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Original Research Article.

Histopathological Spectrum of Ovarian Tumors in a Tertiary Care Centre

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ABSTRACT

Background: Ovarian cancer is the sixth most common cancer in the world and seventh most common cause of cancer death worldwide. Ovarian tumors are 5th leading cause of cancer deaths, among Indian women.

Objectives: To analyse various histomorphological spectrum of ovarian tumors at a tertiary care centre.

Material & Methods: The present study was prospective study conducted in department of pathology SMS Medical College & Hospital, Jaipur, Rajasthan, from Jan 2020 to Jan 2021.

Results: Total 80 cases of ovarian tumors were analysed, 48 (60%) were benign, 3 (3.75%) were borderline and 24 (30%) were malignant. Histopatholgically, surface epithelial tumors were the commonest 48 (60%) followed by germ cell tumor 18 (22.50%) and sex cord stromal tumors 9 (11.25%).

Conclusion: It is concluded from this study that tumors originating from surface epithelium are the most common variety of ovarian tumors. Benign tumors are found to be more frequent than malignant tumors in all age groups.

Key words: Surface Epithelial Tumors, Histology, Ovarian Tumors, Benign, Malignant.

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INTRODUCTION

Ovarian tumor is the seventh leading cause of cancer death among women worldwide. In India it is comprising up to 8.7% of cancers in different parts of the country.[1] The advanced stage at presentation of ovarian cancers results in a low mean 5-year survival rate and a poor prognosis. Ovarian tumors are notorious for their large size and their frequent association with relatively mild symptoms.[2,3]

A wide variety of diverse ovarian tumors are known to arise from the ovary. Many of these harbours a malignant potential. These tumors are often asymptomatic to begin with and are often advanced by the time they are diagnosed.[4]

Women between 65 and 84 years of age have ovarian cancer incidence rates 2 to 3 times higher than younger women. Peak incidence of invasive epithelial ovarian cancer is at 50–60 years of age. About 30% of ovarian neoplasms in postmenopausal women are malignant, whereas only about 7% of ovarian epithelial tumors in the premenopausal women are frankly malignant.[5] Ovarian tumors are often difficult to detect until they are advanced in stage or size, as symptoms are vague and insidious. Identification of various histological patterns of ovarian tumors is important for diagnosis as well as prognosis.[6]

The aim of study was to access the histomorphological patterns, and clinicopathological correlation of ovarian tumors in a tertiary care centre.

MATERIALS AND METHODS

This prospective study included 80 cases of ovarian tumors studied from Jan 2020 to Jan 2021. Detailed clinical information were obtained which included age of the patients, signs & symptoms, FNAC finding of available cases, CBC, USG/CT findings and biochemical investigations like tumor markers CA125, AFP and Beta hCG.

Oophorectomy specimens, ovarian cystectomies, hysterectomy with unilateral or bilateral salphingo-ophorectomy specimens were included in this study.

The specimens were allowed to fix in 10% buffered formalin for 24–28 hours. After fixation, multiple sections were taken from representative areas of the tumor and the accompanying tissue. Multiple sections were given from solid areas adjacent to the ovarian surface and areas of papillary projections. They were processed for histopathological examination and paraffin blocks were made. The blocks were cut at 3–5 µm thickness and stained with Hematoxylin and Eosin and other special stains as and when required. IHC stains were performed for further sub-typing whenever required (p53, WT1, EMA, Pax 8, CK7, CK 20, Inhibin, Villin)

The patients were divided into groups based on WHO classification of ovarian tumors and we studied correlation of histopathological pattern, morphology and grading of the tumour.

