A COMPARATIVE ANALYSIS OF FREQUENCY AND PATTERNS OF OVARIAN TUMOURS AT A TERTIARY CARE HOSPITAL BETWEEN TWO DIFFERENT STUDY PERIODS (2002-2009)

Irum Sohail[1], Zartaj Hayat[2], Sami Saeed[3]

ABSTRACT

Objective: This study was conducted to investigate the frequency and type of ovarian tumors amongst patients who underwent surgery for ovarian cyst diagnosed on ultrasound and also to compare a change in pattern of type of tumors between 2002 and 2009.

Study Design: Comparative,Observational study.

Setting & Duration: This study was carried out in the department of obstetrics and gynaecology Foundation University Medical College, Fauji Foundation hospital Rawalpindi that is a tertiary care hospital, from 1st June 2002 to 31st May 2003 (Study period 1, n=90) and from 1st November 2008 to 31st October 2009 (Study period 2, n=93). All the patients who had ovarian cysts larger than five centimetres in size diagnosed on ultrasonography and planned for surgery were included in the study. All the relevant details were entered in proformas. Histopathology of excision biopsies was analysed.

Results: The overall incidence of ovarian tumors was 7.1% and 5.4% with a rate of malignancy 18% and 5.4% in period 1 and 2 respectively which was statistically non significant (p>0.05). The most common malignant tumour was serous cyst adenocarcinoma during both study periods. The most common benign tumor was simple follicular cyst 25% during study period one and serous cyst adenoma 23% during period 2.

Conclusion: The frequency and patterns of ovarian tumors has remained unchanged between 2002 and 2009.

Key Words: Ovarian cysts, ovarian tumors, benign, malignant.

INTRODUCTION

Ovarian carcinoma is the sixth commonest female cancers and the fourth leading cause of death due to cancers in women[1]. In Pakistan the exact incidence is not known but it ranks fourth commonest cancer among females of Pakistan and is notorious to present at an advanced stage[2].Asian countries and Japan have rates of 2-6.5 new cases per 100,000 women per year[3].

Benign ovarian cysts are the commonest constituting about 90% of ovarian tumors. The rest are of coelomic epithelial origin while germ cell and sex cord stromal tumors are much less frequent. Whatever the origin, ovarian tumors are generally difficult to detect until they are of advanced stage or are large in size. This is primarily due to the reason that either the symptoms are vague or most of these are asymptomatic therefore they manifest over a time period due to no definite screening program.

It is very important to determine the histological pattern of ovarian tumors because the prognosis depends upon the degree of differentiation. Similarly the stage and the laterality of tumors are important in categorizing them in malignant tumors.

[1] Department of Obstetrics and Gynaecology, Al-Nafees Medical College Islamabad - Pakistan

[2-3] Department of Obstetrics and Gynaecology and Pathology, Foundation University Medical College, Fauji Foundation Hospital Rawalpindi - Pakistan

Address for Correspondence:
Dr. Irum Sohail
Professor and Head,
Department of Obstetrics and Gynaecology,
Al-Nafees Medical College Islamabad-Pakistan
E-mail: sohail_irum@yahoo.com

In this study we have tried to find out the frequency of malignant ovarian tumors amongst the patients reporting with ovarian cysts more than five centimeters (cm) over a span of two different years. We selected two different periods as to see if there was a change in the pattern or type of ovarian malignancy in patients reporting to us.

METHODOLOGY

This study was conducted from 1st June 2002 to 31st May 2003 (study period 1) and from 1st November 2008 to 31st October 2009 in (study period 2). We recruited all the patients who reported to the gynaecology outpatient department (OPD) of Fauji Foundation Hospital (FFH) Rawalpindi with an ovarian cyst larger than five cm diagnosed on ultrasonography. The patients who didn't undergo surgery or were treated conservatively were excluded from the study. In addition the patients whose histopathology reports were lost were also excluded from study. The study was approved by the ethical committee of the hospital and the patients who agreed to participate were asked to sign a consent form. The data including a detailed history, clinical examination, ultrasonography findings and histopathology report of excision biopsies (after surgery) was entered into proformas for further statistical analysis using SPSS version 15. Fischer exact test was applied for statistical analysis.

