

## Clinicopathological analysis of ovarian tumors – A study on five years samples

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### ABSTRACT

Ovarian neoplasms have become increasingly important not only because of the large variety of neoplastic entities but more because they have gradually increased the mortality rate due to female genital cancers. A total of 120 cases of ovarian tumors were studied at the Department of Pathology, Konaseema Institute of Medical Sciences, Amalapuram, India, during the period of March 2005 to March 2010, to find out frequency of different histological patterns of ovarian tumors at Konaseema Region. Among 120 cases, majority 86 (71.6%) were benign, but alarming number 30 (25.0%) were malignant, remaining 4 cases were borderline. The commonest histological pattern observed in the study was epithelial tumors (61.6%). The commonest benign tumor was serous cyst adenoma, while; the commonest malignant tumors were granulosa cell tumor and endometrial carcinoma. Epithelial tumors were commonest variety of ovarian tumors followed by germ cell tumors. A relatively high number of malignancies were observed in this study.

**Keywords:** Ovarian neoplasms, surface epithelial tumor, malignancy.

### INTRODUCTION

Ovarian tumors are common forms of neoplasia in women. Ovarian tumors account for about 30.0% of female genital cancers.<sup>1</sup> Asian countries have rate of 2-6 new cases per 1,00,000 women per year.<sup>2</sup> Ovarian carcinoma is the fourth most common female cancer and the fourth leading cause of death among cancer deaths in female.<sup>3-5</sup>

These tumors behave in diverse way and generally escape the detection until they attain a larger size. Diagnosis of various patterns of ovarian tumors is very important in the treatment and prognosis.

Gynecologists receive the major load due to ovarian lesions not only because of the anatomical location but also these tumors may remain unnoticed for long period of time. Not only primary, the ovary is the favorite site to get metastatic deposits from other abdominal cancers.

In this study we tried to find out the histopathological patterns, which are more prevalent in our population.

### MATERIALS AND METHODS

In our retrospective and prospective study one hundred and twenty cases of ovarian tumors were studied from March 2005 to March 2010 in the Department of Pathology, Konaseema Institute of Medical Sciences, Amalapuram, India, which is a tertiary health care center and receives patients from all over Konaseema region. In the retrospective study, all the materials like blocks and slides

available in the Department were studied. In the prospective study, all the new cases admitted in the Department of Gynecology and Obstetrics of the same Institute were studied. The samples included the specimens from those patients who were treated and operated at our institute along with specimens from outside.

The data was collected on a proforma, which consists of the relevant information about age clinical presentation, size of tumor, bilaterality, provisional diagnosis, operative findings and histopathological analysis.

Specimens without the complete information were excluded from the study. The slides were stained with Haematoxylin and Eosin (H and E) stain and reviewed.

### RESULTS

A total number of 120 cases were studied. Among these 86 were benign, 4 were borderline and 30 were malignant tumors. About 2/3<sup>rd</sup> of all benign neoplasms was seen in patient between 20 to 40 years age, whereas 2/3<sup>rd</sup> of all malignant neoplasms were seen after the age of 40 yrs. The youngest patient in our study was 12 yrs old girl while the oldest was 70 yrs lady.

Twenty percent of all ovarian neoplasms were bilateral. Fifteen out of thirty malignant tumors were bilateral, but only 25 out of 86 benign tumors were bilateral. Bilaterality was not observed in borderline tumors in this study.

