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HISTOPATHOLOGICAL STUDY OF OVARIAN LESIONS IN A TERTIARY CARE CENTRE: A TWO-YEAR RETROSPECTIVE STUDY

Histopathology

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ABSTRACT

Introduction:- Ovaries are paired pelvic reproductive organs with wide biological and histological behaviour. Its lesions can arise from any of its components, be it sex cells to germ cells to mesenchymal cells and present in varied fashion, thereby offering us a good field for research. **Objectives:-** To study various neoplastic and non neoplastic lesions of Ovaries and their age distribution. **Material and Methods:-** It is a retrospective study undertaken using data retrieved from records of pathology department from January 2019 to December 2020. A total of 135 specimen during these two years were studied. **Results:-** Of the 135 lesions 63 were non neoplastic and 72 were neoplastic. Of these 72, 51 were surface epithelial tumours, 13 germ cell, 6 sex cord stromal and 2 secondaries. **Conclusion:-**Although ovaries are common site for primary and secondary tumours, non neoplastic lesions are most common followed by benign neoplastic lesions. Most common benign and malignant lesions are of surface epithelial origin. Mostly unilateral ovary is involved and most common age group is 20-39 years.

KEYWORDS

Ovarian, surface epithelial tumour, sex cord stromal tumour, germ cell tumour, nonneoplastic ovarian lesions.

INTRODUCTION

Ovary is an important intrapelvic female reproductive organ.[1] The ovary consists of totipotent and multipotent cells, which on becoming neoplastic give rise to almost any type of tumour.

Many non-neoplastic lesions of the ovary frequently mimic an ovarian neoplasm.[2] Therefore, their recognition and classification are important for appropriate treatment. Neoplastic lesions may arise from sex cells, germ cells and mesenchymal tissue; presenting a varied histopathological spectrum.[3] Ovarian cancer is the seventh leading cause of cancer death among females worldwide.[4] Most of the ovarian tumours are detected in the advanced stage due to their asymptomatic nature, inaccessible site and limited use of new techniques like pathology section, cytology and biopsy; making it difficult for appropriate management.[5] Thus, ovarian lesions offer a good field for research.

MATERIALS AND METHODS

This was a retrospective study undertaken using data retrieved from records of the Department of Pathology, GMCH, Aurangabad; from January 2019 to December 2020. A total of 135 ovarian specimens were obtained from hysterectomy specimens with unilateral or bilateral adnexa, and oophorectomy and/or cystectomy specimens. Gross specimens were analyzed in detail for size, external surface, consistency and cut surface. The tissues were processed by routine paraffin embedding technique and sections stained with Hematoxylin and Eosin and were taken for microscopic examination. The non-neoplastic and neoplastic lesions from representative sections were studied and classified according to World Health Organization (WHO) classification. Details of the histopathological diagnoses of the ovarian masses evaluated, as well as the age distribution of the patients, were analyzed. All patient data were kept confidential.

RESULTS

Among 135 specimens, 63 (46.67%) were non neoplastic and 72 (53.33%) neoplastic. Unilateral lesions were more common in 87.4%. Most common age of presentation is 20-39 in both neoplastic (66.66%) and non neoplastic (56.94%). Luteal cyst was most common non neoplastic lesion (34.92%). Among neoplastic lesions, Surface epithelial tumours (70.84%) was most common followed by Germ cell tumours (18.05%). Serous cystadenoma (31.94%) was most common benign lesion whereas serous cystadenocarcinoma (9.72%) was most common malignant lesion.

