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ORIGINAL ARTICLE

Histological Variants of Ovarian Tumour in Bangladeshi Women

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ABSTRACT

Objective: Types of ovarian tumour are widely divergent and no age group is immune from ovarian tumour; but certain ages are more vulnerable to develop certain types of tumours. By far, very few studies describing the histological types and subtypes of ovarian tumour in the context of Bangladeshi population have been conducted. The present study was intended to find the histological variants of ovarian tumours in our women.

Methods: The present study was carried out in Dhaka Medical College Hospital between July 2001 to June 2002. The total number of patients admitted with a clinical diagnosis of ovarian tumour during the study period was 238, while the total number of gynaecological admissions was 3189. In the present study every alternate patients of ovarian tumour who consented to participate in the study were included as long as 110 cases were met. After admission, history and clinical presentation were recorded and every case was followed till discharge. Provisional diagnosis was made clinically and by ultrasound when 14 cases were excluded for they did not have ovarian tumour at all. The remaining 96 cases were operated and were confirmed by operative and histopathological findings.

Results: In the present study proportion of ovarian tumours was 6.52% of all gynecological admissions. The mean age of the patients was found to be 39.5 ± 6.3 years. The peak age incidence of benign ovarian tumors was found to lie between 21-50 years. Malignant ovarian tumors, however was found more commonly after the age of 50 years. After histopathological confirmation of the precise nature of the 96 ovarian tumors, it was found that benign tumour comprised 77% of the cases with malignant tumors occurring in the rest 23%. Among them tumours of epithelial origin formed 70.8% of all ovarian tumors, germ cell tumors 25% and sex-cord stromal tumours made up 4.2%. Among the epithelial tumors, serous tumors were most frequently seen (61.7%), followed by mucinous tumors (35.3%). The percentage of benign serous cystadenomas was 35.5%. The ratio between serous and mucinous cystadenocarcinoma was almost 2:1. Germ cell tumour found in this study was of moderate frequency (25%). Among them 15.6% were mature teratoma (dermoid cyst) followed by 5.2% dysgerminoma. Endodermal sinus tumors were relatively low (3.1%) and there was a case of immature or malignant teratoma. Sex-cord-stromal tumours were of lowest frequency (4.2%) and classified as ovarian fibroma, granulosa-cell tumor and Krukenberg tumour.

Conclusion: The study concluded that benign tumour comprised three-quarters of all ovarian tumours with the rest being malignant. Tumours of epithelial origin forms the main bulk, germ cell tumors about one-quarter and sex-cord stromal and metastatic tumors the least. Among the epithelial tumors, serous tumors were most frequently seen, followed by mucinous tumors.

Key words: Ovarian tumours, variants of ovarian tumours, Bangladeshi women.

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INTRODUCTION

Ovarian tumours occur at all ages but certain ages are more vulnerable to certain type of tumours. Dermoid can occur at any ages, but 90% occur in women of reproductive age, so that they are the commonest ovarian cysts to be found in pregnancy. Germ cell tumours are found mostly in the 3rd and 4th decades of life. Ovarian neoplasms found in childhood are usually malignant or locally malignant. Otherwise the risk of malignancy is roughly proportional to age ranges (20% before menopause and 50-60% afterwards).[1] The influence of hormones on the incidence of ovarian cancer has been studied.[2] They pointed out that ovarian cancer is less common in women of high parity and that pregnancy would seem to be protective whether ending in an abortion or at term. La Vecchia et al[2] have shown that an early age of first pregnancy confers a greater protection against ovarian cancer than does high parity. Breast-feeding can also be protective. An early menarche and a late menopause are associated with an increased risk. Newhouse et al[3] first described the protective effect of oral contraception and they believe that the longer the pill is used, the less the likelihood of subsequent ovarian cancer.

Ovarian tumours become an abdominal structure when it enlarges and displaces the intestines above and to the side. The uterus usually lies below and behind its lower pole. On abdominal examination an ovarian tumour is therefore always dull on percussion with areas of resonance in the flanks.[1] This simple and obvious sign allows a clear distinction between an ovarian cyst and ascites in nearly all cases.

