Demographic profile of Ovarian lesions in a tertiary care center-A retrospective study.

Running Title: A retrospective study on distribution of ovarian lesions.

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ABSTRACT:

Background: Ovarian cancer is a leading cause of morbidity and mortality worldwide. Histopathological presentation of ovarian tumours is highly variable which makes it very difficult for early diagnosis and appropriate management. Proper categorization based on morphological histopathological features can aid gynaecologists in better diagnosis and management. **Aim:** To study the demographic profile of ovarian lesions and to analyze the size, site, grade, and stage of the lesions in a tertiary care centre. **Materials and method:** This was a retrospective, descriptive and observational study carried out in the Department of Pathology at Saveetha Medical College and Hospital, Chennai. Demographic details and histopathological data from the records of the patients diagnosed with ovarian lesions January 2019 to December 2019 were collected and analysed using SPSS software. **Result:** Out of the 50 cases, maximum number of cases belonged to the age group 31-40 years (30%) with a mean age of 42.82±15.14 (mean ± SD). Most of the cases during the period of study was unilateral and the most common site of lesion was in the left ovary in 28 (56%) of the cases. With respect to the histological type of the ovarian lesions, surface epithelial tumour type accounted for a majority of 39(78%) of the cases and based on the grade of the tumours, a majority of 23(46%) of the cases was well differentiated. Benign tumours were most common in all histopathological tumour types. **Conclusion**: Majority of ovarian lesions were benign, unilateral and most commonly occurred in the age group of 31-40 years. On the basis of histopathology, surface epithelial tumours were most commonly seen followed by germ cell tumours. A proper study ofdemographic profile and an exact histopathological categorization is vital for accurate diagnosis and management of the ovarian lesions.

Keywords: histopathology, malignant, ovarian tumor, gynecological.

Introduction:

Ovarian cancer is the fifth leading cause of death from gynaecological malignancy Worldwide(1). It has emerged as second most common gynaecological malignancies affecting Indian women and the third leading cause of death among Indian women trailing behind cervical and breast cancer. Epithelial carcinoma is the most common occurring histological type of ovarian cancer which commonly occurs at the age of the incidence of is 55 to 65 years. As per the latest GLOBOCAN data, it is expected that there will be around 18.1 million cancer cases by 2021(2). The prognosis for ovarian cancer is poor, with a 5-year survival rate of less than 45% and the causes of the disease are not understood. Various risk factors are associated with ovarian cancers such as family history, null parity, smoking, and obesity and fertility drugs (3). Combined oral contraceptive (OCP) use and oestrogen alone hormone replacement therapy are seen as protective factors (4,5). The disease is usually diagnosed only at the later stages when the survival rate is drastically gone down. A very small number of cases (15%) have been found as a localized tumour (stage 1) with a 5-year survival rate of 92%. Usually, the overall 5-year relative survival rate falls between 30% and 40% and has seen only very slight change (2%–4%) since 1995. Surprisingly, cosmetic talc and common dietary substances like saturated fats and refined carbohydrates is a risk factor for ovarian cancer(6). Ovaries are not only the primary but the favourite site to get metastatic deposits from other abdominal cancer. Anatomical location of the ovaries and the nature of the disease which spread in the form of diffused carcinoma create tumour related abnormality (7).

Staging is the process by which demographic profile of the cancer like the site and extent of involvement can be made out. This is vital for a clinician for understanding and analyzing the nature of cancer and to come up with an efficient treatment plan to manage it wisely.

Special conditions in staging(8)**:**

1. Cancer is also seen on the outer surface of ovaries.
2. The outer layer i.e., the capsule is ruptured.
3. Cancer cells are found in the peritoneal fluid.

Stage I: Limited to ovaries.

-Stage IA: involves single ovary

-Stage IB: involves both the ovaries

-Stage IC: involves one or both the ovaries with one of the earlier mentioned special conditions applicable.

Stage II: Metastasizes to other areas of pelvis.

- Stage II A: present in the uterus or fallopian tube
- Stage II B: present in other tissues of pelvis.
- Stage II C: Seen in one or both the ovaries with metastasis to uterus or fallopian tube and one of the above-mentioned special conditions applicable.

Stage III: metastasizes to parts of abdomen, nearby lymph nodes and liver.

- Stage III A: seen only in pelvis. Some microscopic cancer cells may be seen in peritoneum.
- Stage III B: metastasizes to peritoneum with a size of <2 cm.

