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Histopathological Study of Benign And Malignant Ovarian Epithelial Cell Tumors At Tertiary Care Hospital In Western Rajasthan

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Abstract

Background: Ovarian cancer is the fifth most common malignancy among women and second most common gynecological malignancy. It is the most common cause of death due to malignancy of female genital tract.

Methods: The present retrospective and prospective study was carried out in the Department of Pathology, S.P.Medical College, Bikaner, India, from Jan. 2009 to Dec 2018. The diagnosis was confirmed by histopathological examination with hematoxylin and eosin stain. Special stains were used wherever needed.

Result- 77.8% cases of serous tumors were benign, 20.8% malignant and 1.4% borderline. In mucinous tumors we found 80.4% cases of benign, 16.7% malignant and 2.9% borderline. There were 80% cases were benign Brenner tumor out of total 5 Brenner tumor and 20% cases were Brenner tumor with malignant proliferation.1 case of Squamous cell carcinoma and 2 cases of Undifferentiated carcinoma.

Conclusion: It is concluded from this study that on morphological grounds, tumors originating from surface epithelium are the commonest variant. Majority of them were benign but a higher incidence of malignancy was also observed in our set up.

Keywords- Ovarian tumors, benign, malignant

Introduction

The ovaries are couple of small organs located deep in the pelvic cavity performing the main function of secretion of steroid hormones like estrogen and progesterone and development and release of ovum. Ovary lies in spacious pelvic cavity and is suspended loosely by the ovarian and infundibulo-pelvic ligments. An ovarian mass can become quite large without producing symptoms of pain or pressure[(1)].

The ovaries are frequent sites for tumors[(1)]. Ovarian cancer is the fifth most common malignancy among women and second most common gynecological malignancy. It is the most common cause of death due to malignancy of female genital tract[(2)]. Ovarian malignancies constitute about 4% of the total cancers in females and 25% of malignant tumors of the female genital tract[(3)]. In India, the ovary is next in importance to cervix as the site of cancer of female genital tract.

World Health Organization (WHO) classifies ovarian tumors according to their most probable cell of origin and

histomorphological features[4].More than 90% of ovarian tumors are “epithelial” in origin. Some evidence suggests that the fallopian tube epithelial lining is the precursor lesion of some ovarian tumors[5] .

Epithelial neoplasms are the most common type of ovarian tumors. They form 58% of all ovarian neoplasm and 90% of malignant tumors. The non-epithelial neoplasms are uncommon accounting for only 1.3% of malignant tumors[6].

Majority of epithelial ovarian cancers are detected in advanced stage with bad prognosis and high mortality. Reliable diagnostic markers are lacking, pre-cancerous lesions in the more aggressive tumors are not clearly defined, vague or unspecific early symptoms and the localization of the ovaries, deep in the pelvis contributes to late diagnosis. Heterogeneity, not only different type of histology, but also different intrinsic biology and behavior characterizes ovarian cancer[6]. Present study is undertaken to evaluate ovarian tumors by the Pathology Department in Sardar Patel Medical College & A.G. Of Hospitals and assess their incidence, clinical profile and study of the various histological types.

Materials & Methods

Study design: Hospital based retrospective and prospective study.

Study duration: Ten years

Study place: Department of Pathology, S.P.Medical College, Bikaner

Present study includes both retrospective study and prospective study over a period of 10 years which includes 120 months (January 2009- December 2018). Total 630 cases were included in the study which comprised of ovarian surface epithelial tumors of benign, borderline and malignant nature recorded in the histopathological registers of our department.

Clinical details like age, obstetric history, presenting sign and symptoms, menstrual history, virilizing or feminizing effects and other constitutional symptoms were noted and the observation was recorded in the proforma.

The specimens were allowed to fix in 10% buffered formalin for 24–28 hours. After fixation multiple bits were taken from representative areas of the tumor and the accompanying tissue. Special attention was given to solid areas adjacent to the ovarian surface and 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 stain. Special stains were used wherever needed.

Observations

Total 630 cases of ovarian tumors registered in our department were included in this study which extended over a period of 10 years. Tumors were studied in relation to distribution pattern, age, consistency, laterality , clinical presentation of cases and histopathological features.

Mean age of patients was 42.9±24.4 years.

Table: 1 Distribution of ovarian tumors

Type of tumor	No.	%
Benign	490	77.8
Malignant	129	20.5
Borderline	11	1.7
Total	630	100

77.8% ovarian tumors were benign tumors followed by 20.5% were malignant and 1.7% were borderline tumors.