Types of ovarian tumour are widely divergent and all age groups are at risk of developing the condition; but certain ages are more vulnerable to develop certain types of tumours. By far, very few studies describing the histological types and subtypes of ovarian tumour in the context of Bangladeshi population have been conducted. The present study is, therefore, intended to find the histological variants of ovarian tumours in our women.

MATERIALS AND METHODS

The present study was carried out in Dhaka Medical College Hospital over a period of one year between July 2001 to June 2002. The total number of patients admitted for ovarian tumour during the study period was 238, while the total number of gynaecological admissions was 3189. The required sample size was determined to be 98. In the present study every alternate patients of ovarian tumour who consented to participate in the study were included as long as 110 cases were met. After admission history and clinical presentation were recorded and every case was followed till discharge. Provisional diagnosis was made clinically and by ultrasound when 14 cases were excluded for they did not have ovarian tumour at all. The remaining 96 cases were operated and were confirmed by operative findings and histopathological report. Statistical analysis was done using descriptive statistics like frequency with corresponding percentage and mean, standard deviation and range.

RESULTS

Age distribution of the patients shows that nearly two-thirds (65.7%) of the patients were in their 2nd and 4th decades of life with mean age being 39.5 years. Majority of the patients was married (89.6%) and multiparous (86.1%). Over one-third (36.7%) was poor, 57.3% were middle class and only 6.2% rich. Five patients had family history of ovarian tumour; of them 1 had family history of malignant ovarian tumour (Table I). Majority (84.4%) of the patients was in the reproductive years of life. Some 12.5% were postmenopausal and a few were premenstrual (3.1%). Most menstruating women had regular cycle (88.9%) with average menstrual flow (92.6%). More than half (54.2%) of the patients never used any contraceptive methods, 31.2% used oral contraceptive and the rest (14.6%) had experience of using barrier method (6.3%), injectable method (4.2%), IUCD (3.1%) etc.(Table II).

The predominant complaint was abdominal lump (84.4%) followed by vague abdominal discomfort (65.6%), abdominal distension (45.8%), loss of weight (28.1%), increased urinary frequency (23.9%), sudden severe abdominal pain with nausea, vomiting and pyrexia (18.7%) and so on. Abdominal lump was the predominant sign

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(84.4%). Anaemia was present in more than 90% cases with mild, moderate and severe anaemia being 35.4, 41.7 & 13.5% respectively. Tenderness over the lump and ascites was observed in 26 and 16.7% cases respectively (Table III).

TABLE I. Distribution of patients by their demographic characteristics (n = 96)

Demographic characteristics	Frequency	Percentage
Age (years)		
≤ 20	12	12.5
21-50	63	65.7
>50	21	21.8
Marital status		
Unmarried	10	10.4
Married	86	89.6
Parity		
Nulliparous	12	13.9
Multiparous	74	86.1
Socioeconomic status		
Poor	35	36.5
Middle	55	57.3
Rich	6	6.2
Family history		
No family history	91	94.8
Family history of benign ovarian tumour	4	4.1
Family history of malignant ovarian tumour	1	1.1

*__Mean age__ = 39.5 ± 6.3 years.

TABLE II. Distribution of patients by their menstrual pattern & contraceptive behaviour

Menstrual pattern & complications	Frequency	Percentage
Menstrual status (n = 96)		
Premenstrual	3	3.1
Reproductive age (menstruating)	81	84.4
Postmenopausal	12	12.5
Menstrual cycle (n = 81)		
Regular cycle	72	88.9
Irregular cycle	9	11.1
Menstrual flow (n = 81)		
Average flow	75	92.6
Heavy flow	1	1.2
Scanty flow	5	6.2
Use of contraceptives (n = 96)		
Never used any method	52	54.2
Oral pill	30	31.2
Injectable	4	4.2
IUCD	3	3.1
Barrier method	6	6.3
Sterilization	1	1.0

80% patients had unilateral ovarian tumour and 77% of the tumours were cystic in consistency. Metastatic deposit was found in 14.5% cases (Table IV).

