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Clinicopathological and Histological Features of Ovarian Tumour- A Study

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Abstract
Introduction: *Ovarian cancer is the second most common genital tract malignancy accounting for 25% gynaecological malignancy. This study was conducted to asses the incidence and gross and histological presentation of different types of ovarian tumours.*
Aims and Objectives
The objectives of the present study are:
1. To classify the ovarian neoplasms as per the World Health Organization (WHO) classification,
2. To study the histological subtypes of ovarian neoplasms,
3. To study the distribution of ovarian neoplasms,
4. To study the age distributions of various tumors,
Methods: *This is a descriptive study conducted in Govt. kilpauk medical college Hospital over a period of 1 year. The case records of all the patients with ovarian tumur was analyzed.*
Results: *Of the total of 135 adnexal masses cases 100 were found to be histologically proven ovarian tumour out of which 35 were non neoplastic conditions. Benign tumours comprised of 88 and 8 were malignant and 4borderline.Surface epithelial tumour was the commonest benign tumour followed by germ cell tumour, whereas serous cystadenocarcinoma 3% were commonest malignancy. Age varying from 18yrs To 70 yrs. Smallest tumour size was 2.5 cm. largest was 30 cm. Germ cell tumour was observed in younger age group in earlier stage.*
Conclusion: *The commonest ovarian tumor was epithelial followed by germcell tumour. Mature cystic teratoma was the most common benign tumour and malignant was serous cyst adenocarcinoma. Epithelial ovarian tumour prevalent in perimenopausal and postmenopausal age group whereas germ cell in earlier age.*
Keywords
Ovarian tumours; Histopathology; Epithelial; Germ cell; Benign; Borderline; Malignant; Serous; Mature cystic teratoma

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I. Introduction

Ovarian cancer accounts for about 3% of all cancers in women . Among all the ovarian tumors about 80% are benign,and remaining 20% of these tumors are malignant. It is estimated that about 1 in 70 women have a life time risk of developing ovarian cancer. The aim of the present study is to study the histological subtypes of ovarian neoplasms, age wise distributions and occurence of ovarian tumors, gross appearance of ovarian tumours and classify the ovarian neoplasms as per the World Health Organization (WHO) classification.

Ovarian tumors arises from surface epithelium,sex cord stroma and germ cells. The incidence of ovarian tumors about 3% worldwide, in india its varied from 0.9 to 8.4/100,000 women years in various registries. Overall incidence of ovarian neoplasm is surface epithelial(65%),germ cell (15%),sex cord-stromal(10%),metastases(5%) as per WHO.

II. Methods

100 Cases of ovarian neoplasm reported in the department of Pathology, Government kilpauk Medical College, Chennai, India over a period of one year (Nov 2015 to December 2016) were included in the study. Among these benign tumour accounts for 88 cases, and malignant cases were 8 and borderline tumors were 4 cases. Functional ovarian cysts less than 3 cm and all small biopsies were excluded from the study. Formalin fixed, paraffin embedded tissue block were used. H and E stained tissue sections were examined and classified as per the WHO classification of ovarian tumours.

III. Results

One hundred cases of ovarian tumours were studied over a period from Nov 2015 to dec 2016. Of the 100 cases, 88 were benign, 4 were borderline and 8 cases were malignant. The age ranges from 18-75 years and a case of mature cystic teratoma and serous carcinoma was reported in a 18 year old adolescent girl as the youngest age of occurrence.

Maximum number of ovarian neoplasm were reported at reproductive age groups (30-40), 29 cases followed by 40-50 years, 27 cases and the least common age groups are 10-20 and 70-80 with only 2 cases . The malignant neoplasms, cases, in present study were seen more commonly in the age group of 40-60 years (Table 2). In the present study, the tumours ranged in size from 3-30cm with an average size of 10.4 cm. Of 100 tumours, 70 were cystic, 26 were mixed and 4 were solid. All the cystic tumours were benign, 15 of the 26 cases with mixed consistency were benign and 7 were malignant, whereas out of 4 solid tumours 3 were benign and one was malignant. Adopting WHO classification, the surface epithelial tumours were most common accounting for 81 followed by germ cell tumours 15, sex cord stromal tumour 4 cases. Table 7. shows the distribution of tumours as per WHO classification 2003 and their relative frequency.