- Stage III C: metastasizes to peritoneum with a size of >2 cm and is also seen spreading to lymph nodes in the abdomen.

Stage IV: metastasizes to lungs and tissues of liver.

Proper categorization of ovarian lesions based on morphological, histopathological features can aid gynaecologists in better diagnosis and management. This study was carried out with a primary objective of understanding the demographic profile of ovarian lesions and to analyze the size, site, grade and stage of the lesions in a tertiary care centre.

Aim:

To study the demographic profile of ovarian lesions in tertiary care centre

Objectives:

1) To study the demographic profile of ovarian lesions-age and site
2) To document the distribution of size of the lesions
3) To study the grade and stage of lesions
4) To study the grade and stage of lesions

Methodology and Research design:

Study of design:

This was a retrospective, descriptive and observational study carried out in the

Sampling:

Complete enumerate sampling of cases of histopathological proven ovarian lesions reported by the Department of Pathology from January 2019 to December 2019 was taken.

Data collection:

A literature review was done to get an overview on the demographic profile of ovarian lesions in health care centres worldwide from similar studies(9–11)

A predesigned and tested structured proforma was used to collect the data. Demographic details and histopathological data from the records of the patients diagnosed with ovarian lesions January 2019 to December 2019 was collected from three tertiary centres in Chennai. All required data for the study was obtained from the records in the three tertiary centres in Chennai.

Inclusion Criteria:

Women diagnosed with ovarian lesions by history, clinical presentations and laboratory findings confirmed by operative findings and histopathological report were included in this study.

Exclusion Criteria:

Patients with non-ovarian masses and those in Paediatric age group were excluded from the study.

Data analysis:

The collected data was categorized according to the demographic like age, basic information like Hospital ID, histopathology specimen slide number and relevant clinical information regarding the site, size, histological type, stage, and grade of tumour. The histological characterization of ovarian tumours was done according to the WHO classification of 2003.The results will be tabulated and analysed using MS Excel 2021.

Result:

Age distribution:

To analyze the demographic profile and to determine the frequency and distribution of the ovarian lesions, a total of 50 cases of ovarian lesions were studied. The ages of the women ranged between 17 and 80 years. No cases were recorded from females below 15 years. Out of the 50 cases, maximum number of cases belonged to the age group 31-40 years (30%) followed by 41-50 years (22%) with a mean age of 42.82±15.14 (mean ± SD). (Table 1)

Table 1: Age distribution of patients (n=50)

Age group (in years)	Frequency (%)
Up to 20	5(10%)
21-30	5(10%)
31-40	15(30%)
41-50	11(22%)
51-60	8(16%)
>60	6(12%)

Site of the lesion:

The site of lesion was in the left ovary in 28 (56%) of the cases and in the right ovary in 17 (34%) cases and bilaterally in 5(10%) of the cases.

Histological type of the ovarian lesions:

With respect to the histological type of the ovarian lesions, surface epithelial tumour type accounted for a majority of 39(78%) of the cases, followed by germ cell tumour type which accounted for 6(12%) of the cases, sex cord stromal tumour type which accounted for 2 (4%) and metastatic non ovarian tumour type which accounted for 3(6%) of the cases. Amongst the 39(78%) of the cases of surface epithelial tumours, 26(52%) of the cases were diagnosed as serous tumours, 9 (18%) of the cases were diagnosed as mucinous tumours, 2(4%) of the cases were diagnosed as endometrioid tumours, 1(2%) of the cases were diagnosed as clear cell tumours and the remaining 1(2%) of the cases were diagnosed as transitional tumours. Out of the serous tumours, 15 (30%) of the cases were benign, 2(4%) of the cases were of the borderline group and the remaining 9(18%) of the cases were malignant. Out of the mucinous tumours, 4(8%) of the cases were benign, 2(4%) of the cases were of the borderline group and the remaining 3(6%) cases were malignant. Out of the 6(12%) cases of the germ cell tumour type, 4(8%) were of mixed malignant germ cell tumour type, 1(2%) of the cases was identified as teratoma and the remaining 1(2%) of the cases was identified as dysgerminoma. Out of the 2(4%) cases of the sex cord stromal tumour type, 1(2%) of the cases was identified as granulose-theca cell tumour and the other 1(2%) of the cases was identified as fibroma-thecoma type tumour (Table 2).

Table 2: Histopathological spectrum of ovarian lesions according to WHO classification of 2003.

