

Original Articles

Occurrence and Histopathological Patterns of Ovarian Tumours in a Tertiary Hospital

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Abstract

Background: Ovarian tumours are common problem in gynaecology and have varied clinical presentation and histopathological appearances.

Objectives: This study was undertaken to find out the occurrence and different histopathological types of the tumours originating from the ovaries.

Methods: A retrospective study was carried out in the Department of Obstetrics and Gynaecology and Department of Pathology, Sir Salimullah Medical College and Mitford Hospital, Dhaka, between May 2010 and December 2014. Five hundred forty seven (547) cases of ovarian tumours were studied in respect to their histopathological appearance.

Results: Out of total gynaecological admission of 5633 patients during the study period, 613 patients admitted with a clinical diagnosis of ovarian tumours: so, the occurrence was 10.9%. Out of 613 patients 547 did histopathology in the department of pathology of our institution. Of the 547 cases, majority were benign (n=379, 69.3%); followed by malignant (n=38, 7%); borderline (n=4, 0.7%); and others (n=126, 23%). Most commonly occurring benign ovarian tumours were serous cystadenoma (115; 30.3%); mature cystic teratoma (76; 20.1%) and mucinous cyst adenoma (66;17.4%). Common malignant tumours were serous cyst adenocarcinoma (21; 55.3%); mucinous cystadenocarcinoma (5; 13.2%) and dysgerminoma(4; 10.5%).

Conclusion: Nine out of ten ovarian tumours were nonmalignant. Epithelial tumours were most common among both benign and malignant ovarian tumours. Overall, most common was serous cyst adenoma in benign group and serous cyst adenocarcinoma in malignant group.

Key word: Ovarian tumour, malignant ovarian tumour, benign ovarian tumour. Histopathology of ovarian tumour, serous cyst adenoma, serous cyst adenocarcinoma

Introduction

Pathological finding of ovarian neoplasm is one of the most complex area of gynaecology because ovary gives rise to a higher range of variety of tumours than does any other organ. Varied histopathological pattern is seen in ovarian tumours reflecting their

diverse cells of origins. Ovarian masses and cysts are very common and about 10% of women have an operation during their life for investigation of an ovarian mass.¹The exact incidence in South Asia is not known but ovarian cancer is one of the common cancers among females and continues to present at

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an advanced stage.² Japan and Asian countries have rates of 2–6.5 new cases per 100,000 women per year³. Ovarian carcinoma represents the sixth most common female cancer and the fourth leading cause of death due to cancers in women and is seen predominantly after 3rd decade.⁴ Ovarian cysts of benign nature may occur at any point in the life but they are most common during childbearing age and constitute about 90% of ovarian tumours.⁵ The most recent Surveillance, Epidemiology and End Results (SEER) calculations of lifetime risk for ovarian cancer are that 1 in 55 women will develop ovarian cancer over their lifetime.⁶

Detection of various histological patterns of ovarian tumours is very important in diagnosis, prognosis as well as treatment of ovarian tumours. Prognosis of the tumours can also be predicted from the degree of differentiation of the tumours. Primary tumours are classified into surface epithelial tumours, germ cell tumours, sex cord stromal tumours, germ cell sex cord stromal tumours, tumours of rete ovarii and miscellaneous tumours of which surface epithelial tumours are most common.⁶ The objectives of this study were to find out the occurrence and histopathological pattern of ovarian tumours in a tertiary hospital of Bangladesh.

Methodology:

This retrospective study included 547 histopathologically proven ovarian tumour cases, during May 2010 and December 2014, admitted to Department of Obstetrics and Gynaecology, Sir Salimullah Medical College and Mitford Hospital

(SSMC&MH), Dhaka. Out of 613 suspected ovarian tumour cases, histopathology was done on 547 (89.2%) cases in the Department of Pathology. The frequency and various histopathological patterns were determined. Patients with pelvic or abdomino-pelvic masses supported by clinical findings and ultrasonogram presenting as primary ovarian masses were included in this study. Tissue for histopathology was sent to the laboratory in formalin solution and was prepared under standard condition for paraffin embedding. The sections were stained with haematoxylin and eosin (H & E). The histological classification of ovarian tumour by WHO was used⁷. Ethical clearance was obtained from the institutional ethical committee. Confidentiality was strictly maintained.