Table 1: Frequency Of Benign And Malignant Tumors Of Ovary

Type Of Neoplasm	N (%)
Benign	89
Borderline	4
Malignant	7

Table 2: Age wise distribution Of Ovarian Tumors .

Age	N(%)
1-10	0
11-20	2
21-30	24
31-40	29
41-50	27
51-60	13
61-70	3
71-80	2

Age range	11-20	21-30	31-40	41-50	51-60	61-70	71-80
Histological subtypes							
Surface epithelial-stromal tumors							
Serous cystadenoma	-	16	14	12	7	2	-
Borderline serous cystadenoma	-	-	1	-	-	-	-
Serous cystadenofibroma	-	-	1	1	1	-	-
Papillary serous cystadenoma	-	-	1	1	-	1	-
Mucinous cystadenoma	-	3	4	4	1	-	1
Borderline mucinous cystadenoma	-	-	-	1	2	-	-
Papillary serous cyst adenocarcinoma	-	-	1	1	-	-	-
Serous carcinoma	1	-	-	-	-	-	-
Mucinous carcinoma	-	-	2	1	1	-	-
Sex cord-stromal tumors							
Fibroma	-	-	1	1	-	-	1
Granulosa cell tumor	-	-	-	1	-	-	-
Leydig cell tumor	-	-	-	-	-	-	-
Gynandroblastoma	-	-	-	-	-	-	-
Germ cell tumors	-	-	-	-	-	-	-
Benign cystic teratoma	1	4	3	5	2	-	-
Immature teratoma 1	-	-	-	-	-	-	-
Metastatic carcinoma	-	-	-	-	-	-	-
Unclassified carcinoma	-	-	-	-	-	-	-

Table 4: Size Ranges Of Ovarian Neoplasms.

Size	N%
<4 Cm	18
5-9	44
10-19	34
>20 Cm	4
Total	100

Size range	<4 cm	5-9cm	10-19cm	>20cm	Total
Histological subtypes					
Surface epithelial-stromal tumors					
Serous cystadenoma	22	29	2	-	51
Borderline serous cystadenoma		-	1	-	1
Serous cystadenofibroma	-	2	1	-	3
Papillary serous cystadenoma	-	2	1		3
Mucinous cystadenoma	-	8	4	1	13
Borderline mucinous cystadenoma	-	-	-	1	3
Papillary serous cyst adenocarcinoma	-	1	1		2
Serous carcinoma		1	-	-	1
Mucinous carcinoma	-	1	2	1	4
Sex cord-stromal tumors					
Fibroma	-	2	1		3
Granulosa cell tumor	-	1	-	-	1
Leydig cell tumor	-	-	-	-	-
Gynandroblastoma	-	-	-	-	-
Germ cell tumors	-	-	-	-	-
Benign cystic teratoma	4	9	2	-	15
Immature teratoma 1	-	-	-	-	-
Metastatic carcinoma	-	-	-	-	-
Unclassified carcinoma	-	-	-	-	-

Table 5: Gross features Of Ovarian Neoplasms

Type Of Neoplasm	Cystic	Solid	Cystic +Solid	Total
Benign	70	3	15	88
Borderline	0	0	4	4
Malignant	0	1	7	8
Total	70	4	26	100

Table 6: Histological Types Of Ovarian Neoplasms:

Tumor Type	N%
Surface Epithelial Tumors	81
Sex Cord-Stromal Tumors	4
Germ Cell Tumors	15
Metastatic Tumors	0
Unclassified Tumors	0
Total	100

Table 7: Distribution Of Cases According To The Classification (2003):

Histological subtypes	N%
Surface epithelial tumors	81
Serous cystadenoma	51
Borderline serous cystadenoma	1
Serous cystadenofibroma	3
Papillary serous cystadenoma	3
Mucinous cystadenoma	13
Borderline mucinous cystadenoma	3
Papillary serous cyst adenocarcinoma	2
Serous carcinoma	1
Mucinous carcinoma	4
Sex cord-stromal tumors	4
Fibroma	3
Granulosa cell tumor	1
Leydig cell tumor	0
Gynandroblastoma	0
Germ cell tumors	15
Benign cystic teratoma	15
Immature teratoma 1	0
Metastatic carcinoma	0
Unclassified carcinoma	0

IV. Discussion

Ovarian tumours are a group of neoplasm affecting the ovary and have a wide spectrum of features. They include benign, low malignant potential or borderline and malignant subtypes.