Table: 2 Histopathological distribution of surface epithelial tumor

Type of surface epithelial tumor	No.	%
Serous tumors		
Benign	378	77.8

Malignant	101	20.8
Borderline	7	1.4
Mucinous tumors		
Benign	111	80.4
Malignant	23	16.7
Borderline	4	2.9
Brenner tumor		
Benign brenner tumor	4	80
Brenner tumor with malignant proliferation	1	20
Squamous cell carcinoma	1	100
Undifferentiated Carcinoma	2	100

77.8% cases of serous tumors were benign, 20.8% malignant and 1.4% borderline. In mucinous tumors we found 80.4% cases of benign, 16.7% malignant and 2.9% borderline. 80% cases were benign Brenner tumor out of total 5 Brenner tumor and 20% cases were Brenner tumor with malignant proliferation.1 case of Squamous cell carcinoma and 2 cases of Undifferentiated carcinoma.

Table: 3 Showing laterality of surface epithelial tumors.

Laterality	No.	%
U/L	542	86.1
B/L	88	13.9

Majority of tumors were unilateral (86.1%) and 13.9% had bilateral surface epithelial tumors.

Table: 4 Consistency of tumors in benign. Borderline and malignant tumors

	Cystic	Mixed	solid	total
Benign	461	8	21	490
Borderline	3	3	5	11
Malignant	4	112	13	129

In benign tumors 461 cases had cystic, 8 had mixed and 21 cases had solid consistency. In malignant tumors 112 cases had mixed, 4 cases had cystic and 13 had solid consistency. Similarly in borderline tumors 3 cases had mixed, 3 cases had cystic and 5 cases had solid consistency respectively.

Discussion

The present study was carried out on 630 patients of ovarian neoplasm which were recorded in the histopathological registers of our department over a period of 10 years (January 2009 to December 2018) Tumors were studied in relation to distribution pattern, age, consistency, laterality, clinical presentation of cases and histopathological features.

In our study, majority of patients were in 3rd and 4th decade of life i.e. 30.6% and 27.6% cases respectively. Similar results were seen in study by Singh et al[7] who found that out of 120 cases the majority of benign tumors occurred in the age group of 21-30 years and 31-40 years i.e.35% and 39% respectively. In their study most of the patients with ovarian tumors were in the 2nd to 5th decade which is similar to the study of ShreyaHegde[8] conducted during the period of 2 years on 50 ovarian specimens. In their study the maximum number of cases were seen in 2nd to 5th decade i.e. 64% out of total 50 ovarian tumors included in the study. In concordaance with the present study Pili et al[9] who found that out of total 282 cases 58% cases were in the age group of 20-39 years. Similarly Ramchandra[10] et al who studied ovarian tumors in 150 cases found 53% ovarian neoplastic lesions fall in the age group of 21-30 years. Kar et al[11] reported high incidence of ovarian tumors in 40-59 years age group i.e.46% out of total 67 cases studied. .

The incidence of benign tumors in present study was 77.8%, 20.5% were malignant and 1.7% were borderline

tumors respectively. Similar results were seen in study by Singh et al[7] who found that out of 120 cases, 80.8% cases were benign, 1.6% borderline and 16.5% cases were having tumor of malignant nature respectively. Present results are also similar to study of Vijay Kumar Bodal et al [12] who included 150 ovarian lesions out of which 75% were benign, 1.66% Borderline and 23.3% malignant nature respectively. Couto et al[13]who studied 230 cases found80.76% cases of benign,16.91% cases of malignant and 2.33% cases of borderline nature respectively. Maheshwari V et al[14] found out of 320 cases 71.7% cases of benign, 23.7% cases of malignant and 4.4% cases of borderline. Pilli et al[9] found out of 282 cases 76% cases of benign, 21.2% cases of malignant and 2.8% borderline tumor respectively. Scully et al[15] also observed that benign tumors were more common than malignant tumors, incidence being 80% of total 62 ovarian neoplasm studied. However, Manker and Jain[16] and Ahmed et al[17] in their studies observed a relative decrease in the percentage of benign tumors and consequent increase in the percentage of malignant tumors. According to Mankar and Jain[16] who did a study over a period of 12 years found that out of 257 cases, 63.04% tumors were benign, 5.84% were borderline and 31.12% were malignant nature respectively. Ahmed et al.[17] who did a retrospective study on 855 cases over a period of 5 years reported an incidence of 59.18%, 0.2% and 40.81% for benign, borderline and malignant tumors respectively.

In present study cystic consistency was present in 74.3% cases followed by mixed consistency was present in 19.5% cases and solid consistency was present in 6.2% cases. Similar results were seen in study by Thakar and Shah[18] who found that out of 129 cases 58.1% tumors had cystic, 13.2% had solid and 28.7% had mixed type of consistency. Present study is concordant with studies by Gupta SC et al[19] who showed out of 200 cases 76.2% tumors with cystic,2.4% with solid and 22% cases with mixed consistency respectively. Similar results were seen in study by Misra RK et al[20] who showed out of 464 cases 78% tumors with cystic consistency, 4% tumors with solid and 18% tumors with mixed consistency respectively.