Results:

During the study period a total number of 5633 patients were admitted with different gynaecological problems. Out of these cases 613 diagnosed clinically as ovarian tumours. Therefore, the occurrence of ovarian tumour among gynaecological cases in a tertiary public hospital was 10.9% (table 1).

Total 547 cases of ovarian tumours were studied, as the histopathology of these cases were done in the department of pathology of the same institution. Among these: 379 (69.3%) were benign 38 (6.9%) were malignant, 4 (0.7%) were borderline and 126 (23%) were other kinds of ovarian cysts (hemorrhagic cyst, chocolate cyst and twisted ovary, which were also mostly benign conditions of ovary) (table 2 and figure 1).

Table-I
Distribution of patients with clinical diagnosis of ovarian tumour according to the year of admission (n=613)

Year	Benign (%)	Malignant (%)	Others (%)	Total Ovarian Tumour	Total Gynaecological Admission	Percentage
2010 May-Dec	41	16	15	72	541	13.3
2011	104	22	23	149	1880	7.9
2012	112	30	11	153	1886	8.1
2013	109	18	17	144	1129	12.7
2014	72	12	11	95	897	10.5
Total 5 yrs (%)	438(71)	98(16)	77(13)	613	5633	10.9

Table-II
Distribution of Patients with Ovarian Tumour According to Histopathology (n=547)

Year	Benign		Borderline		Malignant		Others		Total Ovarian Tumour
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	
2010	52	78.8	0	0	5	7.5	9	13.6	66
2011	81	64.3	1	0.7	13	10.3	31	24.6	126
2012	72	72.6	0	0	10	9.8	20	19.6	102
2013	89	77.4	2	1.7	2	1.7	22	19.1	115
2014	85	61.6	1	0.7	1	0.7	44	31.8	138
5 yrs	379	(69.3)	4	(.7)	38	(7)	126	(23)	547

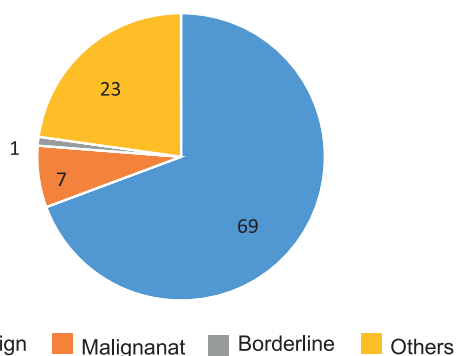


Fig.-1. Histopathological types of Ovarian Tumours, n=547(%)

The frequency of different histopathological type of benign ovarian tumours (n=379) were: serous cyst adenoma (n=115, 30.3%), followed by mature cystic teratoma (n=76, 20.1%), mucinous cyst adenoma (n=66, 17.4%), simple cyst adenoma (n=46, 12.1%), follicular cyst (n=42, 11.1%), corpus luteal cyst (n=25, 6.6%), thecoma (5, 1.3%) and ovarian fibroid (n=4, 1.1%) (Figure 2). The commonest malignant (n=38) tumours were serous cyst adenocarcinoma (n=21, 55.3%), followed by mucinous cyst adenocarcinoma (n=5, 13.2%), dysgerminoma (n=4, 10.5%), endometriod (n=2, 5.3%), and yolk sac tumour (n=2, 5.3%), transitional cell carcinoma (n=2, 5.3%) and poorly differentiated carcinoma (n=1, 2.6%) (Figure 3). Frequency (%) of non-neoplastic ovarian cysts presented clinically as ovarian tumour (n=126) had the following histopathological types: haemorrhagic cyst (n=81, 64.3%), chocolate cyst (n=21, 16.7%), twisted ovarian cyst (n= 16, 12.7%) and chronic salpingo-oophoritis (n=8, 6.3%) (Figure 4). It is to be mentioned that as the twisted ovarian cysts were necrosed and their histopathology remained undetermined, these cases were included in miscellaneous group. Chronic salpingo-oophoritis (commonly known as tubo-ovarian mass) also sometimes presents as ovarian tumours.

