ISSN 2515-8260 Volume 09, Issue 02, 2022

A study of ovarian lesions among various age group and to correlate them with the clinical features

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Abstract

Background: Tumours of the ovary are common forms of neoplasms in women. The pathology of ovarian neoplasms is one of the most complex areas of gynaecology, because the ovary gives rise to the greater and larger variety of tumours than any other organ. While in other organs, tissue of origin is usually clear, tissue from which an ovarian tumour arises is often uncertain and most of the development of the presumptive tissue is often in disparity.
Objectives: To determine the nature of ovarian masses presented to Department of Pathology, CIMS during the last 2 years.
Methodology: The present retrospective record based observational study was conducted by the department of Pathology from March 2022 to May 2022 from the data of the patients from the records from January 2019 to December 2021. All the specimen obtained in the Department of Pathology for Histopathological examination during the study period from the patients diagnosed with ovarian lesion in the hospital were included for the study.
Results: In the present study majority (29%) of them belonged to 30 to 40 years of age, 23% of them were aged less than 20 years**.** In the present study 65% of them complained of Mass per abdomen, 40% of them had pain in abdomen, 10% had ascites, 9% had menstrual irregularities, 5% had infertility related issues and 5% of them were asymptomatic in nature. The highest incidence of Benign tumor was seen in the age group of 30 to 40 years (32.5%), in the age group of less than 20 years it was 25.9%. The Malignant tumor was found to be more common those aged more than 40 years with 26% of them in 40 to 50 years of age, 21.7% of them in 50 to 60 years of age.
Conclusion: In conclusion, a variety of clinical factors, including the patient's age, presenting symptoms, the location and size of the lump and the histological type of the ovarian tumour, are all connected. All of these clinical and histomorphological characteristics, as well as cutting-edge, more modern diagnostic techniques like immunohistochemistry and morphometric analysis, can aid in early diagnosis, the planning of a course of therapy and prognostic information.

Keywords: Ovarian tumor, benign, malignant, age group

ISSN 2515-8260 Volume 09, Issue 02, 2022

Introduction

The ovaries are paired oval structures in females, developing from the gonadal ridges, and located one on each side of the uterus in the ovarian fossa. These are very complex organs in terms of embryology and histology. It undergoes cyclical changes from adolescence to menopause and gives rise to different types of cells, each of which has the capacity to produce different type of tumours [1].

Due to constant endocrine stimulation and subsequent traumatic insults by ovulation, these are the primary sites for tumour development. Different types of tumours tend to occur in different age group. Both primary and metastatic tumours occur in the ovary with variable histomorphological patterns [2].

Ovarian cancer is one of the most common neoplasm in developed countries, ranking 7th position in incidence and 6th position in mortality [3]. It constitutes about 6.6% of all malignant tumours of the female genital tract [3].

In India, incidence of ovarian cancers come next to cervical and endometrial cancers among the gynaecological cancers. According to National Cancer Registry Programme of Indian Council Medical Research, the proportion of ovarian cancer varied from 1.7-8.7 in various urban and rural areas, it also showed that recent increase in incidence. Ovarian cancers area heterogeneous group of neoplasms of three main subtypes:- Surface epithelial, Germ cell and Sex cord stromal tumours with wide morphological variations. No age group is free from the tumour [4].

In adult age group surface epithelial tumours are the commonest neoplasm constituting 65.5% of ovarian neoplasms. In younger age group, germ cell tumours are the commonest ovarian neoplasms and constitute two third of ovarian tumours out of which, one third are malignant. Sex-cord stromal tumours can occur at any age group and are usually functional in nature. So, the determination of various histological patterns is very important in diagnosis as well as prognosis of ovarian tumors [5].

Ovarian cancer has got a poor prognosis among all gynaecological cancers. The overall 5-year survival rate is approximately 45% due to late stage at diagnosis [6]. Unlike cervical cancer, identification of high-risk population for ovarian malignancy and ideal screening method is not available. A number of non-neoplastic lesions can occur from neonatal period to postmenopausal age group. Most are functional in nature and resolve with minimal treatment [7].

Some of the non-neoplastic lesions like massive edema of ovary, stromal hyperplasia, large follicular cyst, pregnancy luteomas, and granulomatous inflammation can be confused with neoplasm clinically, intraoperatively or on morphological examination. The main aim lies in distinguishing ovarian neoplasms from the wide spectrum of non-neoplastic lesions. Despite the new techniques like imaging and genetic studies, the diagnosis of ovarian tumour is mainly dependent upon histopathological examination. The present study is being undertaken to review in detail the different varieties of ovarian lesions in and around Chamarajanagar and assess their characteristics with regards to incidence, age and histopathological appearances [3].