In present study out of 490 benign lesions 461 cases had cystic type of consistency , 21 cases had solid type and 8 cases had mixed type of consistency. Out of total 129 malignant cases found in our study, 112malignant lesion were of mixed consistency followed by 13 cases of solid consistency and 4 cases with cystic consistency respectively. Out of 11 borderline cases 5 had solid consistency followed by 3 cases each with cystic and mixed consistency. Dravid N et al[21] showed that out of 70 neoplastic lesions among 145 ovarian lesion studied, 67% benign cases were having cystic consistency, 2% borderline cases were having mixed consistency and majority of malignant tumors i.e. 55% were having mixed consistency. 56.6% cases of the benign lesions in the Thakkar and Shah's study[18] were cystic in consistency and 8.5% of malignant lesions were having mixed consistency. This result is concordant with studies by Gupta SC et al[19]which showed that out of 200 cases 76% benign lesions were cystic in consistency and 49% malignant lesions were mixed in consistency. Similar results were seen in study by chhanda et al[22] who included 150 cases out of which 86% benign lesions(majority) were cystic and 70% malignant lesions(majority) were mixed in consistency.

Conclusion

It is concluded from this study that on morphological grounds, tumors originating from surface epithelium are the commonest variant. Majority of them were benign but

a higher incidence of malignancy was also observed in our set up. This is an alarming finding. It is therefore, suggested that efforts must be made to identify the risk factors for malignancy. Amongst malignant ovarian tumors late reporting is common and patients usually present in advanced stages of the disease.

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Legends Figure

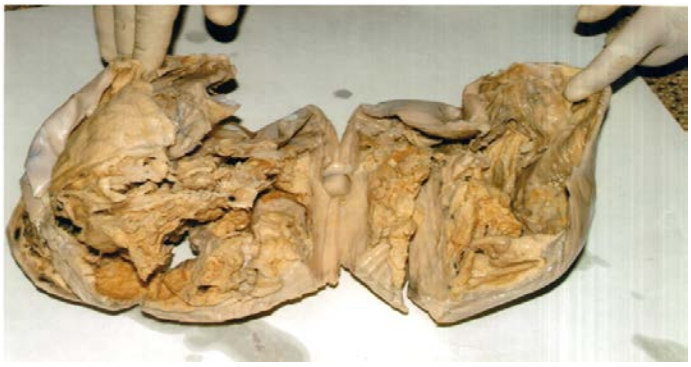

Figure 1: Gross Image of Brenner tumor with malignant proliferation.

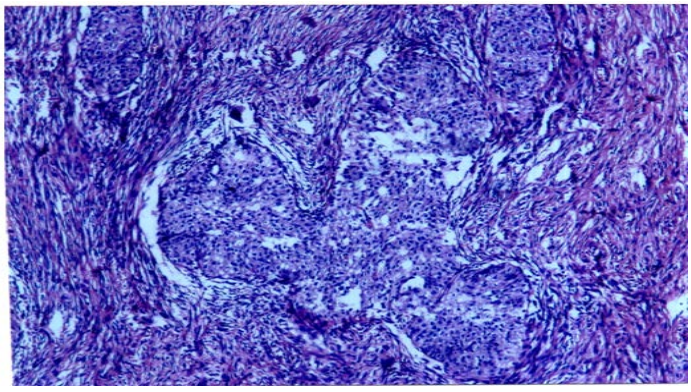

Figure 2: Brenner tumor with Malignant proliferation (H&E stained: 40x).