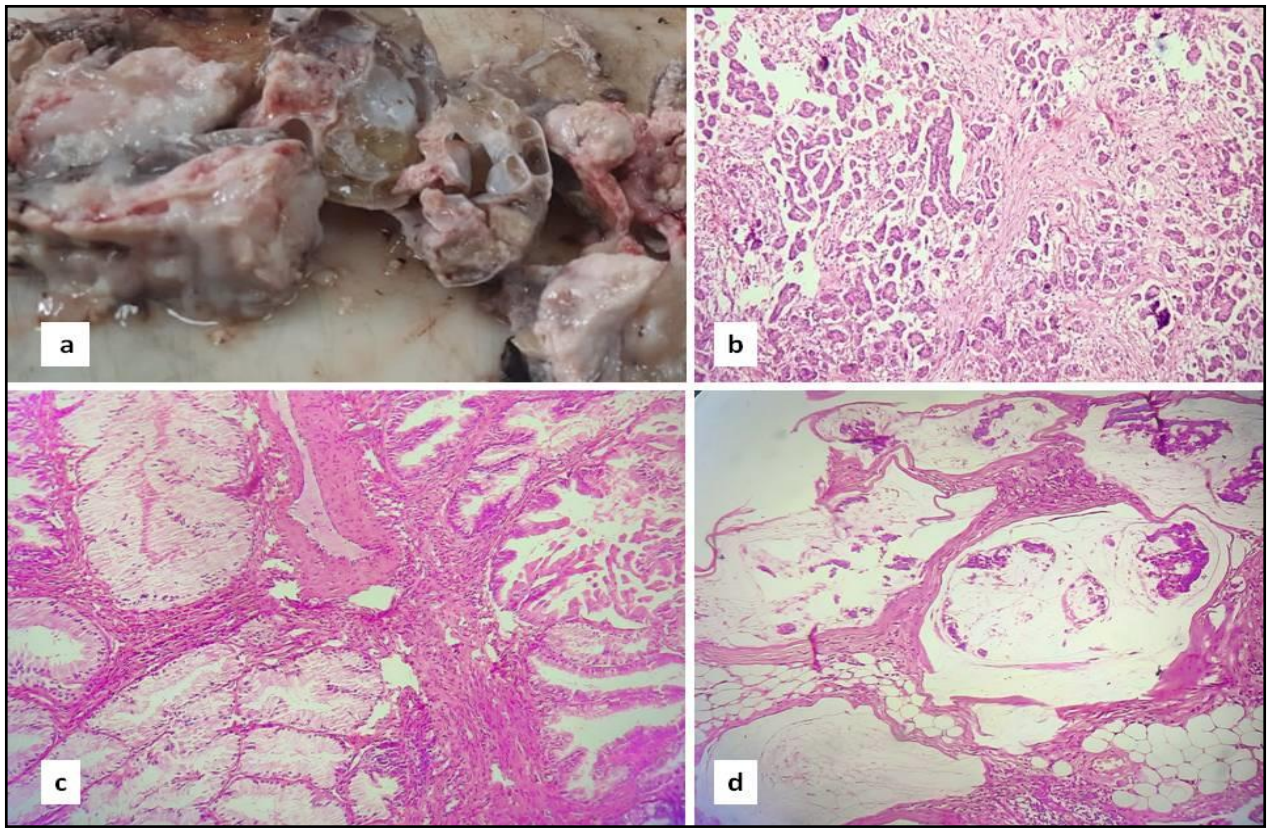

Fig. 1: a. Serous papillary cystadenocarcinoma- Grossly, the tumor is cystic with solid areas. b) Serous papillary cystadenocarcinoma. On histology, moderately differentiated tumor composed of papillae lined by pleomorphic cells. Few Psammoma bodies also noted. c) Borderline mucinous tumor showing mucinous cells arranged in papillary pattern with focal stratification, loss of polarity and no stromal invasion. d) Mucinous Adenocarcinoma showing large mucin pools lined by malignant mucinous cells and stromal invasion.

