Histopathologic Spectrum of Ovarian Masses At A Tertiary Care Hospital, Ahmedabad

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Abstract: *The aim was to study the distribution of morphological pattern of Benign and Malignant ovarian neoplasm in different age groups in a tertiary care hospital in Ahmedabad and to provide specific diagnosis based on histomorphology.The Data pertaining to sample of received for histopathological evaluation at the laboratory of a tertiary care hospital in Ahmedabad. Over a priod of 2 year(from June - 2016 to June 2018) all the relavant data of patients analysed from hospital record file. A total of 105 cases with ovarian lesion were seen from the year (june-2016 to june-2018). Non neoplastic lesions of the ovary constituted majority of cases (69cases) received; most common were corpus luteal cysts 36 cases (52.1%) followed by solitary follicular cysts 30 cases(43.4%) . Among the 36 neoplastic ovarian lesions 33 (97%) cases were benign, 1(1%) case was at borderline and 2 (2%) cases were malignant. In 33 benign ovarian neoplasm, most common seen lesion was mucinous cystadenoma with 19 cases (63.3%) followed by serous cystadenoma with 10 cases (36.6%) and 4 cases of mature cystic teratoma. Out of total 3 malignant case , 1 case of borderline tumour , 1 case of granulosa cell tumour and 1 case of papillary serous cystadenocarcinoma. Most of the benign tumour were observed in the age group of 31-40yr, and most of the malignant tumours cases were common in elderly (>40 years) age group. The majority of ovarian lesions received for evaluation were benign. Most patients were in the third to sixth decade of life.*

Key words: *corpus luteal cyst, mucinous cyst adenoma, neoplasm*

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I. Introduction

Ovary is unique in the variety of lesions that can arise from it. The complex anatomy of ovary and its peculiar physiology within the constant cyclical changes from puberty to menopause give rise to number of cell types each of which is capable of giving rise to tumours. Ovaries are a common site of non-neoplastic and neoplastic lesion. Ovarian lesions can occur in all age groups and no age is exempted. Ovary is an important organ and is concerned with progeny production. The ovary consists of totipotent sex cells and multipotent mesenchymal cells. So, when it becomes neoplastic, almost any types of tumour can thus result.[1]

The morphological diversity of ovarian tumours poses many challenges in diagnosis for both gynaecologist and pathologist. The ovary is most common site of primary malignancy in female genital tract after cervix and endometrium accounting for 30% of all cancers of female genital tract. But mortality rate exceeds the combined mortality of both endometrium and cervical neoplasm.

Ovarian tumors may either be asymptomatic, found on the routine ultrasound examination, present with abdominal mass/pain or symptoms may be vague until the patient has an acute emergency like torsion or rupture of a benign cyst.[2] Consequently many of the malignant tumours had variable periods of time to grow and often involve the adjacent organs before any symptoms develop or recognition take place. Despite the new techniques in imaging and genetics, the diagnosis of ovarian tumour is primarily dependent upon histological examination. The present study is undertaken to study the diverse histomorphological pattern of ovarian lesions and thus offering a specific diagnosis which is paramount clinical significance.

II. Aims And Objective

The aim was to study the distribution of morphological pattern of Benign and Malignant ovarian neoplasm in different age groups in a tertiary care hospital in Ahmedabad and to provide specific diagnosis based on histomorphological study which is of paramount clinical significance in further management of the patient.

III. Material And Method

The present study was a prospective study based on histomorphological evaluation in 105 cases of ovarian neoplastic and non-neoplastic lesions received at the department of pathology of a tertiary care health centre in Ahmedabad from June 2016 to June 2018. The materials for this study, ovarian specimen was obtained from hystrectomy specimen with unilateral or bilateral adnexa, and oophaorectomy and/or cystectomy specimens received in the department.

Relevant clinical information regarding the age, clinical features, radiological findings and provisional diagnosis were obtained. The specimens were analysed in detail macroscopically for various parameters like size, external surface and consistency and cut sections with contents of cyst.

The tissues were processed by routine paraffin techniques and sections stained with haematoxylin and eosin were taken for microscopic examinations.The lesions were then classified and studied as per the WHO classification of ovarian tumors.