TABLE III. Distribution of patients by their clinical presentation (n = 96)

Clinical presentation	Frequency	Percentage
Symptoms of patients		
Abdominal lump	81	84.4
Vague abdominal discomfort	63	65.6
Abdominal fullness/distension	44	45.8
Loss of body weight	27	28.1
Increased urinary frequency	23	23.9
Features of dyspepsia (loss of appetite/flatulence)	19	19.8
Sudden severe abdominal pain with nausea, vomiting, pyrexia	18	18.7
Urinary retention	8	8.3
Difficulty in defecation	3	3.1
Abnormal vaginal bleeding	10	10.4
Respiratory distress	11	11.5
Physical signs		
Abdominal lump	81	84.4
Anaemia		
Absent	9	9.4
Mild	34	35.4
Moderate	40	41.7
Severe	13	13.5
Tenderness	25	26.0
Ascites	16	16.7

TABLE IV. Distribution of patients by their USG findings (n = 96)

USG findings	Frequency	Percentage
Involvement		
Unilateral	77	80.2
Bilateral	19	19.8
Consistency		
Solid	8	8.3
Cystic	74	77.2
Partly solid, partly cystic/complex	14	14.5
Ascites	19	19.7
Metastatic deposits	14	14.5

Laparotomy findings confirmed that 79.2% of the tumours were unilateral (43.7% right-sided and 35.4% left-sided). Nearly 80% of the tumours were free from adhesion to the surrounding structures and the rest exhibited adhesion to gut, omentum, bladder or exhibited extensive adhesion to whole abdominal structures. Peritoneal fluid was absent in

79.2% cases. Clear fluid was present in 14.6 and haemorrhagic in 6.2% cases.

TABLE V. Distribution of patients by their laparotomy findings (n=96)

Laparotomy findings	Frequency	Percentage
Involvement		
Bilateral	20	20.8
Right sided	42	43.7
Left sided	34	35.4
Adhesion to surrounding structures		
No adhesions	76	79.2
Omentum	14	14.5
Gut	02	2.1
Extensive to whole abdomen	04	4.2
Peritoneal fluid/Ascites		
Absent	76	79.2
Clear fluid	14	14.6
Haemorrhagic fluid	06	6.2
Intraperitoneal metastatic deposits		
Present	09	9.4
Absent	87	90.6

TABLE VI. Distribution of patients by their histopathological variety (n = 96)

Histopathological variety	Frequency	Percentage
Surface epithelial tumours	**68**	**70.8**
Serous cystadenoma	34	35.5
Mucinous cystadenoma	21	21.8
Serous papillary cystadenocarcinoma	07	7.3
Mucinous cystadenocarcinoma	03	3.1
Serous papillary cystadenoma (borderline)	01	1.1
Clear cell (mesonephroid) carcinoma	01	1.1
Poorly differentiated adenocarcinoma	01	1.1
Germ cell tumours	**24**	**25.0**
Dermoid cyst	15	15.6
Dysgerminoma	05	5.2
Endodermal sinus tumour	03	3.1
Immature malignant teratoma	01	1.1
Sex cord-stromal tumours	**04**	**4.2**
Ovarian fibroma	02	2.1
Granulosa cell tumour	01	1.1
Secondary (Krukenberg) tumours	01	1.1

Intraperitoneal metastatic deposite was evident in 9.4% cases (Table V). Histopathological examination shows surface epithelial tumours to form the main bulk (70.8%) followed by germ-cell tumour (25%) and sex-cord tumours (4.2%). The subtypes of these three varieties are illustrated in Table VI. Among the subtypes serous cystadenoma, mucinous cystademona were predominant in surface epithelial tumours and dermoid cyst in germ cell tumous.