Histopathological diagnosis	**Nature of tumour**		**Frequency (%)**
surface epithelial tumour type 39(78%)	Serous	Benign	15(30%)
		Borderline	2(4%)
		Malignant	9(18%)
	mucinous	Benign	4(8%)
		Borderline	2(4%)
		malignant	3(6%)
	Endometrioid		2(4%)
	Transitional cell		1(2%)
	Clear cell		1(2%)
sex cord stromal tumour type 2(4%)	granulose-theca cell tumour		1(2%)
	fibroma-thecoma		1(2%)
	Sertoli-leydig cell tumour		-
	Others		-
germ cell tumour type 6(12%)	Teratoma		1(2%)
	Dysgerminoma		1(2%)
	Yolk sac tumour		-
	Mixed germ cell tumour		4(8%)
metastatic non ovarian tumour type			3(6%)
Total			50(100%)

Grade of the differentiation of the ovarian lesions:

Amongst the total 50 cases, 17 (34%) of the cases were moderately differentiated, 23(46%)of the cases were well differentiated and 10(20%) were poorly differentiated.

With respect to the stages in which the tumours occurred,4(8%) of the cases were of stage I, 6(12%) were of stage II, 17(34%) of the cases were of stage III, 12(24%) of the cases were of stage IV and the remaining 11(22%) of the cases were not categorized under stage.

Discussion:

The ovary is one of the most common sites for primary and metastatic tumours and has a wide spectrum of histopathological patterns and clinical symptoms due to its unique complex structure (12).Ovarian lesions should not be taken lightly not only due to because of its large number of histopathological patterns, but mainly because they have a high chance of mortality due to their vague symptoms and the added disadvantage of being diagnosed only at the advanced stages .This study presents the data on 50 cases of histopathologically proven ovarian lesions reported by the Department of Pathology of Saveetha medical college and hospital, Chennai from January 2019 to December 2019.

In the present study maximum number of cases belonged to the age group 31-40 years (30%). This finding was similar to a study conducted at GMERS medical college, Valsad from May, 2011 to December, 2017 where majority of the total 162 cases included were between the age group of 31 and 40 years(13). Similar findings were also seen in studies (14,15). The mean age was seen in this study as 42.82±15.14 (mean ± SD) which is comparable with another study where the mean age was 38.2±71(16).

The majority 45(90%) of the ovarian lesions during the period of this study were unilateral and the remaining 5(10%) of the lesions were bilateral. This finding is comparable with another study were majority 145(89.5%) of the ovarian tumours were unilateral and 10.5% wee bilateral.This finding can also be correlated with the studies (17–19). The lesions were mostly seen to be in the left side of the ovary in about 28 (56%) of the cases which coincides with the findings of another stating left side predominance in 80 cases (49.4%)(13).Benign tumours were most commonly found than malignant tumours especially among middle aged women which are in contrast with the findings of another study which has found the high incidence of benign tumours to be seen generally among all age groups(20).

On the basis of histopathological categorization, surface epithelial tumour type was most encountered in about 39(78%) of the cases followed by germ cell tumours in 6(12%) of the cases. This coincides with the findings of studies (20,21).In this study, 26(52%) serous tumours were recorded of all the ovarian tumours. This figure was 58.7%, 48% and 42.9% in other studies(13,22,23). Mucinous tumours were about 9(18%) of all the ovarian tumours in this current study. This figure was recorded as 18.5%, 30% and 25.5% in other studies(24).Sex cord stromal comprised only of 2(4%) of the cases which is comparable to the 3.8% in the findings of a study in Valsad(13).Metastatic tumours were seen in 3(6%) of the cases which is in contrast with the studies(25,26) where metastatic tumours were not seen in their studies. Amongst the 6(12%) of the cases of germ cell tumours, mixed germ cell tumour seen in 4(8%) of the ovarian tumours were most frequently encountered in contrast to the mature teratoma which was the most common ovarian tumour seen in 16% of all ovarian tumours in another study(13). A maximum number of 17(34%) of the cases were of stage III. This is comparable with the findings of a majority of 75% cases presented in III-IV stages in another study(27).

Conclusion:

In this study it was concluded that most ovarian lesions recorded during the period of this study were benign, unilateral, and most commonly occurred in the age group of 31-40 years. Based on histopathology, surface epithelial tumours were most seen followed by germ cell tumours. Due to the alarming nature of ovarian cancer, proper study of demographic profile and an exact histopathological categorization is vital for accurate diagnosis and management of the ovarian lesions. The observations in this present study can serve as vital baseline information regarding the demographic profile of ovarian lesions in a tertiary care centre.

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