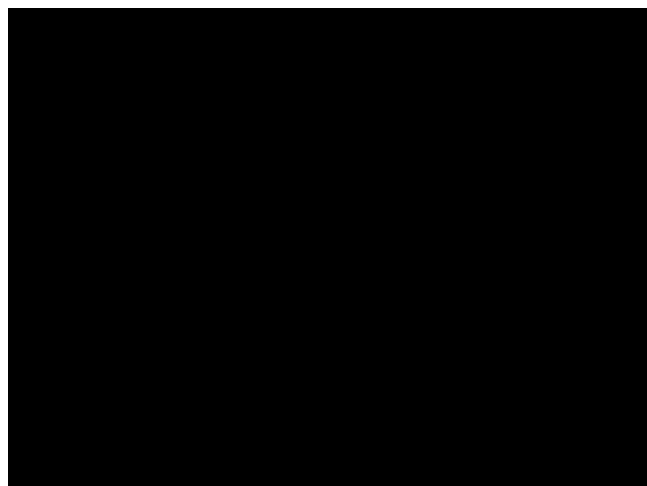
**Table-1:** Distribution of ovarian neoplasms according to histological type

Type	n.	%
Surface epithelial tumor	74	61.6
Germ cell tumor	26	21.7
Sexcord stromal tumor	14	11.7
Secondaries	06	5.0%
Total	120	

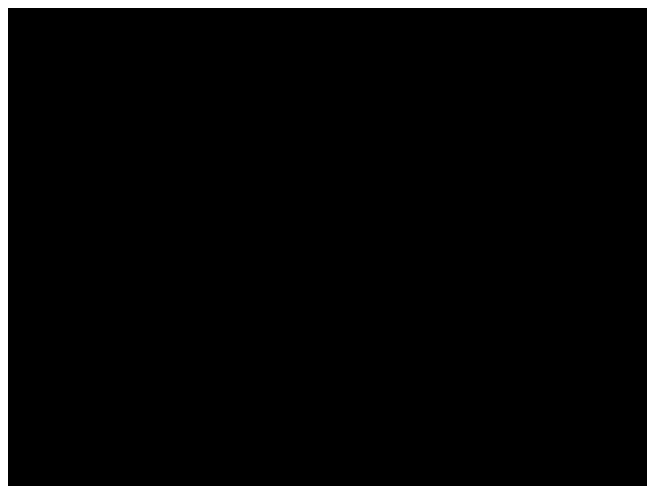
Histologically, surface epithelial tumors (Fig. 1, 2 and 3) were the commonest (61.6%) (Table-1), followed by germ cell tumor (21.7%) (Fig 4 and 5). The most common benign tumor was serous cystadenoma in 49 cases (40.8%) (Table-2). The most common malignant ovarian tumors were granulosa cell tumor and endometrioid carcinoma.

## DISCUSSION

In this study 86 (71.6%) were benign, 30 (25.0%) were malignant and 4 (3.0%) were borderline tumors. This is



**Fig. 1.** Mucinous cyst adenoma showing mucin secreting columnar epithelium. 400X (H and E stain)



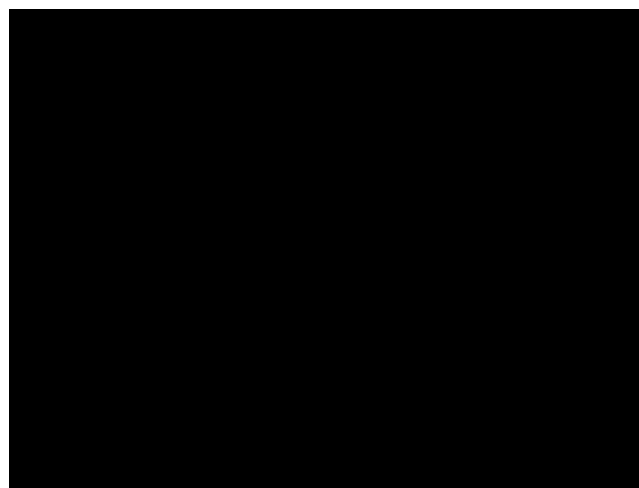
**Fig. 2.** Brenner tumor grossly showing sharply circumscribed solid appearance

**Table-2.** Distribution of surface epithelial tumors

Type of tumor	n.	Percentage from total ovarian tumors
Serous tumors		
Benign	49	40.8
Borderline	02	1.6
Malignant	06	5.0
Mucinous tumors		
Benign	08	6.6
Borderline	02	1.6
Malignant	04	3.3
Mixed epithelial tumor	03	2.5
<b>Total</b>	<b>74</b>	

almost similar to the data from western countries where 75.0-80.0% of ovarian tumors were benign<sup>6</sup> and also in studies carried out in India by Pilli *et al*<sup>7</sup> and Gupta *et al*<sup>8</sup> which showed approximately similar results of benign ovarian tumors 75.2% and 72.9% respectively. However this figure was only 59.2% in Ahmed *et al*<sup>9</sup> study in Pakistan (Table-3).