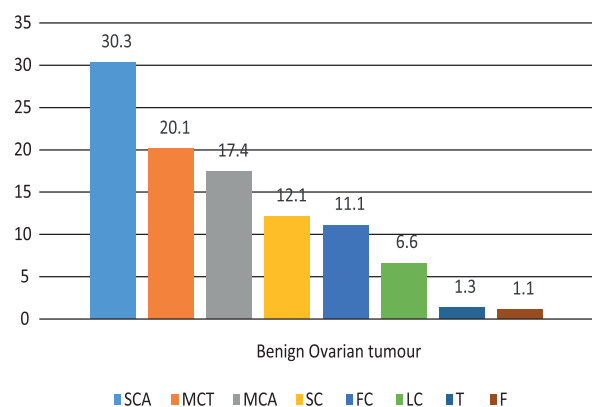


Fig.-2: Frequency (%) of Benign Ovarian Tumors by Histopathological Types (n=379)

SC= Serous cyst adenoma, MCT= Mature cystic teratoma, MC=Mucinous cyst adenoma, SC=Simple cyst, FC= Follicular cyst, CL=Corpus luteal cyst, T=Thecoma, F=Ovarian fibroid

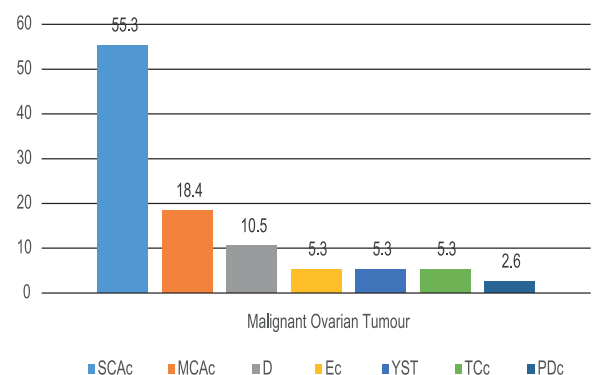


Fig.-3: Frequency (%) of Malignant Ovarian Tumors by Histopathological Types (n=379)

SCAc= Serous cyst adenocarcinoma, MCAc=Mucinous cyst adenocarcinoma, D=Dysgerminoma, Ec=Endometriod Carcinoma, YST=Yolk sac tumour, TCC=Transitional cell carcinoma, PDc=Poorly differentiated carcinoma

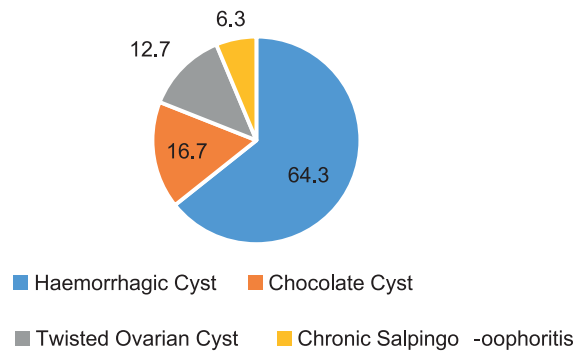


Figure-4. Frequency (%) of Non Neoplastic Ovarian cysts/mass presented clinically as ovarian tumour by Histopathological Types (n=126)

Discussion

In the present study occurrence of ovarian tumour among gynaecological cases in a tertiary public hospital was 10.9%. Which is consistent with the findings that 10% of women have an operation during their life for investigation of an ovarian masses and cysts.¹

In a cross-sectional study on ovarian tumour in a tertiary hospital in India, out of 100 cases, 73% were benign and 27% were malignant. Serous cyst adenoma was the most common ovarian tumor overall and most common benign tumor; whereas serous cyst adenocarcinoma was most common malignancy.⁸