WHO classification of ovarian tumours is based on the tissue of origin of the tumours,

(1) surface epithelium (2) the germ cells and (3) the stroma of the ovary. Of the three main groups, epithelial tumours are the most common with serous and mucinous cystadenomas being the commonest epithelial tumours.

100 cases of ovarian neoplasms were included in the study ,the frequency of different histopathological types in different age groups were analysed as per WHO classification. The tumours were seen the age group from 18-75 years with maximum number of cases in 31-40 years, 29%, followed by 41-50 years, 27%. Similar observations were made by R jha et al. et al. Most of the benign neoplasms were seen in age group 20-40 years with mean age of 32.75 years. Among the all serous tumours ,27 cases of serous cystadenoma were fall under the age group 31-50. Malignant neoplasms were seen with advancing age, peaking in 40 -60 years with mean age of presentation being 43.86 years. Mucinous carcinoma were common in the age group 31-50. A study by Geeta pachori et al, in rajasthan, India, revealed that the incidence of benign ovarian tumour was age group of 20-40 years and malignant tumour 41- 60 years. This result was quiet similar to our study. Many authors from Indian country have found similar frequencies of the tumours in their respective studies.

Out of 100 cases, 88 were benign, 4 were borderline/uncertain behaviour and 8 cases were malignant. In a study by GG Swamy et al the benign tumours constituted 71.6% of cases with a high incidence of malignant tumours (25%) whereas ,in the present study ,the incidenceof malignant tumours were lower than the studies by N Gupta et al and mani Krishna et al where benign tumours constituted 75.2% in each study, borderline tumours constituted 4.4% and 2.8%, and malignant tumours constituted 23.7% and 21.8% of tumors respectively.

Size range was 3–30 cm in the present study. The largest tumor in our study was borderline mucinous cystadenoma sized 30 cm found. Most of the serous cystadenoma are in size range of 3-7 cm. Size-wise distribution of various ovarian tumors is listed in Table 4.

Frequency of Histological Types of Ovarian Neoplasms

Surface epithelial tumors

In our study surface epithelial tumors (80%) constitute the most prominent type of ovarian tumors followed by germ cell tumors which is comparable with other studies done by Misra.R.K. et al, vaddatti et al . Benign serous tumors comprising (52%) formed the largest group in the present study and our findings are similar to that of Misra R.K et al, but slightly higher than those of other authors Maheswari et al and Mani Krishna et al. The incidence of borderline tumors in our study was 1 % of total serous tumors, which is a lower figure when compared to 15% reported by Purola et al, Russel p et al. In the present study the serous carcinomas constituted 7% of all serous tumors. This findings is slightly higher than that of other authors. In our study most of the serous cystadenoma were unilateral and cystic in consistency.

Second commonest group among all the ovarian tumors was of mucinous type consisting of 20 cases in the present study. Among these, the benign mucinous tumors formed 70 percent of all ovarian mucinous tumour. Similar finding has been reported by vaddatti. et al ,Bennington et al .The mucinous tumors are the largest with maximum size was 30cm, which is in accordance with other studies. Mucinous carcinomas formed 4% of all ovarian tumors which is almost similar to Misra. R.K. et al, vaddatti et al & slightly lower than Mani Krishna et al. The occurrence of necrosis and hemorrhages were more common in invasive mucinous carcinomas than the borderline type. Grossly, Capsular breach were found in 1 serous papillary cystadenocarcinoma and 1 mucinous cystadenocarcinoma. Microscopically, stromal invasion, nuclear atypia and stratification were taken as the criteria to distinguish malignant tumour from borderline from serous carcinomas, the true invasion process is often associated with desmoplastic reaction and inflammatory response which are not seen in the Study of morphological patterns of ovarian neoplasms invasion of borderline tumors.

