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Original Article

A CLINICOPATHOLOGICAL ANALYTIC STUDY OF OVARIAN TUMOURS OVER A TWO-YEAR PERIOD IN A TEACHING HOSPITAL

KOMAL SAHITHI BARLA[1], VIJAYALAKSHMI CHANDRASEKHAR[1*], VASUNDARA G.[2], B. V. MADHAVI[2]

[1]Department of Obstetrics and Gynecology, GITAM Institute of Medical Sciences and Research, GITAM Deemed to be University, Rushikonda, Visakhapatnam-530045, Andhra Pradesh, India. [2]Department of Pathology, GITAM Institute of Medical Sciences and Research, GITAM Deemed to be University, Rushikonda, Visakhapatnam-530045, Andhra Pradesh, India

[*]Corresponding author: Vijayalakshmi Chandrasekhar; [*]Email: vijayammavisakha55@gmail.com

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ABSTRACT

Objective: The aim of this retrospective study was to analyze the clinical, demographic and pathological aspects of ovarian tumours diagnosed and operated upon over a two-year period.

Methods: A total of sixty women diagnosed with ovarian tumours who underwent an operative procedure formed our study group. All clinical and demographic data were obtained from medical records and the histopathology reports of the tissues removed at surgery were retrieved from the pathology department records.

Results: 36.7% of the women belonged to the age group of 41-50 y and lower abdominal pain was the commonest symptom in 61.7% of the women. 93.10% of the ovarian tumours were found to be benign, 1.7% to be borderline and 5.17% were malignant. Benign surface epithelial tumours constituted 74.13% of the total and, of these the incidence of serous cystadenoma was 44.8% and mucinous cytadenoma 22.41%. Germ cell tumours constituted 13.8% of all the tumours, with mature cystic teratomas being the most prevalent at 12.06%. Serous cystadenocarcinoma accounted for 5.17% of the tumours and borderline serous tumours accounted for 1.72%.

Conclusion: Women presenting with symptoms of an ovarian tumour should undergo a detailed clinical evaluation, investigations, early interventions and histopathology should be an integral component to improve outcomes.

Keywords: Ovarian tumours, Clinical presentation, Histopathology

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INTRODUCTION

Ovarian tumours are responsible for a variety of symptoms and can affect women of all age groups. The ovaries are not clinically accessible; hence simple screening methods for detecting ovarian neoplasms are not available. These neoplasms may involve any of the histological tissues within the ovary, like epithelial tissues, hormone-secreting cells, connective tissues, germ cell and embryonal cells. Benign ovarian tumours may occur at any point in life but they are more frequently found during childbearing age 20 and 45 y, whereas malignant tumours are common in older women between the ages of 45 and 65 y [1]. Ovarian cancer was estimated to be the third most common cancer among Indian women and eighth overall as per the Globocan 2018 Fact sheet, constituting 3.44% of all cancer cases [2]. The estimated age-adjusted incidence varies from 0.9–8.4 per 100,000 women in various population-based cancer registries in India [3]. Diagnosis of ovarian malignancy is often delayed, as women may experience symptoms only after the tumour has grown to a large size. Clinical examination and imaging by USG, CT scan and MRI can help determine location, size and morphology, while CA125 levels may be a useful marker. Definitive diagnosis is, however, based on histopathologic examination. In this retrospective study, we analyzed the clinical presentation, demographic parameters, tumour characteristics and histopathological reports of the ovarian tumors of sixty women who underwent operative procedures for the same.

MATERIALS AND METHODS

Study design, period and place

This retrospective study was conducted from Jan 2021 to Dec 2022 over a period of two years in GIMSR hospital, a teaching hospital under GITAM Institute of Medical Sciences and Research, Rushikonda, Visakhapatnam, Andhra Pradesh

Institutional ethics clearance

Institutional ethical clearance was obtained for the study vide IEC/209/2023 dated 09 Aug 2023 from GITAM Institute of Medical Sciences and Research, Visakhapatnam.

Methodology

A total of 60 women diagnosed with ovarian tumours who were subjected to surgical interventions were included in the study. The details regarding the clinical presentation, USG, CT, MRI findings, CA 125 levels and the operative procedure done were obtained from the medical records of the hospital and tabulated. Only those women who had tumours greater than 6 cm size and who underwent an operative procedure in our hospital were included in the study. Paraovariantumours were excluded. The histopathology reports of the ovarian tumours were collected from the records of the department of pathology. The data obtained was compiled and analyzed.

RESULTS

6.7% of the women were below 20 y of age and 36.7% were in the age group 41-50 y. The youngest was 16 y and the oldest 68 y of age 13.3% were post-menopausal and 10% were nulliparous. The most common presenting symptom was pain in the lower abdomen in 61.7% of the study population table 1.

