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HISTOPATHOLOGICAL STUDY OF THE PATTERNS OF OVARIAN TUMOURS

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ABSTRACT

Background: Ovarian neoplasms are now the leading cause of cancer related deaths in females and accounts for 3% of all neoplasms in females. Histomorphological study is the gold standard to assess the treatment modalities and prognosis of various tumours. This is a retrospective and prospective study which was carried over a period of 5 years from 2012 to 2016 which included 83 cases. **Objectives:** To document the spectrum of ovarian tumours by histopathological examination and their radiological and clinical correlation and age distribution. **Methods:** All the specimens were grossed according to standard grossing protocols. Formalin fixed paraffin embedded sections were stained with haematoxylin and eosin and examined microscopically. The medical record files of the patients were referred for clinical details and radiology reports. **Results**: Out of the 83 cases, 68 (82%) were benign, 15 (18%) were malignant. The most common tumours were surface epithelial tumours 52 (63%) followed by germ cell tumours 26 (31%) and sex cord-stromal tumours 4 (6%). Serous cystadenoma along with mature cystic teratoma being the most common benign tumours and serous cystadenocarcinoma, the most common malignant tumour. Most of the benign tumours were in 2nd and 3rd decade and malignant in 4th and 5th decade. Most common clinical presentations were mass per abdomen and ascites. Most of the radiology reports were suggestive of neoplasm **Conclusion**: Histopathological examination is the confirmatory modality for ovarian tumours. Most common tumours were surface epithelial tumours, both benign and malignant, seen in 3rd and 4th decade of life. Radiology has less specificity and is therefore inadequate for distinguishing between benign and malignant tumours.

KEYWORDS: Ovarian tumours, benign, malignant, age groups.

INTRODUCTION

The ovaries are paired intra-pelvic organ of the female reproductive system performing much important function in the body.

Ovary being a complex and unique organ has been described to be involved by wide varieties of neoplasms. This has been due to the presence of many cell types in this organ under normal conditions, including some cells which are multipotent to totipotent. No other organ of the body except ovary gives rise to such a galaxy of neoplasms. Ovarian tumours have been rightly termed as spectrum of diseases rather than a single entity. Tumours of the ovary are common forms of neoplasia in women.[1]

Ovarian tumours account for 3% of all cancers in females, being the second most common cancer of the female genital tract, next only to uterine cancer. They account for 30% of all cancers of the female genital tract.[2]

About 80% are benign and these occur in women of 20 and 45 years, and malignant tumours are more common in 40 to 65years. Risk factors for ovarian cancer are much less clear than for other genital tumours, but nulliparity, family history and heritable mutation play a role in tumour development.[3,4]

Women 40 to 59 years of age who have taken oral contraceptives or undergone tubal ligation have a reduced risk of developing ovarian cancer.[5,6]

The most intriguing risk factors are genetic, in past different terminologies and nomenclature were used but at present WHO histological typing has been used which has removed dilemma of categorizing ovarian tumours.[7]

Serum HCG, serum CA125, serum alpha – fetoprotein 1 placental alkaline phosphatase and lactate dehydrogenase are useful tumour markers, but their accessibility to the practicing pathologist for rural based poor population remains very limited even today.[8]

Screening for ovarian epithelial cancer may be improved by measurement of additional tumour markers such as ovarian cancer antigen OVX1 and CA15-3 and numerous other

antigens.[9] and by combination of tumour marker measurements and Doppler color flow ultrasonography and transvaginal ultrasonography.

MATERIALS AND METHODS

The present retrospective and prospective 5-year study was carried out in Bharati Vidyapeeth Deemed University Medical College and Hospital, Pune from the year 2012 to 2016.

In the retrospective study, all the materials such as paraffin embedded tissue blocks and slides available in the department were studied. Also, all the new cases admitted in the Bharati Hospital, Pune, were studied. The samples included the specimens from those patients who were treated and operated at our institute along with specimens from outside.

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. 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.

The medical record files of the patients were referred for radiology reports (ultrasonography) and tumour marker reports if they were done or available.

RESULTS AND DISCUSSION

The present study was carried out on 83 cases of various ovarian neoplasms. Two main aspects considered in this study are the histopathological findings as made out by light microscopic examination and also correlating the diagnosis with radiological and clinical findings. Tumours were classified according to WHO classification. The other aspect is the incidence rate of ovarian tumours in different age groups.

Out of 83 cases 68 were benign (82%), 15 cases were malignant (18%). Similar observations were made by Geeta et al., Swati et al. and Bhagyalakshmi et al. In Geeta et al.[10] study, benign tumours constituted 72%, borderline 3%, malignant were 25% out of 242 cases. In Swati et al.,[11] study 120 ovarian tumour cases were reported, 98 were Benign (82%), 22 malignant (18%).

The peak incidence of benign ovarian tumours in present study was in the age group of 21-40 years accounting to 68 cases. The youngest case in the present study was 2 years old female, who had juvenile granulosa cell tumour.