IV. Results

- Amongst 105 cases studied during study period, 69(65.7%) were non-neoplastic and remaining 36 (34.2%) were neoplastic.(Table 1)
- The most common non-neoplastic lesion found was corpus luteal cysts 36 cases (52.1%) followed by solitary follicular cysts 30 cases (43.4%). (Table 2)
- Among the 36 neoplastic ovarian lesions 33 (97%) cases were benign, 1(1%) case was at borderline and 2 (2%) cases were malignant.
- In 33 benign ovarian neoplasm, most common seen lesion was mucinous cystadenoma with 19 cases (63.3%) followed by serous cystadenoma with 10 cases (36.6%) and 4 cases of mature cystic teratoma.(Table 2)
- Out of total 3 malignant cases, 1 case of borderline tumour, 1 case of granulosa cell tumour and 1 case of papillary serous cystadenocarcinoma.
- Most of the benign tumour were observed in the age group of 31-40yr, and most of the malignant tumours cases were common in elderly (>40 years) age group.
- In our study, Right sided lesions were more common (54 cases) than Left sided (42 cases).
- Bilaterality was seen in 9 cases, of which 5 were neoplsastic and 4cases were non-neoplastic(Table 3).

Table 1 Distribution of Ovarian lesion

Type of ovarian of lesion	No. of Cases	Percentage
Non-neoplastic	69	65.7%
Neoplastic	36	34.2%
Total	105	100%

Table 2 Age Distribution of Non-neoplastic lesion and Neoplastic lesion

	Histological Type	11-20	21-30	31-40	41-50	51-60	>60	Total	Percentage
Non Neoplastic lesion	Corpus luteal cyst	2	5	15	13	1	-	36	52.1%
	Follicular cyst	-	2	16	9	2	1	30	43.4%
	Chocolate cyst	-	-	3	-	-	-	3	4.3%
	Total							69	100%
Neoplastic lesion	Mucinous cyst adenoma	-	5	6	5	2	1	19	52.7%
	Serous cyst adenoma	1	2	3	3	1	-	10	27.7%
	Mature cystic teratoma	1	1	1	1	-	-	4	11.1%
	Borderline tumour	-	-	-	1	-	-	1	2.7%
	Granulosa cell tumour	-	-	-	-	1	-	1	2.7%
	Papillary serous cystadenocarcinoma	-	-	-	-	1	-	1	2.7%
	Total							36	100%

Table 3 Laterality of ovarian lesion

Side	Non-neoplastic	Neoplastic	Total
Right	36	18	54
Left	29	13	42
Bilateral	4	5	9
Total	69	36	105

Table 4 Difference between Borderline and Carcinomaous mucinous tumour of Ovary

Feature	Borderline Tumour	Carcinomatous Tumour
Invasive	No destructive stromal invasion present	Destructive stromal invasion present
Atypical epithelial cells	Less than 4 cells in thickness	Greater than 4cells in thickness
Nuclear atypia	Mild	Moderate /high
Ciliated cells	Present	Absent
Malignant potential	Low grade	High grade
Prognosis	Good	Poor
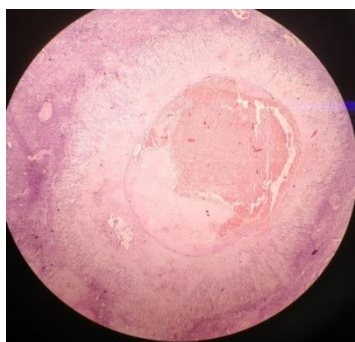
Figure 1 High Power: Haemorrhagic corpusluteal cyst (H&E stain)
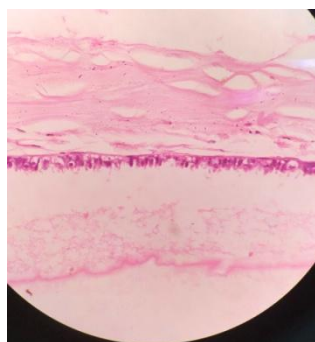
Figure 2 High Power: Mucinous Cystadenoma shows Lining of mucous secreting tall columnar Epithelium (H&E Stain)
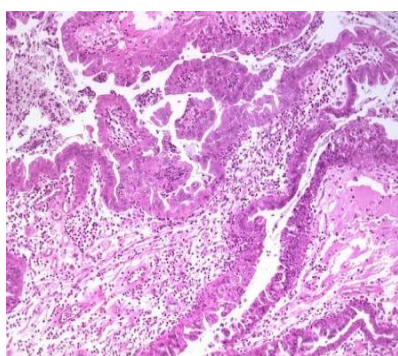