RESULTS

After fulfilling the exclusion criteria, we were left with 90 patients out of total of 1267 gynecological admissions in study period 1 while in the study period two we had 93 patients out of total of 1711 admissions. In period 1 frequency of ovarian tumors was 7.1% and was reduced to 5.4% in period 2. The benign tumors were seen in 78.8 % and malignant in 18.8 % of the patients while 2.2% had borderline tumors in period 1. In comparison in period 2, 70.9 % of tumors were benign while 27.9 % were malignant and 1.07% had borderline tumors (Figure I). (When we applied the Fischer exact test and analyzed there was no statistical significant difference in reporting of the ovarian tumors in two study periods as p-value was 0.371). A total of three (1.6%) borderline cases were seen, two in the period 1 while only one case reported in the period 2 (Table 1). When we see the whole group of the patients most of the women with benign and malignant ovarian tumors (42% and 14%) respectively were in the age group of 40+. Similarly three (1.6%) patients of borderline category also belonged to this age group (Table 2). When the two years were compared for the frequency of malignancy according to age group maximum number of patients belonged to > 40 year age group (mean age in year I is 55.08 years and in year II is 52.79 years) and frequency was 76% and 53.8% respectively for each study period.

When the relationship of parity with the ovarian tumors was analyzed, it was observed that benign tumors were maximum (37%) in the group having 3-5 children while malignant tumors were common in group having two or less children (8.7%) & borderline tumors were only observed in the group having 3-5 children (Table 3).

Table 1: Comparison of frequency of ovarian tumors in year 1 and 2. (n=183)

Category	Period 1	Period 2	Total
Benign	71 (78.8%)	66 (70.9%)	137 (74.8%)
Borderline	2 (2.2%)	1 (1.07%)	3 (1.6%)
Malignant	17 (18.8%)	26 (27.9%)	43 (23.4%)
Total	90	93	183

Fischer Exact= 0.371

Table 2: Distribution according to age groups (n=183)

Age group	Benign	Borderline	Malignant	Total
< 20	18	0	5	23(12.5%)
20-40	42	0	11	53(29%)
>40	77	3	27	107(58.4%)
Total	137(75%)	3(1.6)	43(23.4%)	183

Table 3: Distribution according to Parity (n=183)

Parity	Benign	Borderline	Malignant	Total
0-2	48 (35%)	0	16 (37%)	64 (35%)
3-5	50 (37%)	3 (100%)	14 (33%)	67 (37%)
6+	39 (28%)	0	13 (30%)	52 (28%)
Total	137 (100%)	3 (100%)	43 (100%)	183 (100%)

The analysis of individual type of ovarian cyst was also done. It was observed that most common benign tumor in period 1 was simple follicular cysts 25% (23) followed by serous cyst adenoma 15% (14) and mucinous cyst adenoma 13% (12). In period 2 commonest benign tumor was serous cyst adenoma 23% (22) followed by corpus luteal cyst and benign cystic teratoma in 10% each.

In period1 the commonest malignant tumor was serous cyst adenocarcinoma 5.5% (5) followed by mucinous cyst adenocarcinoma, granulosa cell tumor, endometriod carcinoma and Sertoli Leydig cell 2% (2) each. In period 2, serous cyst adenocarcinoma was again the commonest 7.6% (8) followed by endometriod carcinoma 6% (6) and dysgerminoma 5% (5).

DISCUSSION

Our hospital is a tertiary care hospital where patients are referred from the adjoining and far flung areas. As it is a free hospital for ex-armed forces personnel, a variety of gynae-cological diseases including malignancies is frequently seen. We had done this study over a period of two separate years to see any difference in frequency of ovarian tumors or their patterns.