Aim and Objectives

1. To study ovarian lesions among various age group and to correlate them with the clinical features.

Materials and Methods

The present retrospective record based observational study was conducted by the department

of Pathology from March 2022 to May 2022 from the data of the patients from the records from January 2019 to December 2021.
All the specimen obtained in the Department of Pathology for Histopathological examination during the study period from the patients diagnosed with ovarian lesion in the hospital were included for the study.

Inclusion criteria

1. All patients preoperatively diagnosed as ovarian lesions and operated in Department of OBG, CIMS.
2. Patients of all ages.
3. Both neoplastic and non-neoplastic ovarian lesions will be included in this study.

Exclusion criteria

Incidentally found ovarian lesions in patients operated for other gynaecological problems were excluded from this study.

Method of data collection

Clinical details of the patients including the age, parity and examination findings will be recorded from the case sheets available in the Medical Records Department using a structured questionnaire. The reports of all the radiological investigations viz. Ultrasonography will be recorded. The cases with diagnostic difficulties were discussed with the gynaecologists. Gross and microscopic features of all the cases will be noted from the records available in the Department. Slides and blocks will be retrieved from respective department, further sections will be taken from the block and stained with hematoxylin and Eosin and the findings will be noted. Special stains like PAS, Reticulin, Alcian blue will be performed as per standard staining protocol. Finally, histopathological findings of all the cases will be analysed and the tumors will be classified according to recent WHO classification [7].
Institutional Ethical clearance was obtained prior to the start of the study.

Statistical analysis

Data was entered into Microsoft excel data sheet and was analyzed using SPSS 22 version software. Categorical data was represented in the form of Frequencies and proportions. Chi-square test was used as test of significance for qualitative data. Continuous data was represented as mean and standard deviation.

Graphical representation of data: MS Excel and MS word was used to obtain various types of graphs such as bar diagram and Pie diagram. p value (Probability that the result is true) of <0.05 was considered as statistically significant after assuming all the rules of statistical tests.

Results

A total of 100 cases which met the inclusion Criteria were included in the study and analysed.

Table 1: Distribution of the study subjects based on the age group

		Age group	Percentage
Age group	<20 years	23	23
	20-30 years	17	17

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	30-40 years	29	29
	40-50 years	16	16
	50-60 years	10	10
	>60 years	5	5

In the present study majority (29%) of them belonged to 30 to 40 years of age, 23% of them were aged less than 20 years, 17% of them were between 20 to 30 years of age, 16% of them were between 40 to 50 years of age, 10% of them were aged 50 to 60 years and 5% of them were aged more than 60 years of age.

Table 2: Distribution of study subjects based on the clinical features

		Frequency	**Percentage**
Clinical Features	Mass per abdomen	65	65
	Pain Abdomen	40	40
	Ascites	10	10
	Menstrual Complaints	9	9
	Infertility related	5	5
	Asymptomatic	5	5

In the present study 65% of them complained of Mass per abdomen, 40% of them had pain in abdomen, 10% had ascites, 9% had menstrual irregularities, 5% had infertility related issues and 5% of them were asymptomatic in nature.

Table 3: Distribution of Benign and Malignant Ovarian tumours based on the Age group

		Benign	**Malignant**
Age group	<20 years	20(25.9%)	3(13.1%)
	20-30 years	15(19.4%)	2(8.7%)
	30-40 years	25(32.5%)	4(17.4%)
	40-50 years	10(12.9%)	6(26%)
	50-60 years	5(6.5%)	5(21.7%)
	>60 years	2(2.5%)	3(13.1%)
Total		77(100%)	23(100%)

The highest incidence of Benign tumor was seen in the age group of 30 to 40 years (32.5%), in the age group of less than 20 years it was 25.9%, in the age group of 20to30 years it was 32.5%, in the 40 to 50 years of age it was 12.9%, in 50 to 60 years of age it was 6.5% and among those aged above 60 years it was 2.5%.

The Malignant tumor was found to be more common those aged more than 40 years with 26% of them in 40 to 50 years of age, 21.7% of them in 50 to 60 years of age.