The size of the tumour was less than 10 cm in 58.3% of cases, 10-19 cm in 25% of the cases and ≥ 20 cm in 16.67% of study cases. The USG measurements and the gross specimen measurements tallied in all cases. 76.7% were right-side tumours and the incidence of bilateral tumors was 6.66% table 2.

Table 1: Demographic parameters of the patients

Demographic parameters	Number n=60	Percentage
Age in years		
<20	4	6.7
21-30	11	18.3
31-40	17	28.3
41-50	22	36.7
>50	6	10
Menopausal status		
Yes	8	13.3
No	52	86.6
Parity		
Nulliparous	6	10
Multiparous	54	90
Symptoms at first presentation		
Pain abdomen	37	61.7
Distension of abdomen	6	10
Mass per abdomen	5	8.33
Menstrual irregularity	9	15
Difficulty in micturition	1	1.7
Post-menopausal bleeding	1	1.7
White discharge	1	1.7

Table 2: Distribution of clinic pathological characteristics of the patients

Characteristic	Number n=60	Percentage
Size of tumour in cm		
<10	35	58.33
10-19	15	25
>/20	10	16.67
Laterality		
Right	46	76.7
Left	10	16.67
Bilateral	4	6.66
CA125		
Normal	32	53.33
Elevated	1	1.67
Not measured	27	45

CA 125 levels were done in 33 cases and were found to be normal in 96.9% cases and mildly elevated in 1.67% of the cases. The levels were not measured in 27 cases. Total abdominal hysterectomy with bilateral salpingo oophorectomy was the commonest operative procedure done in 38.4% cases. Laparotomy with ovarian cystectomy was performed in 28.33% cases and salpingo-oophorectomy was performed in 18.33% cases. Laparoscopic ovarian cystectomy was done in 15% cases table 3.

Table 3: Operative procedure done

Operative procedure	Number n=60	%
TAH with BSO	23	38.34
Laparotomy with ovarian cystectomy	17	28.33
Salpingooophorectomy	11	18.33
Laparoscopic ovarian cystectomy	9	15

Of the 60 women who underwent a surgical procedure, histopathology of 54 specimens showed ovarian pathology. Three cases turned out to be non-ovarian pathology (paraovarian cyst) and three had normal ovarian morphology. Of the 54 cases with ovarian pathology, four had bilateral tumours so that the total number of ovarian tumours subjected to histopathological examination was 58 in all. Out of the 58 tumours, 93.10% were benign, 1.72% was borderline and 5.17% were malignant. All the malignant tumours were diagnosed as serous cystadenocarcinoma and constituted 5.17 % (fig. 1) of all the tumour cases in this study. The incidence of borderline serous tumours was 1.72% fig. 2. Surface epithelial tumors were the most prevalent among the benign tumors, accounting for 74.13% of the total. The incidence of serous cystadenomas was 44.8%, mucinous cystadenomas 22.41% (fig. 3), serous cystadeno fibromas 5.17% and mucinous cystadenoma with a component of benign Brenner's tumor 1.72% (fig. 4). Germ cell tumours constituted 13.8% of the total, of which mature cystic teratomas accounted for 12.06% (table 4).

Table 4: Histopathology of the ovarian tumours

Histological type	Number n= 58	Percentage
Serous cystadenoma	26	44.80
Boderline serous tumour	1	1.72
Serous cystadenofibroma	3	5.17
Serous cystadenocarcinoma	3	5.17
Mucinous cystadenoma	13	22.41
Mucinous cystadenoma with the component of benign Brenner	1	1.72

Histological type	Number n= 58	Percentage
tumour		
Mature cystic teratoma	7	12.06
Immature teratoma high-grade	1	1.72
Non-neoplastic tumours		
Endometriotic cyst	1	1.72
Corpus luteal cyst	2	3.44

The histopathology of the bilateral ovarian tumours in four patients were as shown in table 5.

Table 5: Details of bilateral ovarian tumours

Patient number (N=4)	Type of tumour left side	Type of tumour right side
Patient 1	Mucinous cystadenoma	Cystic teratoma
Patient 2	Serous cystadenoma	Serous cystadenoma
Patient 3	Mature cystic teratoma	Serous cystadenoma
Patient 4	Serous cystadenocarcinoma	Serous cystadenocarcinoma