Out of 8691 gynaecology cases seen in the outpatient clinic in Bab Alshaaria University Hospital (Cairo) total numbers of ovarian tumours collected over four years period were 201 cases.⁹ Out of which benign ovarian tumours were 159 (79.1%), malignant ovarian tumours were 40 (19.9%) and border line tumours were 2 (1.0%). The commonest histological patterns observed in the study were epithelial tumours (52.23%) including both benign and malignant epithelial tumours. The frequency of different histopathological types of benign ovarian tumor showed that the commonest tumor was serous cyst adenoma (21.89%) followed by mature cystic teratoma (20.89%). The Commonest malignant ovarian tumours were serous cyst adenocarcinoma (8.95%) and mucinous cyst adenocarcinoma (3.48%). The commonest ovarian tumours were the epithelial tumours. Germ cell tumours were next to epithelial ovarian tumours which were more common in adult and adolescent age group.⁹

In a tertiary medical center in Nigeria in a study on 54 cases of primary ovarian cancer: epithelial ovarian

cancer constituted 68% of cases of ovarian cancer; Sex cord and germ cell tumors constituted 16% each.¹⁰

In a case series on microscopically confirmed cases of ovarian malignancies from 2001-2003 in Tehran University Hospital, there were 152 cases of ovarian cancer: 102 (67.1%) were epithelial type, 26 (17.1%) were germ cell tumors, 14 (9.2%) were sex cord stromal and 10 (6.6%) were metastatic ovarian tumor.¹¹

A total of 7492 gynaecology cases were received at the Department of Pathology, Stanley Medical College, Chennai, India, during the period of January 2009 to December 2013, 402 (5.3%) ovarian tumours were studied. Out of which benign ovarian tumours were 316 (78.6%), malignant ovarian tumours were 83 (20.65%) and border line tumours were 3 (0.75%). The commonest histological patterns observed in the study were epithelial tumours (71.64%) including both benign and malignant epithelial tumours. The frequency of different histopathological types of benign ovarian tumour showed that the commonest tumour was serous cyst adenoma (21.4%) followed by mature cystic teratoma (19.9%). Common malignant ovarian tumours were serous cyst adenocarcinoma (9.5%) and mucinous cyst adenocarcinoma (3.2%).¹²

In a retrospective study over two year period (1986 and 1987) in gynaecological Unit of General Hospital, Kuala Lumpur, 280 cases of Ovarian tumours were studied: of these 193 were benign, 81 were malignant and six cases belonged to borderline malignancy. Epithelial tumours forming 55% of all the ovarian tumours. There were equal distribution of serous and mucinous tumours in both benign (15.5% each) and malignant (4.3% each) types. The second commonest group of ovarian tumours is germ cell tumours constituting 36.8% of all ovarian neoplasms. As a single entity, the benign teratoma (28.6%) form the commonest ovarian tumour in this study.¹³

A cross-sectional study was conducted tertiary care Hospitals in Dhaka from January 2008 to December 2009. Clinically diagnosed and histopathologically confirmed ovarian cancer patients were included. Among 28 malignant tumors cases serous cyst adenocarcinoma (57.1%) was the most common followed by mucinous cyst adenocarcinoma (17.9%), dysgerminoma (7.1%), ovarian choriocarcinoma (3.6%) and endometrioid adenocarcinoma (3.6%).¹⁴

A cross sectional study on 68 cases ovarian tumours was conducted in 2002 at Lady Reading Hospital Peshawar. Out of which benign ovarian tumours were 61 (89.71%) and malignant ovarian tumours were 7 (10.29%). Commonest histological pattern observed in the study was epithelial tumours (76.5%) including both benign and malignant tumours. The commonest benign tumour was serous cyst adenoma (24%) followed by mature cystic teratoma (18%). Common malignant ovarian tumours were granulosa cell tumours and Endometriod carcinoma (each 28.5%).¹⁵

Above discussion shows that histopathological types of ovarian tumours in different Asian and African countries are consistent with the results of the present study.

Conclusion

Benign ovarian tumours are more common than malignant, and epithelial tumours was most common among both benign and malignant. Overall, most common was serous cyst adenoma in benign and serious cyst adenocarcinoma in malignant group.

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