Table 4: Frequency Distribution of various ovarian tumor in the present study

		Frequency	**Percentage**
Benign	Serous cystadenoma	21	27.2
	Mucinous Cystadenoma	39	50.6
	Fibroma	5	6.6
	Mature Cystic teratoma	12	15.6
Malignant	Papillary Serous cystadenocarcinoma	9	39.1
	Mucinous cystadenocarcinoma	5	21.7
	Granulosa cell tumour	3	13.1
	Endometrioid carcinoma	5	21.7
	Metastatic tumors	1	4.4

Among the benign tumors 50.6% of them were mucinous cystadenoma, 27.2% of them were serous cystadenoma, 15.6% were mature cystic teratoma, 6.6% were Fibroma. Among the malignant tumors 39.1% were Papillary serous cystadenocarcinoma, 21.7% were Mucinous cystadenocarcinoma, 21.7% were endometrioid carcinoma, 13.1% were granulosa cell tumor, 4.4% were metastatic tumors.

Discussion

The ovaries are frequently the location of benign and malignant tumours. From adolescence until menopause, there are continuous cyclical changes that give rise to many cell types, each of which might result in a distinct form of tumour. Ovarian tumours' varied histopathologies are a reflection of the many cell origins.

One in 55 women may acquire ovarian cancer over their lifetime, according to recent surveillance, epidemiology, and end result (SEER) projections.

Ovarian cancers are difficult to identify until they are in an advanced stage since the symptoms are hazy and appear gradually.

Environmental factors are the main cause of ovarian cancer. Therefore, the incidence of ovarian cancer is significantly influenced by the increase in risk factor exposure.

According to Nandagudi Srinivasa Moorthy *et al*., [8] trends in features of reproductive behaviour, such as progressively lower family sizes, nulliparous women, and the number of single women, may be responsible for some of the extremely significant increases in the prevalence of ovarian cancer. The protective variables have repeatedly been identified as oral contraceptive usage and parity.

According to research, journals and literature, the age-specific incidence of ovarian neoplasms spans from 20 to 70 years, and increasing incidence is shown at certain ages for each category of benign, borderline, and malignant tumours. According to the research, the incidence of benign neoplasms rises between the second and fourth decade. Borderline forms are discovered after the age of 40 and 30-40% of them after the age of 65, according to the literature and research undertaken by various authors.

In the present study the peak age of presentation of the tumour was found to in the third and fourth decade which is comparable to be studies done by Patel A *et al*. [9] and Shraddha SO *et al*. [10] where as in the study done by Makwana HH [11] *et al*. the peak age was around 21 to 30 years of age. In contrast to research by Nandagudi Srinivasa Murthy *et al*. [8], who found that ovarian cancer peaks in the fifth and sixth decades of life, the age-specific incidence of malignant ovarian neoplasms reaches its peak in the fourth to fifth decade and comprises less than 3 percent in the sixth decade.

In the present study mass per abdomen and pain per abdomen were the major presenting complaints among the patients who were diagnosed with ovarian tumour. 87 percent of patients in the research by BD Rufford *et al*. [12] had abdominal symptoms, 41% had gastrointestinal symptoms, 29% had constitutional symptoms, and just 2% had a mass abdomen. In other studies done by Murthy N S *et al*. [13] and Mondal SK *et al*. [14] also reported presenting complaints similar to our study findings.

In the present study nearly 77% of the tumors were Benign and 23% of the tumors were malignant. In the study done by Laul P *et al*. [15] 27.8% of the ovarian masses were non-neoplastic, 60.8% were benign and remaining 11.3% were malignant. Our study findings were comparable to the study findings of Zahra *et al*. and Gupta *et al*.

The patterns of the ovarian tumors seen in our study was found to be comparable to the study findings of Garg *et al*. [16], Patil *et al*. [17], Modepalli *et al*. [18]. Where in the study done by Mankar and Jain *et al*. [19] Mucinous cystadenoma was the common tumor which is contrasting to our study findings.

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Conclusion

In conclusion, a variety of clinical factors, including the patient's age, presenting symptoms, the location and size of the lump, and the histological type of the ovarian tumour, are all connected. All of these clinical and histomorphological characteristics, as well as cutting-edge, more modern diagnostic techniques like immunohistochemistry and morphometric analysis, can aid in early diagnosis, the planning of a course of therapy and prognostic information.

Patients arrive at a rural health centre later than usual to seek medical advice because of the facility's isolation, poverty, and illiteracy. Therefore, raising public and medical awareness, educating the public, passive surveillance, and community screening facilities will aid in the early diagnosis of ovarian lesions and tumours.

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