ORIGINAL ARTICLE

Histopathological Study of Ovarian Lesions in a Tertiary Care Centre in Rural Maharashtra

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Abstract:

Background and Introduction:
Ovaries are commonest site of neoplastic and non neoplastic pathology presenting at any age from childhood to postmenopause; can be asymptomatic for long or manifest acutely and are common prevalent causes of hospital admission. Histopathology varies greatly. Specific diagnosis is made with appropriate history, physical findings, serum markers and gross, histological and immunohistochemical features. Ovarian lesions are classified as non neoplastic and neoplastic, the latter may be benign or malignant; surface epithelial tumours categorised as benign, borderline and malignant.

Aims and Objectives:
In this study we studied the various lesions of the ovary with respect to histological subtype and distribution across various age groups in a tertiary care hospital in rural Maharashtra.

Materials and Methods:
This is an observational study of 78 ovarian specimens at our department of pathology. The period of study was 1st January 2017 to 31st July 2019 (1/1/2years).

Results:
Ovarian non-neoplastic lesions were more than neoplastic lesions, - 57 (60.63%) and 37(39.36%) respectively. Of non neoplastic lesions, majority was cystic lesions 46/57(80.70%) out of which, 23(50%) were simple cysts (50%). Cystic lesions were most Commonly found in 40-49 years age group i.e. 28/46 cases (60.86%). Torsion was next common 5/57 cases (8.77%). Among 37 neoplastic lesions, 12 (32.43%) were benign, 1(2.70%) was borderline and 24(64.86%) were malignant. Further, 28 (75.67%) were surface epithelial tumours, 3(8.10%) were teratomas and 2(5.40%) were stromal tumours. Out of 2 (5.40%) cases of metastatic carcinoma, one was poorly differentiated malignant neoplasm and the other was undifferentiated neoplasm with sarcomatous differentiation (2.7%).

Conclusion:
Ovarian non neoplastic lesions are more common than neoplastic lesions. Most of the latter are malignant possibly due to our hospital being a tertiary referral hospital providing cancer care in rural Konkan area of Maharashtra.

Keywords: Ovary, Ovarian lesions, Non-neoplastic, Neoplastic, Maharashtra.

Introduction:
Ovaries are common site of neoplastic and non neoplastic lesions, which can present anytime from childhood to post menopause. They can be asymptomatic for long or manifest acutely and is one of the common causes of hospital admission. Histopathology also varies greatly; specific diagnosis is made on the basis of appropriate history, physical findings, serum markers, gross, histological features

and immunohistochemistry. Aim of this study was to determine the frequency of ovarian tumors and distribution according to histological subtype and age group.

Materials and Methods:

The present study was an observational study of 78 ovarian samples at the department of pathology in our institute. The specimens were received in different forms such as hysterectomy specimens with bilateral adnexa, ovarian cysts or masses, unilateral adnexa, USG guided biopsy of ovary and post neoadjuvant chemotherapy (NACT) of ovarian carcinoma. The period of study was 1st January 2017 to 31st July 2019.

The clinical information was obtained from the duly filled requisition forms and the indoor case papers.

Specimens were fixed in 10% formalin. Detailed gross examination, followed by thorough sampling was done on the received samples. After fixation, representative tissue bits were taken from tumor and surrounding normal appearing areas. The tissue bits were processed to make paraffin blocks. The sections were cut at 3-4 micron thickness and were stained with Hematoxylin and Eosin. Microscopic examination was performed.

Table No. 1: - Age distribution of Ovarian Lesions

Age (Yrs)	No. of lesions	Percentage (%)
0 - 9	00	00
10 - 19	06	6.4
20 - 29	06	6.4
30 - 39	14	14.9
40 - 49	40	42.6
50 - 59	15	15.9
60 - 69	11	11.7
70 - 79	02	2.1
80 - 89	00	00
Total	**94**	**100**

