in contrast with other studies. It may be due to our study is restricted to perimenopausal women in whom menstrual abnormalities are quite common.

In our study, majority of benign tumors were cystic (82.1%), while a minor proportion of malignant tumors were cystic (9.1%) on palpation. In a previous study by Amatya S *et al* found that 93.7% of cystic tumors were benign while only 2.5% of malignant tumors were cystic which is consistent with our study<sup>14</sup>. We found that most benign tumors were mobile (85.7%) while most malignant tumors had restricted mobility (77.3%). Local spread of malignant tumor was cause of restricted mobility as the diagnosis was in late stage.

Ovarian cancers are considered as “silent killer” as they do not produce symptoms until in advanced

stage<sup>20</sup>. So there is delay in diagnosis. Most of the malignant tumors in our study were presented in stage III (50%), followed by stage II (27.3%) disease. This findings are consistent with previous studies<sup>14,26</sup>.

### **Conclusion**

In this study, we found that surface epithelial tumors were the commonest ovarian tumor in perimenopausal age group with a higher incidence of malignancy. This is an alarming finding. However our sample size is very small to make any definite opinion. Amongst malignant ovarian tumors delayed diagnosis is common and patients usually present in late stage of the disease. So awareness among public and doctors for early detection of ovarian cancer in this vulnerable perimenopausal age group and further research in this field with larger samples are advocated.

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