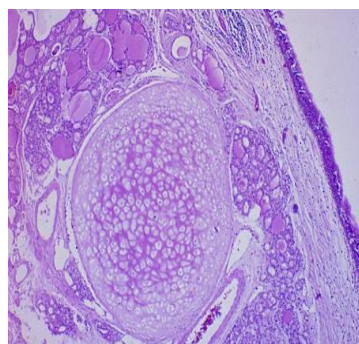**Figure 3** High Power: Borderline Mucinous Tumor (H&E Stain)

Figure 4 High Power: Mature cystic teratoma shows cartilage, sebaceous gland, squamous epithelium (H&E Stain)

Figure 5 High Power: Call Exner Body Showing Coffee Bean Appearance In Granulosa Cell Tumor (H&E Stain)

V. Discussion

- Ovarian masses often are asymptomatic and found at the time of routine health care visit, during screening for other unrelated complaints or when evaluating a specific gynaecological complaints. The vast majority

of ovarian cysts in women of reproductive age are physiological either follicular cysts or cystic corpus luteum.[3,4]

- Corpus luteal cyst develop form mature postovulatory follicle. A corpus luteal cyst measure at least 3cm in diameter and is physiologic. A follicular cyst is the most common functional cyst and most of them are asymptomatic. More than 80% resolves spontaneously.[5,6]
- Ovarian cancer is the second leading cause of mortality among all gynaecological cancers.[7] Due to similar clinical presentations there is confusion in the diagnosis of non-neoplastic and neoplastic lesions of ovary although it is diagnosed as a mass or cystic lesion on ultrasonography and hence removed prophylactically in routine oophorectomies and hysterectomies.[8]
- Out of the 105 cases of ovarian lesions studied in the present study, 36 cases were neoplastic and 69 were non neoplastic.
- Out of 36 cases of neoplastic lesions 97% were benign lesion and 3% were malignant lesion.
- The most common type of cyst was corpus luteal cyst followed by follicular cyst.
- Kreuzer GF et al.[9]reported 82 (40.39%) non-neoplastic lesions out of 203 ovarian lesions and Martinez-Onsurbe P, et al.,[10] reported 55 (41.67%) non-neoplastic lesions out of 132 ovarian lesions. Incidence reported in our study regarding non-neoplastic lesions was higher and concurring with the above studies.
- Incidences of these cysts were accordance with to Kreuzer GF et al., (55% Follicular cyst and 45% corpus luteal cyst) and Martinez-Onsurbe P et al., (55% follicular cyst and 45% corpus luteal cyst). Gupta N et al.,[11] reported follicular and corpus luteal cyst (80.2%). In our study the incidence was 64% which was slightly higher than this study.
- Ovarian tumour may occur at any age, including infancy and childhood. Incidence rate, however increase with age, with the greatest number of new cases being diagnosed beyond 4th and 5th decade. In our study, the youngest patient was of 19yr and oldest of 70yr, which was concordance with Couto F et al.[12]

VI. Conclusion

- The ovary is a frequent site for primary and metastatic tumour. Due to its complex structure, primary ovarian neoplasms are of diverse histological types. The diversity of neoplasm makes it mandatory to classify the tumours accurately by histopathological features following universally accepted classification.
- Our study of 105 ovarian lesions at a tertiary health centre in Ahmedabad. The result of present study a comparable occurrence with respect to age, bilaterality, gross features and microscopy. Among the 105 cases nonneoplastic lesions (65.7%) were more common than neoplastic lesion (34.25%). Incidence of cases occurred in age group of 30-60 years.
- Among 65.7% nonneoplastic lesions corpus luteal cyst was commonest followed by follicular cyst.
- Effective therapeutic management of ovarian malignant tumours continues to be a challenge to the oncologist. An accurate histopathological diagnosis combined with clinical staging will help in rendering prompt and appropriate treatment of the patient.

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