Table No. 2: - Age distribution of neoplastic and non neoplastic lesions

Diagnosis	Total	Age wise distribution							
		0 -9	10-19	20-29	30-39	40-49	50-59	60-69	70-79
Non neoplastic lesions Corpus Luteal Cyst	04	-	-	-	01	02	-	01	-
Haemorrhagic Corpus Luteal Cyst	08	-	-	-	01	07	-	-	-
Follicular Cyst	08	-	-	01	01	05	-	01	-
Xanthogranulomatous oophoritis	01	-	-	-	-	-	-	01	-
Non- specific Salphingo-oophoritis	01	-	-	01	-	-	-	-	-
Torsion	05	-	01	02	-	-	01	01	-
Ovarian Edema	01	-	-	-	-	-	01	-	-
Luteoma of preganancy	01	-	-	-	01	-	-	-	-
Endosalphingiosis Stromal hyperplasia	01 01	-	-	01	-	- 01	-	-	-
Paraovarian Cyst	03	-	02	-	01	-	-	-	-
Simple Cyst	23	-	01	-	07	14	-	-	01
Neoplasms -Benign Serous Cystadenoma	05	-	-	01	-	02	01	01	-
Mucinous Cystadenoma	01	-	-	-	-	01	-	-	-
Seromucinous Cystadenoma	01	-	-	-	-	-	01	-	-
Borderline serous Tumor	01	-	01	-	-	-	-	-	-
Malignant Serous Cystadenocarcinoma	18	-	-	-	01	03	08	05	01
Mucinous Cystadenocarcinoma	02	-	-	-	01	-	01	-	-
Poorly Differentiated Epithelial Malignancy	01	-	-	-	-	-	01	-	-
Undifferentiated Carcinoma of Ovary With Sarcomatous Differentiation	01	-	-	-	-	01	-	-	-
Sex Cord Stromal Tumor	02	-	-	-	-	01	01	-	-
Teratoma	03	-	01	-	-	02	-	-	-
Metastatic	02	-	-	-	-	01	-	01	-

Table No. 3: - Distribution of neoplastic lesions

Category	Diagnosis	No. Of Cases	% Of Total Cases
Surface Epithelial Tumor	Benign	07	7.45
	Borderline	01	1.06
	Malignant*(SCAC) **(MCAC)	18 02	19.15 2.13
Sex Cord Stromal Tumor	Fibroma	02	2.13
Germ Cell Tumor	Teratoma	03	3.19
Metastatic		02	2.13
Others	Poorly Differentiated Tumor	01	1.06
	Undifferentiated Tumor	01	1.06
Total		**37**	**39.36**

*SCAC Serous cystadenocarcinoma **MCAC Mucinous cystadenocarcinoma.

Table No. 4: - Distribution of non-neoplastic lesions

Category	Diagnosis	No. Of Cases	Percentage (%)
Non-neoplastic	Inflammatory	2	2.13
	Torsion	5	5.32
	Cystic	46	48.94
	Others- *ED+ENDO+HTHEC+LUT	1+1+1+1	4.24
Total		**57**	**60.63**

ED- ovarian edema, ENDO-endosalpingiosis, HTHEC- hyperthecosis/stromal hyperplasia, LUT- luteoma

Table No. 5: - Broad overview of neoplastic and non-neoplastic lesions

Category	Diagnosis	No. of Cases	% Of Total Cases
I) Neoplastic			
a) Surface Epithelial Tumor	Benign	07	7.45
	Borderline	01	1.06
	Malignant (SCAC) (MCAC)	18 02	19.15 2.13
b) Sex Cord Stromal Tumor	Fibroma	02	2.13
c) Germ Cell Tumor	Teratoma	03	3.19
d) Metastatic		02	2.13
e) Others	Poorly Differentiated Tumor	01	1.06
	Undifferentiated Tumor	01	1.06
Total		**37**	**39.36**
II) Non neoplastic	Inflammatory	02	2.13
	Torsion	05	5.32
	Cystic	46	48.94
	Others- *ED+ENDO+HTHEC+LUT	1+1+1+1	4.24
Total		**57**	**60.63**

*ED- ovarian edema, ENDO-endosalpingiosis,HTHEC- hyperthecosis/stromal hyperplasia,LUT- luteoma

Discussion:

This study involved analysis of 78 specimens of the ovary with pathological findings over a period of 31 months. Non-neoplastic lesions were more common than neoplastic lesions, - 57 (60.63%) and 37(39.36%) respectively out of a total of 94 lesions. Majority of the non-neoplastic lesions, were cystic lesions (46/57; 80.70%) and 23 of these 46 cases were simple cysts (50%). Cystic lesions were most commonly found in the 40-49 years age group i.e.28/46 cases (60.86%). Torsion was the next common lesion in our study 5/57 cases (8.77%).Out of 37 specimens with neoplastic lesions, 12 (32.43%) were benign, 1(2.70%) was borderline and 24(64.86%) malignant.