In our study we observed 4 cases of sex cord stromal tumors . Fibrotheoma was the most common variety of sex cord stromal tumors, which similar to the observations made by other author like Misra. R.K. et al (3.01%) and slightly lower than Nalini Modepalli et al (6.2 %). One case of Granulosa cell tumors reported with predominantly of microfollicular type. Associated pathology like endometrial hyperplasia and endometrial carcinoma has been reported in 2-13% of patients .

Germ cell tumors: Germ cell tumors constitute 15-20%of all ovarian tumors. In our study a total of 15 cases were observed which is slightly lower than the observations of other authors, but it is similar to the findings of Mani Krishna et al (15.55%). Benign cystic teratoma constituted 15 cases of all ovarian tumors and third commonest benign tumor after serous and mucinous cystadenomas. Identical reports are seen in other literatures. In our study, we found ectodermal derivatives in 100% of the tumors, mesodermal structures in 82%, and endodermal derivatives in 67%. The cystic cavities are lined by mature epidermis. The common reported components are Skin appendages, fat, cartilage & bone in all dermoid cysts.

V. Conclusions

It is concluded from this study that the tumors originating from surface epithelium are the commonest variant. Majority of them were benign .The ovarian tumors manifest a wide range of clinical, morphological and

histological features. Histopathological study remains the gold standard for the proper classification and management of ovarian neoplasm.

Reference

[1]. R Jha and S Karki .Histological pattern of ovarian tumors and their age distribution. Nepal Med Coll J 2008; 10(2): 81-85

[2]. Geeta Pachori, Uday Singh Meena, Ravi Kant Sunaria, Pramendra Pachori, Nanik Jethani, Tushar Bayla. Histopathological study of ovarian tumors in Ajmer region. Int J Med Sci Public Health. 2016; 5(7): 1400-1403.

[3]. Swamy GG, Satyanarayana N. Clinicopathological analysis of ovarian tumours- A study on five years samples. Nepal Med Coll J. 2010;12(4):221-3.

[4]. Gupta N, Bisht D, Agarwal AK, Sharma VK. Retrospective and prospective study of ovarian tumours and tumour like lesions. Indian J PatholMicrobiol. 2007;50:525-7.

[5]. Nirali N. Thakkar, Shaila N. Shah.Histopathological Study of Ovarian Lesions International Journal of Science and Research (IJSR) ISSN : 2319-7064 Index Copernicus Value (2013): 6.14 | Impact Factor (2014): 5.61.

[6]. Misra, R.K, Sharma, SP., Gupta V.Gaur, R., Mishra S.D., "Pattern of ovarian neoplasms in Eastern U.P:., Jorunal of OBG,1991, 241- 246

[7]. Modepalli N, Venugopal SB, Mukherjee T. Primary ovarian neoplasms: 5-year institutional study. J. Evolution Med. Dent. Sci. 2016;5(46):3004-3008, DOI: 10.14260/jemds/2016/677

[8]. Tyagi S.P., Maheswari, V., Tyagi, . N., Tewari, K., "Double malignancy in a benign cystic teratomas of the ovary " . Indian journal of cancer. 1993, Vol, 30; 140-142.

[9]. Mani Krishna, Geeta Maurya. "Pattern of Ovarian Tumors and their Age Distribution in Kangra Valley Himachal Pradesh". Journal of Evolution of Medical and Dental Sciences 2015; Vol. 4, Issue 61, July 30; Page: 10602- 10608, DOI: 10.14260/jemds/2015/1531

[10]. Purola E. Serous papillary ovarian tumours. A study of 233 cases with special references to the histological type of tumours & its influence in prognosis Act OBG . 1963, scand 42 (supple 3):, 1-77.

[11]. Russel, P. Bannatyne patricia. "Surgical pathology of ovaries", 1989

[12]. Dr. Vaddatti tejeswini ,Dr. E. Sudhakar reddy ,Dr. P. Premalatha ,Dr. G. Vahini IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) e-ISSN: 2279-0853, p-ISSN: 2279-0861. Volume 10, Issue 6 (Sep.- Oct. 2013), PP 11-16.

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