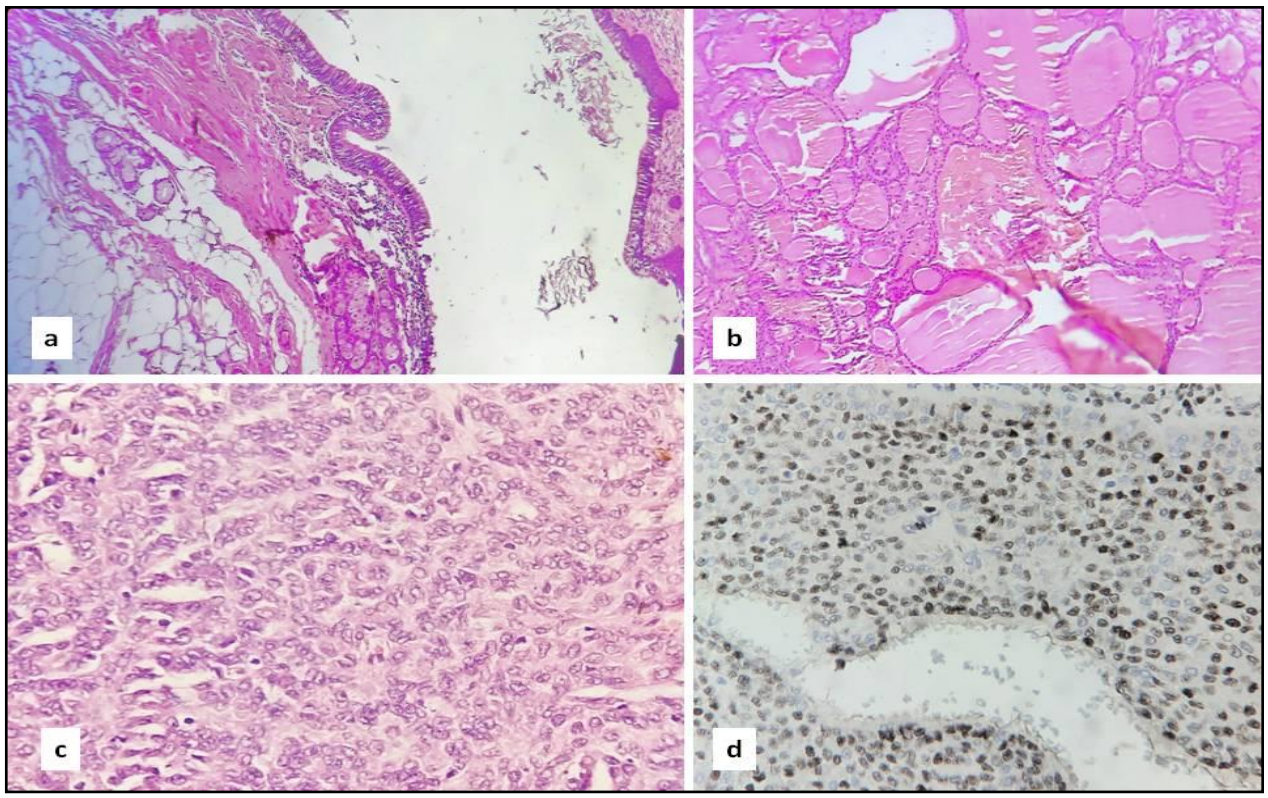

Fig. 2: a) Mature cystic teratoma showing respiratory epithelium, squamous epithelium, keratin, sebaceous glands, fat and muscle fibres. b) Struma Ovarii showing thyroid follicles and colloid. c) Granulosa cell tumor showing cells arranged in cords and sheets, vesicular nuclei and occasional nuclear grooves. d) WT1 immunostain showing nuclear positivity in granulosa cell tumor.

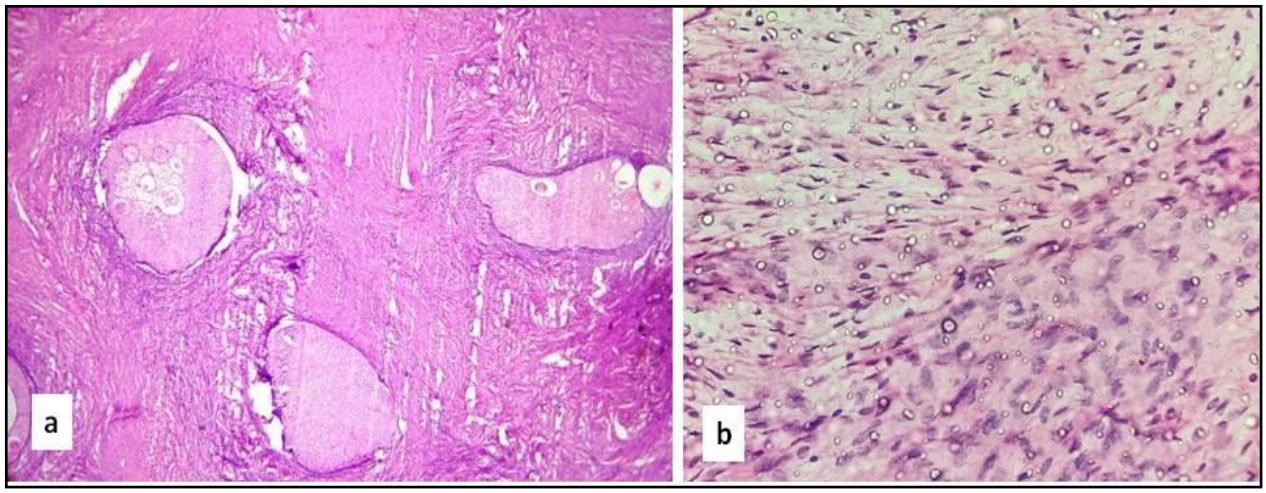

Fig 3. a) Brenners Tumor showing nests of bland looking transitional cells in a fibromatous stroma. b) Fibroma showing bland spindle to ovoid cells arranged in a fascicular pattern.