Of 37 neoplastic lesions 28 (75.67%) were surface epithelial tumors, 3(8.10%) were teratomas and 2(5.40) were stromal tumors. There were 2(5.40%) cases of metastatic carcinoma. There was one case each reported as poorly differentiated malignant neoplasm

and undifferentiated neoplasm with sarcomatous differentiation (2.7%).Among the surface epithelial tumors majority (18/28; 64.28%) were serous Cystadenocarcinoma and one was a borderline serous tumor (3.57%). Benign surface epithelial tumours were 7(25%) in number. The majority of these benign tumors i.e. 5 out of 7 were serous, with one case each of seromucinous and mucinous cystadenoma. Three out of 7 (42.85%) cases presented in the 40- 49 year age group. Overall the majority of cases presented in the 40-49 year age group.

In our study we found more non- neoplastic lesions (57; 60.63%) than neoplastic (37; 39.36%)[1]. These findings were similar to studies by Thirukumar et al[1], Kreuzer and Martins Onsurbe[2,3]. However, we observed that out of 37 neoplastic lesions, 12 (32.43%) were benign, 1(2.70%) borderline and 24(64.86%) malignant. These tesults were in contrast to studies by Thirukumar, Kreuzer, Dowerah, Vaidya, Pilli, Jha and Khan[1,2,4,5,6,7,8]. Thus we had more malignant than benign lesions in contrast to the aforementioned studies.

This is attributable to the fact that ours is a rural health centre, which provides cancer care to a large population in the Konkan region. The other similarity with the Thirukumar study is that the majority of our malignant neoplastic lesions were serous cystadenocarcinoma (Thirukumar - 58%, our study - 64.28%).

In comparison to the study by Jalpa Desai our findings were similar in terms of the proportion of non-neoplastic and neoplastic lesions[9]. But in contrast our study had a larger number of malignant than benign tumours. Also in the non-neoplastic lesions, simple cyst was the commonest cystic lesion 23/57 (40.35%). Jalpa Desai et al found in their study that corpus luteal cyst were the commonest non-neoplastic as well as cystic lesion (52.1%). Incidence of cases with ovarian lesions in the Jalpa Desai study was highest in the 30-60 year age group, in our study incidence was highest after 40 years of age. The youngest patient in our study was 16 years old, the oldest 70. Eleven out of 24 malignancies in our case occurred after 40 years of age.

The study by Dost Mohammad Khan et al showed that the non-neoplastic ovarian lesions were more frequent when compared to neoplastic lesions[10], among non-neoplastic lesions broad majority were functional cysts. This finding is similar to our study and also the studies done by Maliheh et al[11,12,13] and in contrast to the study done by Ashraf et al which revealed that benign neoplastic tumors were the frequently occurring ovarian lesions and not non-neoplastic lesions[14]. In contrast to our study Guerriero et al demonstrated that endometrioma was the commonest lesion succeeded by the functional cysts[13]. The distribution of the functional ovarian cysts are compared with other similar studies, and this study pointed out that corpus luteal cysts together with hemorrhagic corpus luteal cysts were the commonest lesions followed by follicular cysts. However, in our study simple cysts were the most common non-neoplastic and cystic lesions (23/57-40.35%).

Also in the Dost Mohamad Khan et al study, the peak age incidence of non-neoplastic and benign neoplastic lesions was seen in the 3rd and 4th decade. Ovarian malignancies were seen after fourth decade majority (45.45%) of these lesions occurred between 5th and 6th decade.

While in our study majority of lesions both neoplastic or non-neoplastic occurred in the 40-49 year age group, malignancy was seen after 40 years, which is in concordance with this study. This finding is also similar to the study done by Quirk JT et al in which greater numbers of malignancies were seen in elderly postmenopausal women[15]. It is conventionally accepted that epithelial tumours are the most common lesions seen globally. Pilli et al. found in their study that surface epithelial tumors of ovary added up to 70.9% of overall ovarian neoplasms[6], this was followed by germ cell tumors accounting for 21.2% of the cases. These findings were similar to the current

study (Dost Mohamad et al), which showed 83.33% (n=40) were epithelial tumours and 14.58% (n=7) were germ cell tumours. In our study, 28/37 lesions (75.67%) were surface epithelial tumors which is in concordance with the above findings. In the study by Amod Sawant et al 110 of 143 ovarian lesions were non-neoplastic out of which 77 follicular cysts (70%) were reported and 14 were corpus luteal cysts (12.7%)[16]. These studies showed that majority of the cysts were simple cysts. In this study, 33 neoplastic lesions were diagnosed, most common was benign (75.7%) followed by, borderline malignancy (6.1%) and malignant tumour (18.2%). In our study there were 37 neoplastic lesions of which 24 were malignant (64.86%). Based on histomorphological features, incidence of surface epithelial tumours were commonest (84.8%) followed by germ cell tumours (9.1%) and sex cord-stromal (6.1%). Similar observations were seen in our study.