Table 1: Distribution of Non-neoplastic lesions

Non neoplastic lesions	Age in yrs				Total
	<19	20-39	40-59	>60	
Oophoritis	0	1	1	0	2
Follicular cyst	0	7	5	0	12
Luteal cyst	1	16	5	0	22
Endometriotic cyst	0	1	2	0	3
Hydatid cyst	0	1	0	0	1
Twisted hemorrhagic cyst	2	6	1	0	9
Ectopic pregnancy	0	4	0	0	4
PCO	0	2	0	0	2
Normal/congested	1	4	3	0	8
Total	4	42	17	0	63

Table 2: Distribution of Neoplastic lesions

Neoplastic lesions	Age in yrs				Total
	<19	20-39	40-59	>60	
SURFACE EPITHELIAL TUMOURS					
Serous Cystadenoma	0	13	7	3	23
Serous Cystadenofibroma	0	3	0	0	3
Serous Cystadenocarcinoma	0	0	4	3	7
Mucinous Cystadenoma	0	9	3	2	14
Seromucionous Cystadenoma	0	3	0	0	3
Benign Brenners	0	0	1	0	1
SEX CORD STROMAL TUMOURS					
Granulosa Cell Tumour	0	0	2	1	3
Fibrothecoma	0	0	2	1	3
GERM CELL TUMOURS					
Mature Cystic Teratoma	0	9	1	0	10
Struma Ovarii	0	1	0	0	1
Malignant Germ Cell Tumour	1	1	0	0	2
SECONDARIES					
Krukenberg Tumour	0	2	0	0	2
TOTAL	1	41	20	10	72

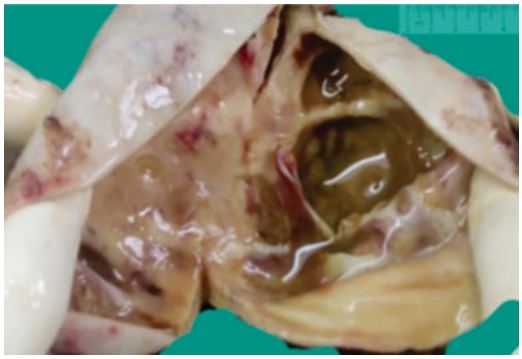

Fig.1: Serous cystadenoma - cut section

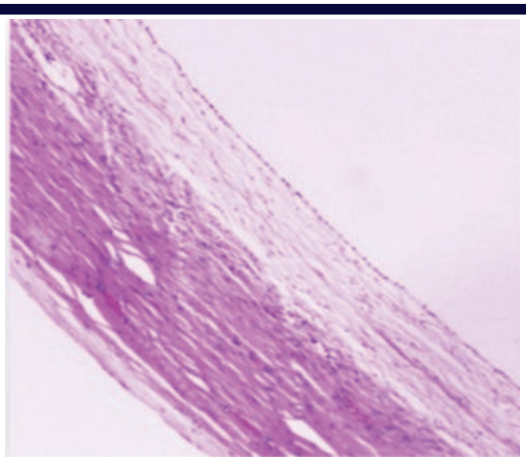

Fig.2: Serous cystadenoma - microscopy showing simple serous lining (H and E- x 200)

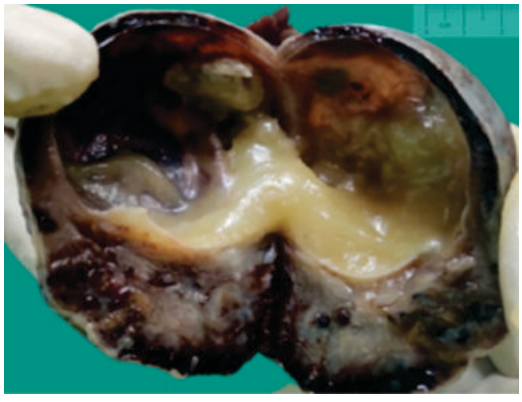

Fig.3: Mucinous cystadenoma - cut section

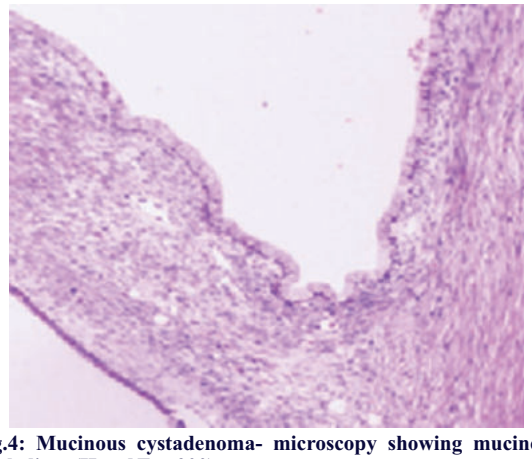

Fig.4: Mucinous cystadenoma- microscopy showing mucinous epithelium (H and E- x 200)

