Histopathological study of ovarian tumours

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Abstract

Ovarian tumours are common neoplasms in females and have diverse histopathological entities as they are derived from different cells of origin. Histopathological patterns and incidence of 121 ovarian tumours were studied in Department of Pathology, JJMMC Davangere, during the period from January 2015 to December 2016. The age of the study subjects varied from 15 to 65 years, and the most common age group was between 31-40 years. Among the ovarian tumours 70.30% were benign neoplasms and 29.3 were malignant. The most common among the ovarian tumours was surface epithelial tumours which constitutes 74.4% of all ovarian tumours followed by germ cell tumours constituting 18.8% of all cases. The determination of these patterns is important for diagnosis, management and prognosis.

Keywords: Benign tumours, Germ cell tumours, Malignant tumours, Ovarian tumours, Surface epithelial tumours.

Introduction

Ovarian tumours are common neoplastic lesions in women. The incidence of ovarian cancer ranks only below that of cervical and endometrial carcinomas, among the tumours of the female genital tract. Ovarian cancer accounts for 3% of all cancers in females and is the fifth most common cause of cancer death in women.[1]

The ovarian tumours have diverse histopathology and the relative frequency of each lesion is different in various parts of the world. Hence, the determination of the patterns of the ovarian tumours is important for diagnosis, management and prognosis.[2]

Aims and Objectives

To study the incidence, histopathological patterns of ovarian tumours reported at the Department of Pathology, J.J.M Medical College, Davangere.

Materials and Methods

This study was undertaken in the department of pathology, J.J.M Medical College, Davangere during the period of January 2015 to December 2016. A total 121 were diagnosed to be ovarian tumours. The histopathological characterisation of ovarian tumour was done according to "The WHO classification of ovarian tumours, 2014"

Results

In our study the ovarian tumours that were diagnosed were divided into benign and malignant categories. These have been further classified into surface epithelial tumours, germ cell tumours, sex cord stromal tumours and metastatic tumours.

The present study included 85 benign tumours and 36 malignant tumours. Surface epithelial tumours were the most common tumours. They were diagnosed in 90 cases. Germ cell tumours were the second most common tumours to be diagnosed and constituted 22 cases. [Table 1]

Table 1: Frequency of different cases of benign and malignant ovarian tumours

Classes of tumours	Benign	Malignant	Total
Surface epithelial tumours	65	25	90
Germ cell tumour	16	6	22
Sex cord stromal tumours	4	5	9
Metastatic	0	0	0
Total	85	36	121

The most common age group of the patients in the current study ranged between 31- 40 years. The age of the patients ranged between 12 years and 65 years. [Table 2]

Among the benign tumours diagnosed in this study, surface epithelial tumours were found to be most common which included serous and mucinous cystadenomas. Mature cystic teratomas (n=16) constituted the benign germ cell tumours and the fibromas (n=4) were the most common benign sex cord stromal tumours. [Table 3]

Malignant tumours were diagnosed in 36 patients. The most common among them was malignant surface epithelial tumours which were diagnosed in 25 patients. This was followed by malignant germ cell tumours (n=6) and malignant sex cord stromal tumour (n=5). No cases of metastatic tumours were reported in this study. [Table 1]

Among the surface epithelial tumours the most common tumours to be diagnosed were serous tumours which constituted 47 cases. Benign serous tumours were reported in 41 cases and malignant serous tumours were reported in 6 cases. Mucinous tumours constituted the other surface epithelial tumours that were diagnosed. They constituted 29 cases, out of which five were diagnosed as malignant.

Germ cell tumours were diagnosed in 22 cases. The benign germ cell tumours were diagnosed in 16 patients and they were diagnosed as mature cystic teratomas. Rest of the cases were malignant tumours and they included yolk sac tumour, dysgerminoma and immature teratoma.

