



## A HISTOPATHOLOGICAL STUDY OF OVARIAN LESIONS IN WOMEN ATTENDING A TERTIARY CARE HOSPITAL

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**ABSTRACT** **Background:** Wide range of diseases occur in the ovary viz. non-neoplastic cysts, inflammations to neoplasms. Histopathological evaluation provides specific diagnosis and aids plan of management.

**Aim and Objective:** To study ovarian lesions on histopathology and analyse various characteristics and factors associated with these lesions.

**Material And Method:** A hospital based retrospective cross-sectional study conducted over a period of fifteen months. Histopathological study of 124 cases of ovarian lesions was done, characteristics and associated factors analysed.

**Results:** Neoplastic lesions (90 cases, 72.6%) were more common than non-neoplastic lesions (34 cases 27.4%). Most common benign and malignant neoplasm was serous cystadenoma (34.44%) and serous cystadenocarcinoma (8.90%) respectively. Bilateral involvement (57.14%), solid and mixed consistency was found commonly in malignant tumors.

**Conclusion:** Ovarian lesions show wide variations ranging from innocuous to overtly malignant lesions. Histopathology plays key role in diagnosis and aids proper management.

**KEYWORDS :** Ovary, Neoplasm, Benign, Malignant.

### INTRODUCTION:

Ovary is an important organ in females concerned with reproduction and steroidogenesis. A wide range of diseases has been found affecting this organ. Ovarian diseases of surgical importance can be broadly divided into non-neoplastic cysts, inflammations and neoplasms. Ovarian tumours represent about 30% of all cancers of the female genital system [1]. Indian trend analysis reveals a steady increase in the age-standardized incidence rate of ovarian cancer, ranging from 0.26% to 2.44% per year in different area registries [2]. As there are no screening tests or tumour markers and low cytological accuracy in predominantly cystic neoplasm, histopathology plays a key role in detection of type and nature of ovarian tumours [3].

### AIM:

The aim is to study ovarian lesions on histopathology and analyse various characteristics and factors associated with these lesions.

### MATERIALS AND METHOD:

The present study is a hospital based retrospective cross-sectional study conducted over a period of 15 months from January 2019 to March 2020 in the department of Pathology, FAAMCH, Barpeta. A total of 124 cases of clinico-radiologically diagnosed ovarian lesions sent for histopathological examination from Gynaecology department, FAAMCH were included in the study. Clinical data of all the patients were obtained from their respective files. Histopathological slides stained with Hematoxylin and eosin stain were studied.

### RESULTS AND OBSERVATIONS:

A total of 124 cases of ovarian lesions are studied histopathologically. Out of these there are 34 non-neoplastic cases (27.4%) and 90 neoplastic cases (72.6%). The cases have been distributed into four age groups (Table 1 show distribution of all cases in different age groups).

**Table 1: Showing Total Number Of Cases In Different Age Group.**

Age group (Years)	Number of cases	Percentage
<20	9	7.25
20-39	51	41.12
40-60	50	40.32
>60 years	14	11.29
Total	124	100

The age of patients ranged from 14 to 79 years. Of the total 34 non-neoplastic cases most of the cases are found to

occur between age groups of 20-39 years (16 cases, 47.05%).

Under neoplastic group, benign lesions commonly occurred in the 20-39 years age group (43.24%) and majority (64.29%) of malignant lesions are found in 40-60 years age group (Table 2).

**Table 2: Age Distribution Among Neoplastic Lesions.**

Age Group in years	Benign	Malignant	Borderline	Total
<20	7(9.46)	0(0.00)	0(0.00)	7(7.77)
20-39	32(43.24)	2(14.29)	1(50)	35(38.89)
40-60	26(35.14)	9(64.29)	1(50)	36(40)
>60	9(12.16)	3(21.43)	0(0.00)	12(13.33)
Total	74(100)	14(100)	2(100)	90(100)

• Figures in parenthesis indicate column wise percentage. Out of the 34 non-neoplastic lesions, follicular cyst is the commonest (44.1%). This is followed by corpus luteal cyst (32.3%), endometriosis (17.7%) and inclusion cyst (5.9%).

The neoplastic ovarian lesions have been categorised according to WHO classification 2008. Benign neoplasms are found to be the most common neoplastic lesions (82.22%) followed by malignant (15.55%) and borderline (2.22%). The most common benign neoplasms are surface epithelial tumours (54.05%) followed by germ cell tumours (40.54%). Malignant tumours comprised of 15.55% and among them surface epithelial tumours (85.71%) are the most common. There are two cases (2.22%) of borderline tumours comprising of one borderline mucinous tumour and one borderline seromucinous tumour (Table 3).

**Table 3: Distribution of benign, borderline and malignant ovarian lesions (N=90)**

Tumours	Surface epithelial	Germ cell tumour	Sex cord stromal	Total
Benign	40(54.05)	30(40.54)	4(5.40)	74(100)
Malignant	12(85.71)	2(14.28)	0(0.00)	14(100)
Borderline	2(100)	0(0.00)	0(0.00)	2(100)
Total	54(60)	32(35.55)	4(4.44)	90(100)

• Figures in parenthesis indicate row wise percentage.