Table 1: Percentage distribution of Ovarian Tumors in present study

Type of tumors	n	%
Benign Tumors	48	60
Borderline Tumors	3	3.75
Malignant Tumors	24	30
Metastatic Tumors	5	6.25
Total	80	100

Table 2: Percentage distribution of ovarian tumors according to their histological type

Type of Tumor	n	%
Surface epithelial tumors	48	60
Sex-cord stromal tumors	9	11.25
Germ cell tumors	18	22.50
Metastatic tumor	5	6.25
Total	80	100

Table 3: Histological types and percentage distribution of ovarian tumors

S. No.	Type of ovarian tumor	n	%
I	**Surface Epithelial tumors**	48	60
A.	**Serous tumors**	25	31.25
	Benign	16	20
	Borderline	3	3.75
	Malignant	6	7.5
B	**Mucinous tumors**	18	22.5
	Benign	12	15
	Borderline	2	2.5
	Malignant	4	5
C	**Endometroid tumor**	1	1.25
D	**Brenner tumor**	3	3.75
E	**Clear cell tumor**	1	1.25
II	**Sex-cord stromal tumor**	9	11.25
	Granulosa cell tumor	5	6.25
	Fibroma	2	2.5
	Sex cord stromal tumor unclassified	1	1.25
	Sertoli Leydig cell tumor	1	1.25
III	**Germ cell tumors**	18	22.5
	Dysgerminoma	2	2.5
	Yolk Sac tumor	1	1.25
	Benign cystic teratoma	12	15
	Immature Teratoma	2	2.5
	Struma Ovarii	1	1.25
IV	**Metastatic Tumors**	5	6.25
	Total	80	100

RESULTS

In the present study, a total 80 ovarian tumor specimens were examined. Out of which, 48 cases (60%) were benign, 3 (3.75%) borderline and 24 (30%) were malignant. (Table 1)

Histologically, surface epithelial tumors were the most common 48 (60.0%) followed by germ cell tumors 18(22.50%), sex cord–stromal tumors 9 (11.25%) and metastatic tumors 5 (6.25%). (Table 2)

The most common epithelial tumors were serous 25 cases, (31.25 %) followed by mucinous 18 cases, (22.5%). Out of 18 germ cell tumors, benign cystic teratoma was the most common consisting of 12 cases (15%). Among sex cord–stromal tumors the most common tumor was granulosa cell tumor comprised of 5 (6.25%) cases.

In present study 3 borderline tumors were found, 3 cases (3.75%) were borderline serous cyst adenoma and 2 cases (2.5%) of borderline mucinous cyst adenoma.

Serous cystadenoma was the most common benign tumor comprised of 16 cases (20%) of cases. Papillary serous cystadenocarcinoma 6 cases (7.5%) were the most common malignant tumors. (Table 3)

DISCUSSION

Out of the 80 cases of ovarian tumors, 60% were benign, 3.75% were borderline, and 30% were malignant. Histologically, surface epithelial tumors (60 %) were most common type of ovarian tumor. Followed by germ cell tumors (22.5%), sex cord stromal tumors (11.25%) and metastatic tumors (6.25%) in our study. These findings were in concordance with studies of Gupta et al[7], Mondal et al[8], Kanithkar et al[9] and Pilli et al.[10] However, Sah et al[11] and Kooning et al[12] found germ cell tumor to comprise 43.4%

and 44.0% of all ovarian neoplasms respectively which was slightly higher than the present study.

In present study the commonest epithelial tumors were serous cystadenoma (20%) followed by mucinous cystadenoma (15%). Commonest germ cell tumor was benign cystic teratoma (15%). Amongst sex cord stromal tumors commonest was granulose cell tumor (6.25%). Similar observations were made by Gupta et al[7], Kanithkar et al[9], Jha and Kurki[13] and Aggarwal et al[14] and Maheshwari et al.[15]

CONCLUSION

To conclude, histomorphologically, majority of the ovarian tumors are benign. Tumors originating from surface epithelium are the commonest amongst the malignant tumors. As the natural history, treatment modalities and prognosis of ovarian neoplasms differ, the histomorphological study remains the gold standard.

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