Table 2: Frequency of different classes of tumours in different age groups

Age group in years	Surface epithelial tumour	Germ cell tumour	Sex cord stromal tumour	Metastatic	Total
Up to 20	3	7	-	-	10
21-30	16	6	2	-	24
31-40	39	4	2	-	45
41-50	23	4	2	-	29
51-60	8	-	2	-	10
>60	2	-	1	-	3
TOTAL	90	22	9	-	121

Table 3: Frequency of benign tumours in different age groups

Age group in years	Serous cyst-adenoma	Mucinous cyst-adenoma	Mature cystic teratoma	Serous cystadeno-fibroma	Fibroma	Total
<20	2	2	3	1	-	8
21-30	7	5	3	3	-	18
31-40	10	8	4	2	2	26
41-50	4	3	4	3	2	16
51-60	3	4	1	3	-	11
>60	3	2	1	-	-	6
TOTAL	29	24	16	12	4	85

Table 4: Frequency of individual malignant tumours in different age groups

Diagnosis	<20	21-30	31-40	41-50	51-60	>60	Total
High grade serous carcinoma	-	-	1	2	1	1	5
Mucinous carcinoma	-	-	1	2	-	2	5
Yolk sac tumour	1	2	-	-	-	-	3
Dysgerminoma	1	2	-	-	-	-	3
Endometriod Carcinoma	-	-	1	2	1	1	5
Granulosa cell tumour	-	2	3	-	-	-	5
Clear cell carcinoma	-	-	1	2	1	1	5
Transitional cell carcinoma	-	-	1	2	1	1	5
Total	2	6	8	10	4	6	36

Discussion

The structure of the ovary includes germ cells, follicular cells and the ovarian stroma. The function of the ovary is as complex as its structure. Any of these structures can give rise to a plethora of tumours.[3]

In our study the age of the patients ranged between 15 to 65 years, which is comparable to the study by Makwana HH et al where the age distribution of the patients was between 8 to 70 years.[4]

The most common age group of ovarian tumour incidence was between 31 to 40 years in the present study, which was similar to the studies conducted by Makwana HH et al, Mondal SK et al, Jha R et al, where the most common age group was between 21-40 years.[5,6]

Table 5: Incidence of ovarian tumours in different studies

Study	Benign	Malignant	Borderline
Ashraf A et al	64.57%	35.43%	
Jha R et al	83.9%	16%	
Mondal SK	63%	29.6%	7.3%
Abdullah LS et al	78.8%	22%	
Pradhan A et al	79.5%	18%	2.4%
Present study	70.3%	29.7%	

In the current study 70.3% of the ovarian neoplasms were benign and 29.7% were malignant. This was similar to the study conducted by Abdullah et al where 78.8 % of the ovarian tumours in their study were benign and the rest were malignant. The statistics of the present study also was comparable with the other studies.[7] **[Table 5]**

The most common neoplasm diagnosed in the present study was the surface epithelial tumours which constituted 74.4%. This was comparable to study done by Makwana HH et al where the incidence of the surface epithelial tumours was 65.7%. No borderline tumour was found in our study.

Next most common were the germ cell tumours, which constituted 18.8%. This was comparable with study conducted by Makwana HH et al where the incidence of the germ cell tumours was 22.86%.

The least common ovarian neoplasm diagnosed in our study was sex cord stromal tumours whose incidence was only 7.43%. Low incidences of this tumour was observed in other studies such as study conducted by Jha R et al where it constituted 3.1%.

In the present study, serous tumours were found to be more common among the surface epithelial tumours. Studies on ovarian tumours carried out by Nalini G et al and Maheshwari et al have also reported similar results where the serous cystadenoma were the most common. Among the malignant surface epithelial tumours, high grade serous carcinoma was the most common tumour diagnosed in our study group. This does not correlate with the study conducted by Yasmeen et al where endometroid carcinoma was found to be more prevalent.[8-10]

Germ cell tumours (GCT) were the second most common tumours to be diagnosed in the present study. Benign germ cell tumours were found to be more. Incidence of mature cystic teratomas among the benign germ cell tumours was highest. Similar findings were obtained by Thani Kasalanm et al, Ashraf A et al and Ahmed et al.[11-13]

Among the sex cord stromal tumours that were diagnosed in our study, granulosa cell tumour was the most common. Similar incidences were obtained in other studies like the studies by Makwana HH et al and Ashraf A et al.[12]

Prognosis and recurrence rate of the patients with ovarian tumours mainly depends on the diagnosis and grade of the tumour.[5]

Conclusion

From the present study, we can conclude that, benign ovarian tumours are more common than the malignant tumours. The most common age group for occurrence of ovarian tumours is 31 and 40 years. Surface epithelial tumours are the most common class of ovarian tumours diagnosed in the study. As ovarian tumours are common tumours diagnosed in women, they must be classified correctly so that the patient can be provided with appropriate treatment and prognosis.

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