In Swati et al., study peak age was 3rd to 4th decade accounting for 85% of cases. Mass per abdomen was the most common presenting symptom in the present study. Nausea, vomiting and ascites were seen in malignant tumours. Histopathological analysis showed 52 surface epithelial tumours, 26 germ cell tumours and 4 sex cord stromal tumours. In the present series surface epithelial tumours were the commonest, comprising of 52 cases of 83 ovarian neoplasms. Serous cystadenoma comprised of 24(36%) cases. Swati et al., reported 45.8% Age range varied between 20-40 years.

Nine cases (60%) of serous cystadenocarcinoma have been observed in the present study.

Swati et al., reported 62.7% cases of above tumours in their study. Peak age of malignant serous tumour was 31-50 years, which is similar to that of Bhagyalakshmi et al.[12] who reported peak age as 31-50 years.

In the present study, 18 cases (25%) of Mucinous cystadenoma were found where as Bhagyalakshmi et al., observed 32% and Geeta et al., observed 19%. Germ cell tumours accounted for 26 cases (31%) in the present study. Geeta et al., reported 24% of germ cell tumours. Bhagyalakshmi et al., reported 14.2% in their studies which is slightly lesser than the present study. Benign cystic teratoma accounted for 24 (29%). This formed the second largest group of tumours in present series. Swati et al., reported 22.5% of cases. In their study teratoma accounted in second commonest group.

In the present study there was a varied age distribution, but maximum number of cases were found between 41-50 years of age. Sex cord stromal tumours formed 4 (5%) of cases. Swati et al., reported 6.7%, Geeta et al., reported 7.44% of cases.

Bleeding per vaginum was the most common complaints in malignant cases. 2 benign cases which did not correlate with histopathological examination, were diagnosed as malignant on radiology.

DATA OF PRESENT STUDY

Table-I: Morphologic Type of Ovarian Tumours

Type	No. of cases	Percentage
Benign	68	82%
Malignant	15	18%
Total	83	100%

Table-II Frequency Of Ovarian Tumours According To Histogenesis

Type of tumour	Benign	Malignant	Total
Surface epithelial	42 (62%)	10 (66%)	52 (63%)
Sex cord-stromal	2 (3%)	2 (14%)	4 (5%)
Germ cell	24 (36%)	2 (14%)	26 (31%)
Metastatic	-	1 (7%)	1 (1%)
Total	68 (82%)	15 (18%)	83 (100%)

Table-III Frequency Of Different Classes Of Ovarian Tumours In Different Age Groups

AGE (years)	Surface epithelial (n=52)	Sex cord-stromal (n=4)	Germ cell (n=26)	Metastatic (n=1)
0-10	-	1	1 (4%)	-
11-20	6 (12%)	-	2 (7%)	-
21-30	11(21%)		14 (54%)	
31-40	13(25%)	1	8 (31%)	1
41-50	12 (23%)	-	-	-
51-60	3 (6%)	-	1 (4%)	-
61-70	7 (13%)	1	-	-
71-80	-	1	-	-

Table-IV: Radiological And Hpe Diagnosis Correlation In Patients With Ovarian Tumours Comparison With Other Studies

RADIOLOGY	HPE		Grand Total
	Malignant On HPE	Benign on HPE	
Malignant on Radio	14	3	17
Benign on Radio	1	65	66
Total	**15**	**68**	**83**

TABLE – 11 Comparsion Of Incidence of Benign And Malignant Ovarian Tumours With Other Studies

	Present Study (n=83)	Geeta Et al [10] (n= 242)	Swati et al[11] (n=120)	Bhagyalakshmi et al[12] (n=267)
Benign	81%	72%	81%	79%
Borderline	2%	3%	1%	4.7%
Malignant	17%	25%	18%	16.3%

TABLE –13: Comparison of Broad Histopathological Types With Other Studies

	Present Study (n=83)	Geeta Et al[10] (n= 242)	Swati et al[11] (n=120)	Bhagyalakshmi et al[12] (n=267)
SE	52 (63%)	158 (65%)	82 (69%)	214 (80%)
SCT	4 (5%)	18 (8%)	5 (4%)	11 (4%)
GCT	26 (31%)	58 (24%)	31 (26%)	38 (14%)
Metastatic	1 (1%)	8 (3%)	1 (1%)	4 (2%)

CONCLUSION

The present study reveals that ovarian tumours are common neoplasms of female genital tract. Benign tumours are the most common, of these surface epithelial tumours are commonest, affects mainly reproductive age group. Clinical features are vague and are late manifestations. Malignant tumours are least common, serous tumours are more prone for going into malignancy. Ultrasonography has demonstrated usefulness in the detection of ovarian cancer in asymptomatic women, but its value for the detection of early-stage epithelial ovarian cancer in women of increased risk is uncertain. The microscopic appearance of the tumour is a must to find the histopathological pattern upon which further management rests.Thus categorizing the ovarian tumours according to histopathological features (WHO) into various type helps us to know the clinical presentation, treatment clinical outcome and prognosis of the diseases.

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