Among histopathological patterns the commonest category of the ovarian tumors encountered in our series was epithelial tumors followed by germ cell tumors. The most common benign tumor was serous cystadenoma followed by mature cystic teratoma. Serous cystadenomas were shown to be the commonest by Thanikasalam among the Indians and teratomas among the Malays and Chinese.<sup>10</sup> Serous tumors were found to be more common than mucinous, similar results were reported by Prabhakar *et al*.<sup>11</sup> Some molecular and histological evidences suggest that mucinous epithelial ovarian cancers develop via a sequence from benign



**Fig. 3.** Brenner tumor showing nests of transitional type epithelial cells with longitudinal nuclear grooves (coffee bean) nuclei lying in fibrous stroma, 400x (H and E Stain)

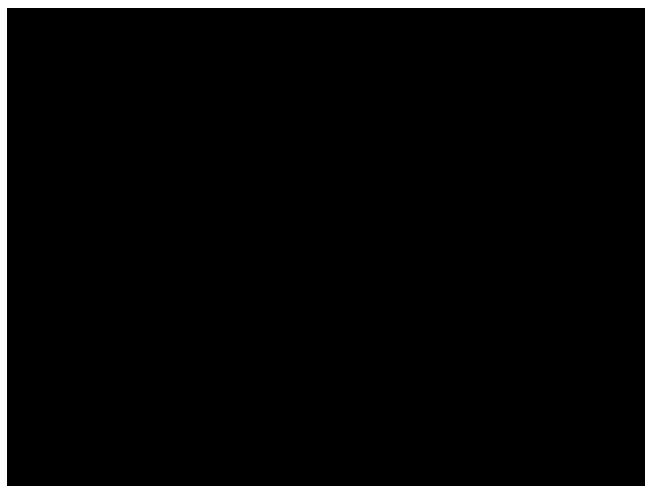
**Table-3:** Comparison of present finding with other workers

Type of Tumor	Ahmad et al <sup>9</sup>	Pilli et al <sup>7</sup>	Gupta et al <sup>8</sup>	Present study
Benign	59.18	75.2	72.9	71.6
Borderline	0.2	2.8	4.1	3.3
Malignant	40.81	21.8	22.9	25.1

**Fig. 4.** Mature cystic teratoma showing cartilage predominantly. 100X (H and E stain)

tumor, through borderline tumor to invasive cancer which suggests the potential preventability of borderline and invasive mucinous ovarian cancer by surgical excision of identifiable precursor lesions.<sup>12</sup>

The data available from this study can help in recognizing the pattern of ovarian tumors prevalent in this part of the world. Whether the malignant tumor arises *de novo* or the benign tumor transforms into malignant is the subject of ongoing debate and research. We have observed an increased incidence of malignancy in our set up but to confirm this observation further researchers are needed. Based on the results of this study it is evident that early diagnosis is crucial to help in decreasing morbidity and mortality among these patients.

**Fig. 5.** Scchiller – Dubal body in yolk sac carcinoma 400X (H and E stain)

It is concluded from this study that on morphological grounds, tumors originating from surface epithelium are the commonest variant. Majority of them were benign but a higher incidence of malignancy was also observed in our set up. This is an alarming finding. It is therefore, suggested that efforts must be made to identify the risk factors for malignancy. Amongst malignant ovarian tumors late reporting is common and patients usually present in advanced stages of the disease. The histopathological type of ovarian tumor correlated with the prognosis of the tumors.

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