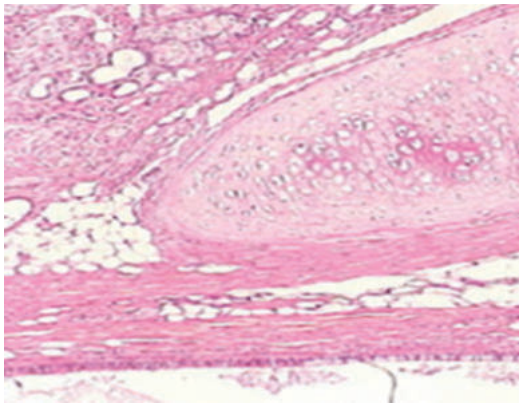

Fig.5: Mature cystic teratoma - microscopy showing well differentiated cartilage and glandular tissue (H and E- x 200)

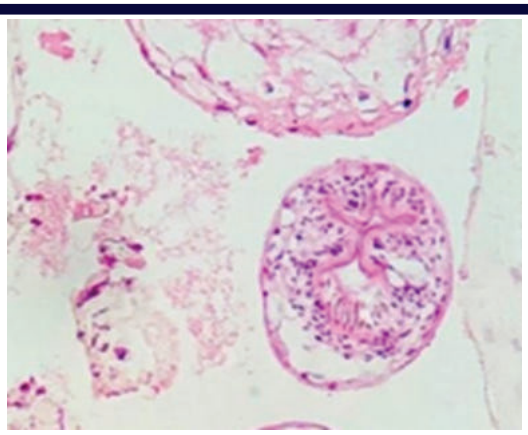

Fig.6: Hydatid cyst ovary – microscopy showing broods capsule with scolices (H and E- x 400)

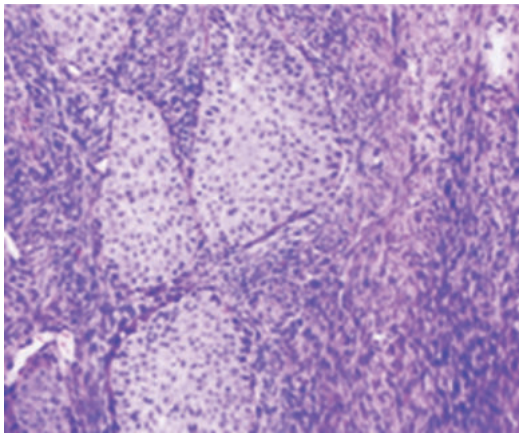

Fig.7: Brenners tumour – microscopy showing nests of transitional epithelial cells in fibrous stroma (H and E- x 400)

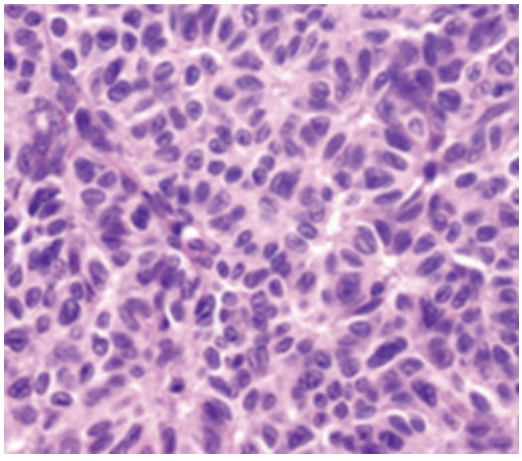

Fig.8: Granulosa cell tumour – microscopy showing tumour cells with pale, angulated nuclei having coffee bean appearance (H and E- x 400)