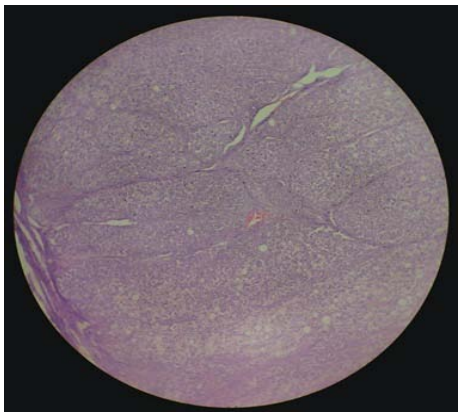

Fig. 1: High-grade serous carcinoma

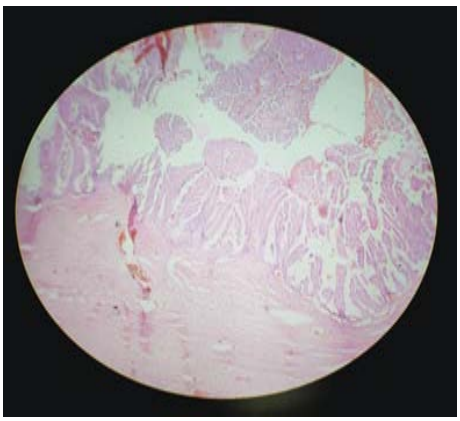

Fig. 2: Borderline serous carcinoma

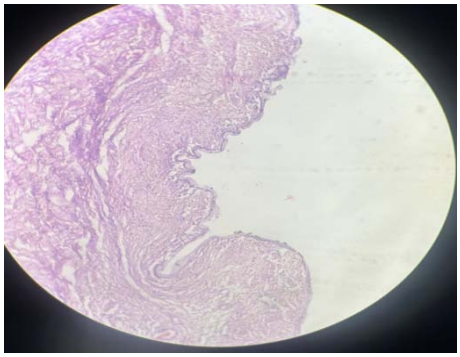

Fig. 3: Mucinous cystadenoma

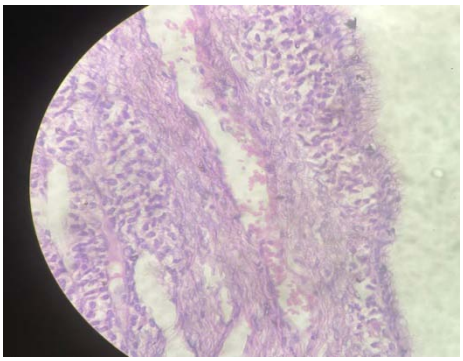

Fig. 4: Mucinous cystadenoma with the component of Brenner' stumour

DISCUSSION

In our study, surface epithelial tumours formed the largest group, 81.03% followed by 13.8% germ cell tumors. Nalini *et al.* in 2007 [4] and Mondal *et al.* in 2011 [5] observed that epithelial tumours were the most frequent, followed by germ cell and sex cord tumours. Swamy *et al.* in 2010 and Sudha *et al.* in 2018 also reported that surface epithelial tumours were the commonest with an incidence of 61.6% and 64.13% in their series [6, 7]. In our study, serous cystic adenoma was the commonest epithelial tumour (44.8%) and mucinous cystadenoma was 22.4%, whereas Jain *et al.* in 2021 reported a higher incidence of serous cystadenoma 61.16% in his series [8]. Mature cystic teratomain 12.06% of the tumours in our study, was the most common germ cell tumour. The commonest malignant tumour in this series was serous cystadenocarcinoma at 5.17%. In a study by Manjusha *et al.* in 2013, [9] serous cystadenocarcinoma was the most common malignant tumour in their series. In a study by Yogambal *et al.* [10], serous cystadenocarcinoma was the commonest malignant tumour with a 9.5% incidence. In a study by Prakash *et al.* [11], serous cystadenoma was the commonest epithelial tumour followed by mucinous cystadenoma. Bilaterality was seen in 6.66% of cases and a similar incidence was also reported by Couta *et al.* in 1993 and Kiranmayi *et al.* in 2017 [12, 13]. Ramachandran *et al.* in 1972, Gupta *et al.* in 1986 and Kapas *et al.* in 1987 reported a higher incidence of bilateral tumours in their studies [14-16].

CONCLUSION

Detailed clinical examination, clinical diagnosis, investigations, early intervention and histopathology should all be an integral part of an evaluation of ovarian tumours. The application of diagnostic algorithms based on patient demographic information, clinical manifestations, laboratory findings, and imaging features will ensure early diagnosis of ovarian neoplasms and improve outcomes.

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Nil

AUTHORS CONTRIBUTIONS

First author Komal Sahithi Barla contributed to Data acquisition and review of literature**.** Corresponding and Second author Vijayalakshmi Chandrasekhar contributed to Bench work, data collection, paper composition, reference work. Third author Vasundara G contributed to retrieval of pathology records and analysis. Fourth author BV Madhavi contributed for Histopathological data retrieval and analysis.

CONFLICT OF INTERESTS

The authors declared No conflict of interest

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