Akina Prakash et al showed in their study that 208 out of 229 ovarian specimens were unilateral (90.8%) and only 21 (9.2%) were bilateral. In our study 30/78 - 38.4% were bilateral. The majority of their patients were in the age group 20-39 years (122 patients, 53.4% of patients) while those in the age group 40-59 years were the second largest group of patients (84 patients, 36.6% of patients).

In our study the 40-59 year age group comprised majority of the cases. 101/229 lesions were non neoplastic (44.1% of all specimens evaluated); 124 lesions (54%) were benign neoplasms. Follicular cysts were the most common non neoplastic lesion (45.5%) followed by corpus luteum cysts (25%), while in our study simple cysts constituted the majority of cystic non neoplastic lesions.

Benign neoplastic lesions constituted 124 out of 128 neoplastic lesions (96.8%). Our study showed 12/37 benign lesions (32.43%). Serous cystadenomas were the most common benign neoplasm encountered in this study (64.5% of benign neoplastic lesions), which is similar to our finding of 7/12 (58.3%) serous cystadenomas. Only four cases of malignant/ borderline lesions were seen. In contrast, our study showed 28/37 neoplastic lesions to be malignant with only one borderline tumor.

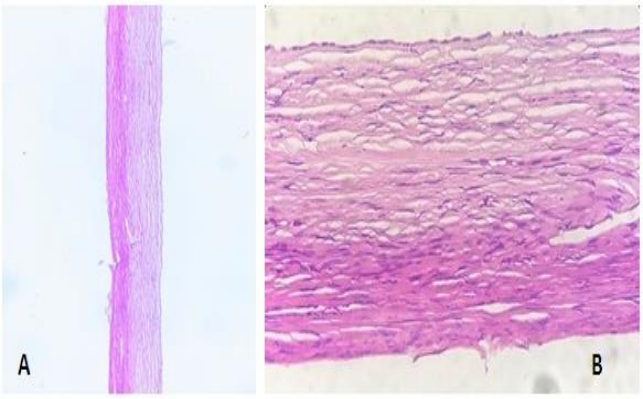

Figure 1: Simple cyst a- h&e, 40x; b - h&e, 200x

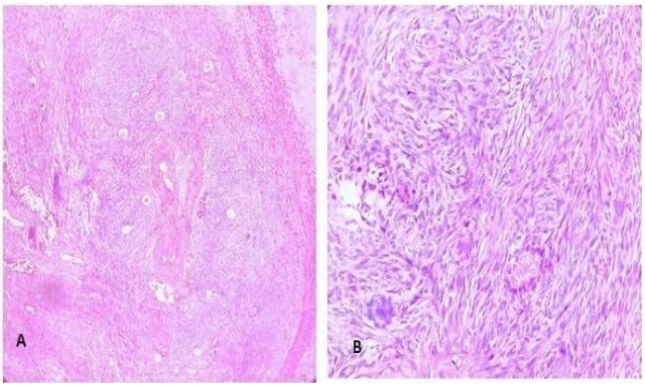

Figure 2: Hyperthecosis a - h&e,40x; b - h&e,400x

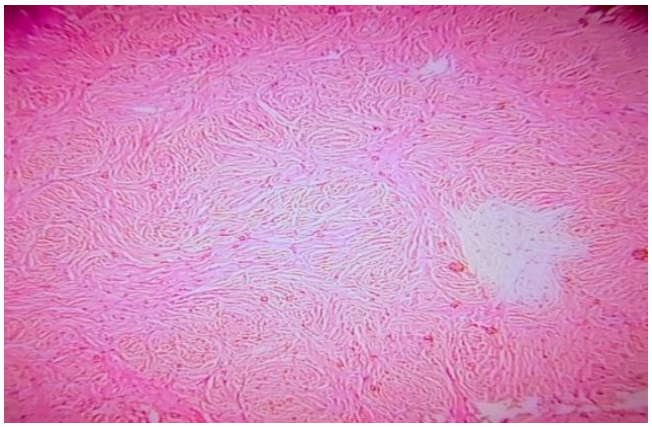

Figure 3: Fibroma h & e, 200x

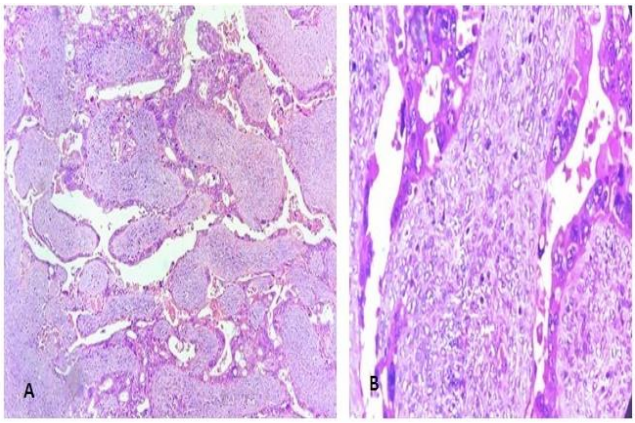

Figure 4: Serous cystadenocarcinoma a – h & e, 40x; b – h & e, 400x

Conclusion:

This study shows that non-neoplastic (60.63%) lesions are more common than neoplastic lesions (39.36%). However most of the ovarian neoplastic lesions are malignant in our study (64.86%), which could be attributable to our hospital being a tertiary referral hospital providing cancer care in the rural Konkan area of Maharashtra.

Surface epithelial tumours are the most common class of tumours (75.67%).

Considering individual tumours, the most common benign tumour in this study is serous cystadenoma (41.67%) whereas serous cystadenocarcinoma (75%) was the most common ovarian malignancy.

Malignant ovarian tumours were more common in the 60-69 years age group (41.67)% cases followed by the 50-59 and 70-79 years age group with 5/24 (20.83%) cases each.

Sources of Support - Nil
Conflict of Interest - Nil

References:

1. M. Thirukumar and S. Ahilan. Research Article Histopathological pattern of ovarian lesions: A Hospital based study in Batticaloa. Sri Lanka Journal of Diagnostic Pathology 2018; 13(1):16-21.
2. Kreuzer GF, Parodowski T, Wurche KD, Flenker H.Neoplastic or Non-neoplastic ovarian cyst. The Role of Cytology. Acta Cytologica 1995; 39:882-86.
3. Martinez-Onsurbe P, Villaespesa AP, Anquela JMS. Aspiration cytology of 147 nexal cysts with histologic correlation. Acta Cytologica 2001;45:941-47.
4. Swagata D et al. Ovarian tumor: Types and patterns of occurrence in Barak Valley of Assam, Scholars Journal of Applied Medical Sciences 2017; 5(4C):1403-1406.
5. Vaidya S, Sharma P, KC S, Vaidya SA. Spectrum of ovarian tumors in a referral hospital in Nepal. Journal of Pathology of Nepal 2014; 4(7):539-543.
6. Pilli GS, Suneeta KP, Dhaded AV, Yenni VV. Ovarian tumors: a study of 282 cases. Journal of Indian Medical Association 2002; 100: 423-424.
7. Jha R, Karki S. Histological pattern of ovarian tumors and their age distribution. Nepal Medical College Journal 2008; 10(2):81-85.
8. Khan AA, Luqman M, Jamal S, Mamoon N, Mushtaq S. Clinicopathological analysis of ovarian tumors. Pakistan Journal of Pathology 2005; 16: 28-32.
9. Desai J., Shah A., Nayak N., Bhalodiya R. Histopathologic Spectrum of Ovarian Masses At A Tertiary Care Hospital, Ahmedabad. IOSR Journal of Dental and Medical Sciences 2018; 17(9): 12-15.
10. Dost Mohamed Khan et al. Histopathological spectrum of ovarian cyst in our rural area. Archives of Cytology and Histopathology Research, October-December 2018;3(4):210-213.

11. Wasim T, Majrroh A, Saddiq S. Comparison of clinical presentation of benign and malignant ovarian tumors. Journal of Pakisthan Medical Association 2009; 59:18-21.
12. Maliheh A, Mohammed H, Nadereh M, Mehdi Y, Fazareh G, Mojgan E. Surgical histopathology of benign ovarian cysts: A multicentre study. Iran Journal of Pathology 2010;5:132-136.
13. Guerriero S, Alcazar JL, Pascual MA, Ajossa S, Gerado M, Bargellini R. Diagnosis of the most frequent benign ovarian cysts: Is ultrasonography accurate and reproducible? Journal of Womens Health 2009; 18:519-527.
14. Ashraf A, Shaikh AS, Ishfaq A, Akram A, Kamal F, Ahmad N, et al. The relative frequency and histopathological patterns of ovarian masses. Biomedica 2012; 28:98-102.
15. Quirk JT, Natarajan N. Ovarian cancer incidence in the United States, 1992-1999. Gynaecologic Oncology 2005; 97:519-523.
16. Amod Sawant1et al. Histopathological Study of Ovarian Lesions at a Tertiary Health Care Institute. MVP Journal of Medical Sciences2017; 4(1): 26–29.

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