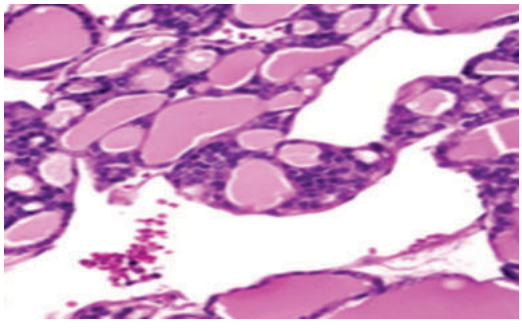

Fig.9: Struma ovarii – microscopy showing various follicles with colloid (H and E- x 400)

DISCUSSION

Our study revealed that 118 of ovarian specimens were unilateral (87.40%). Our findings are in concordance with other studies (Prabhakar and Kalyani-90.9%; Couto et al-91.25%; Thakkar and Shah- 88.4%).[6-8]

The majority of our patients were in the age group 20-39 years (61.48 %). This is in concordance with the studies of Ramachandran et al (53.0%) and Pilli et al (58.0%).[9-10] However, Thakkar and Shah found only 25.6% of their patients in the age group 20-39 years and 53.5% in the age group 40-59 years.[8] Kar et al reported 46.25% of patients in the age group 40-59 years.[11]

In our study, out of 135 lesions, 63 (46.67%) were non neoplastic. This finding is in concordance with Gurung et al (43.7%) and Kreuzer GF et al (40.39%).[12-13]

Among 63 non neoplastic lesions, corpus luteal cyst (34.92%) was most common, which is in concordance with Gaikwad S L et al (27.7%) and Makwana H et al (29.95%) while Singh et al found follicular cyst (34%) as most common.[14-16]
In our study, out of 135 lesions, 72 (53.33%) were neoplastic, out of which 80.56% were benign and 19.44% were malignant. We did not find any borderline lesion in our study.

Among benign lesions, serous cystadenoma was found to be most common, which is in concordance with other studies. Also, amongst malignant lesions, serous cystadenocarcinoma was most common, which is also in concordance with other studies.

Table 3: Relative percentage of different histological types of non-neoplastic ovarian lesions in different studies and present study.

	Luteal cyst (%)	Follicular cyst (%)	Oophoritis (%)	Endometriosis (%)	Hemorrhagic cyst (%)	Others/ Misc (%)
Gaikwad S.L. et al14	27.7	21.8	2	4	19.8	24.7
Makwana H. et al15	29.95	19.29	2.03	2.03	17.77	28.93
Singh M. et al16	31.3	34	-	0.3	16.2	18.2
Present	34.92	19.04	3.17	4.76	14.28	23.83

Table 4: Relative percentage of different histological types of ovarian tumours in different studies and present study.

Authors	Epithelial Tumours (%)	Sex Cord Stromal tumors (%)	Germ cell tumors (%)	Metastatic Tumours (%)
Kanthikar SN et al2	67.14	5.71	22.85	4.28
Pilli et al10	71	7	21	0.70
Neha et al17	70.6	4.17	25.83	2.4
Phukan A et al18	66.7	7.2	23.9	2.4
Gupta N et al19	54.70	7.06	31	6.18
Present Study	70.84	8.33	18.05	2.78

Table 5: Comparison of percentage incidence of benign, borderline and malignant tumours in different studies and present study

Authors	Benign (%)	Borderline (%)	Malignant (%)
Pilli et al10	76	2.8	21.2
Neha et al17	81.2	1.2	17.6
Phukan A et al18	75	3.6	21.4
Gupta N et al19	72.9	22.9	4.2
Present Study	80.56	0.0	19.44

CONCLUSION

Neoplastic and non-neoplastic ovarian lesions were more commonly seen in the present study. Among neoplastic lesions, benign tumours were more common than malignant and surface epithelial tumours were the most common histologic type. Ovarian malignancies can occur in any age. Both non-neoplastic and neoplastic ovarian lesions often present with similar clinical and radiological characteristics, hence, histopathological research is important for their diagnosis. The present study being limited by sample size, we could not retrieve a proper relationship with age and demography. So, would suggest a broader study with awareness among public and doctors, educating people, passive surveillance and community screening facility for better statistical analysis.

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