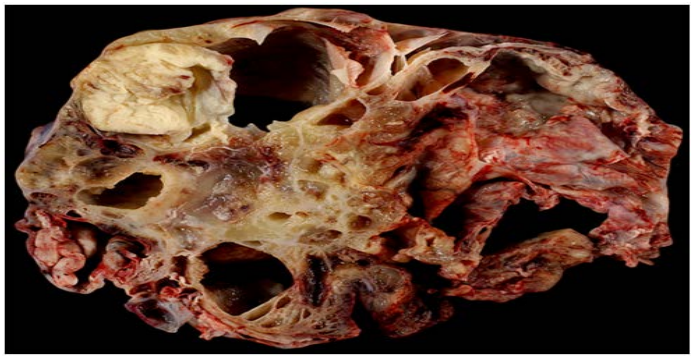

Figure 3: Gross image of Mucinous cystadenocarcinoma

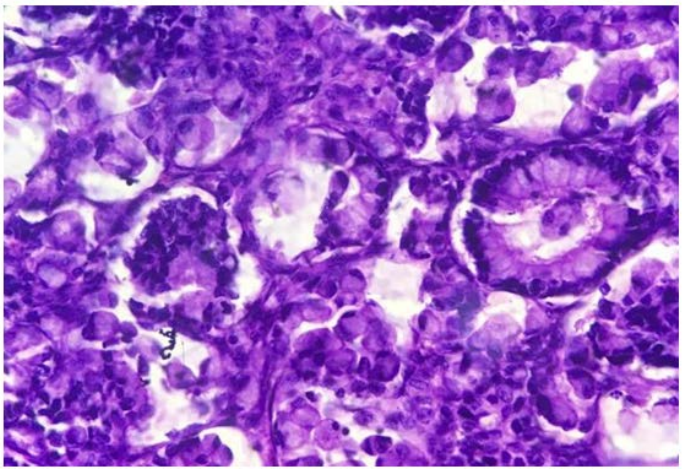

Figure 4: Mucinous cystadenocarcinoma with Signet ring cell changes (H&E Stained :40x)

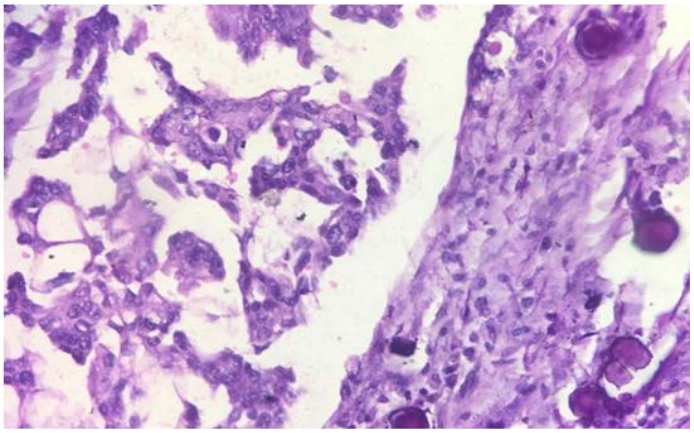

Figure 5: Papillary serous cystadenocarcinoma with Psammoma bodies (H&E stained: 40x).

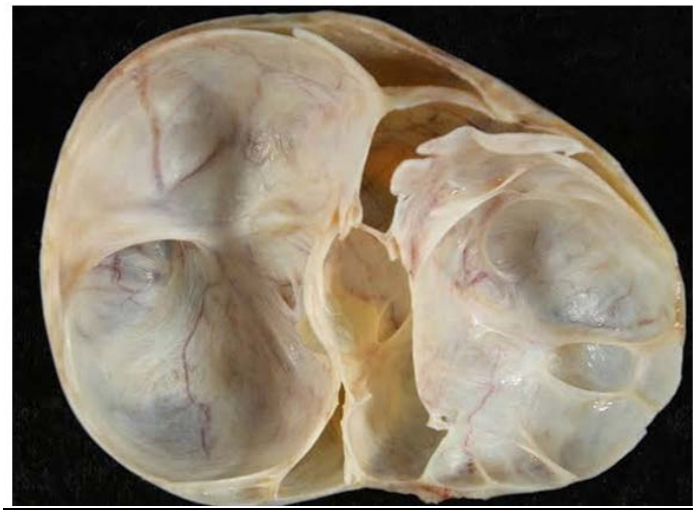

Figure 6: Gross Picture of Mucinous Cystadenoma

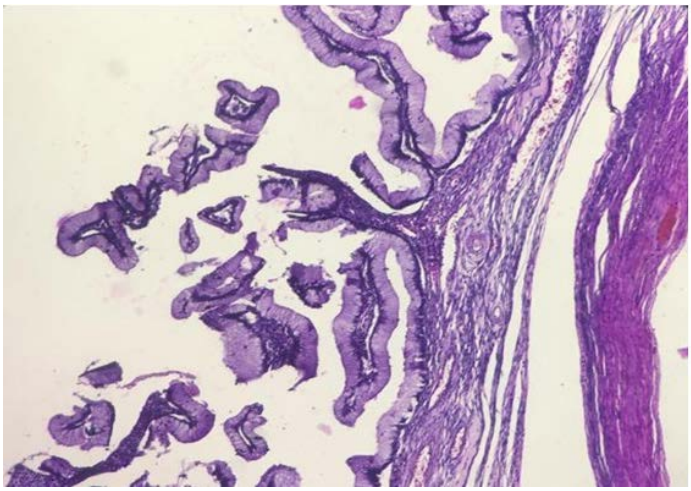

Figure 7 : Mucinous Cystadenoma (H&E stained :10x)