DISCUSSION

Most tumours of ovary can be placed into one of three categories–surface epithelial, stromal tumours, sex cord-stromal tumours and germ cell tumours according to the anatomic structures from which the tumours presumably originate. Each category includes a number of subtypes. Combinations of different subtypes within a single tumour are found with some frequency. Tumours that combine two or more subtypes are designated as mixed, with contributing subtypes specified in the designation. By convention, for classification purposes, tumour subtypes making up < 10% of the total tumour mass are ignored.[4] Quite often, non-neoplastic ovarian enlargement is initially labeled as ovarian tumour. Follicular cyst is the commonest of all non-neoplastic enlargement of ovary. In the present study proportion of ovarian tumours was 6.52% of all gynecological admissions. Ovarian tumors may occur in all ages. In the present study the mean age of the patients was found to be 39.5 years which is quite consistent with Malkasian et al[5] who in a similar study of 612 cases found a mean age of 42.6 years. According to Novak et al[6] the peak age incidence of ovarian tumor lies between 31 to 40 years with mean age of onset being 36 years which also compares well with the findings of the present study, where as peak age incidence of benign ovarian tumors was found between 21 to 50 years. Malignant ovarian tumors, however was found more commonly after the age of 50 years. Hormone producing tumors are seen at the extremes of life.

It is quite well-known that high parity is considered to be a protective factor against the growth of ovarian tumor.[7] Pregnancies irrespective of whether continued till term or aborted offer substantial protection. To address this point a control group of patients is needed. No tenable argument can be made with a descriptive study

like this one which included only cases. Ovarian tumours usually do not affect menstruation (unless they are hormone producing) as was evident with menstrual profile of the present study cases (89% of women had regular menstrual cycle with 92.6% having average menstrual flow). The reason is that even for a large ovarian tumour and even when both ovaries are involved, there remains some healthy compressed ovarian tissue to secrete hormones to maintain menstruation regularly. Nevertheless 30 percent of postmenopausal women suffering from ovarian tumour experience abnormal uterine bleeding.[1]

According to some authority surface epithelial tumors comprise 70-80%, germ cell tumors 15%, sex cord-stromal tumors 10% and tumors of metastatic origin 5% of all ovarian tumors.[1] Serous and mucinous cystadenocarcinoma are the most common varieties of invasive epithelial ovarian cancers encountered, constituting about 90% of the malignant tumors of ovary.[4] The ratio of serous to mucinous cystadenocarcinoma varies between 4:1 and 10:1 in different parts of the world.[1] The incidence of serous tumors as a whole is quoted to be around 30% of all ovarian tumours, with mucinous tumor accounting for 20% and mature teratomas for 10-15%.[1] In this study, after histopathological confirmation of the precise nature of the 96 ovarian tumors, it was found that benign tumour comprised 77% of the cases with malignant tumors occurring in the rest 23%. Among them tumours of epithelial origin constituted 70.8% of all ovarian tumors, germ cell tumors 25% and sex-cord stromal tumours made up 4.2% each.

Among the epithelial tumors serous tumors were most frequently seen (61.7%) (42 out of 68 epithelial tumors), followed by mucinous tumors (35.3%) (24 out of 68 of epithelial tumors). Only a single case of each of clear cell (mesonephroid) tumor and poorly differentiated carcinoma was seen. The proportion of benign serous cystadenomas (35.5%) was quite similar to that of a previous study (40%).[8] The ratio between serous and mucinous cystadenocarcinoma was almost 2:1, which is close to that found in a recent study (2:1).[8]

Germ cell tumour found in the present study was of moderate frequency (25%). Among them 15.6% were mature teratoma (dermoid cyst) followed by 5.2% dysgerminoma. Endodermal sinus tumors were found with relatively low frequency (3.1%) and there was a case of immature or malignant teratoma. Sex-cord-stromal tumours were of lowest frequency (4.2%) which was classified as ovarian fibroma (2.1%), granulosa-cell tumor (1.1%) and Krukenberg tumour (1.1%). A somewhat higher prevalence was found for Krukenberg's tumor (4%) in a previous study.[8]

CONCLUSION

The study concluded that benign tumour comprised three-quarters of all ovarian tumours with the rest being malignat. Tumours of epithelial origin constituted more than seventy percent, germ cell tumors 26% and sex-cord stromal and metastatic tumors the least. Among the epithelial tumors, serous tumors were most frequently seen, followed by mucinous tumors.

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