Among the surface epithelial tumors, serous tumors are found to be most common followed by mucinous group. Most common benign neoplasm is serous cystadenoma (34.44% of all neoplasm) followed

by mature cystic teratoma (33.33%). Most common malignant tumour is serous cystadenocarcinoma (8.90%) followed by mucinous cystadenocarcinoma (Table 4 show distribution of neoplastic cases).

**Table 4: Distribution of Neoplastic cases (N=90)**

Neoplasms	Number of cases	Percentage
Serous cystadenoma	31	34.44
Mucinous cystadenoma	9	10.01
Mature cystic teratoma	30	33.33
Fibroma	4	4.44
Serous cystadenocarcinoma	8	8.90
Mucinous cystadenocarcinoma	4	4.44
Yolk sac tumour	1	1.11
Mature cystic teratoma with malignant transformation	1	1.11
Borderline mucinous tumour	1	1.11
Borderline seromucinous tumour	1	1.11
Total	90	100

In this study, out of total 90 lesions, 79 (87.8%) lesions are unilateral and 11(12.22%) lesions are bilateral. Most of the benign tumours are found to be unilateral (95.9%). The tumours commonly involved the right ovary (69.99%). Both the borderline tumours are found unilaterally (100%) in the right ovary. Among malignant lesions 57.14% are bilateral and 42.86% are unilateral.

On gross morphology out of 90 neoplastic lesions 84.44% were cystic, 1.11% were solid and 14.44% had mixed consistency. 84.72% of benign tumours (61 out of 72) and the two borderline tumours are cystic. Mixed consistency has been found in yolk sac tumour, all the mucinous malignant tumours, mature cystic teratoma and benign mucinous tumours. In case of serous cystadenocarcinoma mixed consistency has been found in 62.5% while 25% are entirely cystic with thickened cyst wall and 12.5% are solid.

#### DISCUSSION:

In the present study out of 124 cases of ovarian lesions studied histopathologically, 90 (72.6%) were neoplastic and 34 (27.4%) were non-neoplastic. Out of 90 neoplastic ovarian lesions, 74 i.e. 82.22% were benign, 2 i.e. 2.22% were borderline and 14 i.e. 15.55% were malignant. These findings are comparable to the study done by Yasmin et al [4], Dimpal et al [5] and Ahmed et al [6]. This finding also concurs with data from western countries [7, 8] where 75-80% of ovarian neoplasms were benign and 20-25% were malignant. However, Gupta et al [9] reported much higher incidence of malignant ovarian tumour. The age of patients ranged from 14 years to 79 years. Non-neoplastic cases occurred commonly between 20-39 years of age.

The benign neoplasms commonly occurred between 20 to 39 years age group (43.24%). The malignant lesions on the other hand were found to occur mostly in 40-60 years age group (64.29%). The finding in this study is in concordance with study done by Swamy and Satyanarayana [10], Vora and Bhargav [11], Bhuvanesh and Logambal [12] and Mehta and Purandare [13].

Over all the most common type of ovarian neoplasm was surface epithelial tumours (54.05%) followed by germ cell tumours (40.54%). This finding is similar to studies by Ahmed et al (6), Gupta et al (9). In contrast, Kar et al (14) Sofi et al [15] and Pilli et al [16], has reported much lower incidence of germ cell tumours.

Most common benign neoplasm was serous cystadenoma (34.44% of all neoplasm) followed by mature cystic teratoma (33.33%). Similar finding was observed by Zaman et al (17), Swamy and Satyanarayana (10).

Most common malignant tumour was serous cystadenocarcinoma (8.90%). Study by Zaman et al (17) found serous cystadenocarcinoma as the commonest malignant tumor of ovary. In study by Swamy and Satyanarayana (10) granulosa cell tumor and endometrial carcinoma were the most common malignant tumors.

There were two cases (2.22%) of borderline tumours comprised of one borderline mucinous tumour and one borderline seromucinous tumour.

Among 34 non-neoplastic lesions, follicular cyst was commonest comprising 44.1% of total non-neoplastic lesions. This was followed

by corpus luteal cyst comprising 32.3%. Study by Kanthikar et al (18) found that the most common non-neoplastic lesion was follicular cyst, followed by corpus luteal cyst.

In this study most of the tumors were unilateral (87.8%) and most commonly involved the right ovary (69.99%). The results were comparable with the study done by Ramachandran et al [19]. Both the borderline tumours were found unilaterally in the right ovary.

Among malignant lesions bilateral involvement (57.14%) was more common than unilateral (42.86%). Other studies found a greater association of malignant neoplasm with bilaterality. Study done by Prabhakar and Maingi [20] showed 75.9% of bilateral ovarian neoplasms. Study by Sofi et al [15] also reported a higher association.

In the present study, out of 90 neoplastic lesions 84.44% were cystic, 1.11% were solid and 14.44% had mixed consistency. Solid and mixed consistency was found to be more common in malignant neoplasms. Similar finding was observed by Gupta et al [9].

#### CONCLUSION

The ovaries are a frequent site for various pathological processes which range from innocuous to overtly malignant. Knowledge about the diverse lesions, its characteristics and associated factors along with histomorphological study would help in the diagnosis and proper management of cases.

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