The frequency of ovarian tumors in study period 1 was 7.1% while during study period 2 it was 5.4%. This was quite high when compared with study done in Peshawar where it was 1.2%[4].The frequency was 16.7% in a teaching hospital in Nepal[5]. Amongst these tumors 78% were benign and 18% were malignant in period 1 while in period 2, 70% were benign and 27% were malignant. These figures were quite similar to the data from the West[6]. When compared with local data the frequency of benign ovarian cysts was 78%[7], 59%[8] and 89.7%[4]. Similarly the frequency of malignant ovarian tumors was 22%[7], 40%[8] and 10%[4] respectively. The data from South East Asia[5]shows that 90.5% of ovarian cysts were benign while 9.5% were malignant. Another study conducted in Nepal showed a malignancy rate of 16%[9]. A study carried out by Phillip et al[10] had approximately similar results.

We had most of our patients belonging to > 40 year age group (with 53.89 years as combined mean age of both years). This matches with the study done in Japan that showed mean age of group having benign ovarian cyst as 58 years while for malignant it is 61 years. Peak incidence of ovarian tumors is between 21 to 40 years[10]. However malignant cases are mostly seen in elderly[11]. In our study too, the malignant tumors were seen in elderly thus making these women prone to malignancy.

Repeated stimulation of the ovarian epithelium has been suspected to be a predisposing factor for malignant transformation[12]. Thus increased parity will have a protective effect on the development of ovarian tumors. This was evident in our study too, as women having parity of 0-2 had maximum number of malignant tumors. Benign tumors were common in women who had parity of 3-5.This is in contrast to a local study that showed that an increased parity in our country was not protective for ovarian malignancy[13]. In a regional study S Kayastha et al also had 58.9% of the ovarian tumors belonging to the low parity women[5].

Among histological typing of tumors in our study, the most common benign tumors were follicular cysts 25% followed by serous cyst adenoma 15% and mucinous cyst adenoma 13%. These findings are similar to study done by Tayyiba et al in Lahore in 2009 where follicular and luteal cysts were 32% followed by serous cyst adenoma in 23% of cases[14]. In study period 2 again serous cyst adenoma was the commonest tumor in 23% of cases followed by luteal cysts and benign cystic teratoma in 10% each. The study done in India[15]also showed similar frequency as follicular and luteal cysts being 80% followed by surface epithelial tumors 48.8% and germ cell tumors 23.9%. The frequency of different ovarian tumors in Peshawar[4] was also same where epithelial tumors were followed by germ cell tumors.

The overall malignant pattern showed that most common tumor in our study was serous cyst adenocarcinoma in 8.6% of cases followed by endometriod carcinoma in 6% and dysgerminoma

in 5%. This is the same as in a study done in Rawalpindi in 2004[16] that showed serous cysta-denocarcinoma as the commonest, being 46.7% while endometriod carcinoma was seen in 4.7% of cases and dysgerminoma in 6.06%. Similarly the pattern of malignancy by Gill et al has shown serous cyst adenocarcinoma being the commonest 33% of all malignant ovarian tumors[8]. If we see the African studies then in Nigeria the commonest malignant tumor was Granulosa cell tumor 20%[17], while in our study two women each in both years had it. The study in Peshawar showed granulosa cell tumor as the commonest 28%[4]. Studies done in Nepal[9] from 2004-2006 showed serous adenocarcinoma as the commonest tumor 46.2%.

If we compare our data to that in USA[6] serous cystadenocarcinoma was the commonest tumor 43% while endometriod adenocarcinoma was seen in 11.1% of cases. Similarly study done in Japan[18] also showed serous cystadenocarcinoma as the commonest 48% while mucinous adenocarcinoma was the second commonest 21% and endometriod was 8.2%.

Regarding the borderline ovarian tumors, three (1.6%) of our patients fall in this category, two in year 1 and one patient in year 2. All three were more than 40 years old and parity group was 3-5. In general, patients with borderline ovarian are younger than those with invasive carcinoma and the risk decreases with increasing parity[19]. None of our patients who were in para group 6 or more had borderline ovarian tumors. Genardy reviewed 154 patients and peak age was during reproductive years[20]. In a study by Chamber et al, the mean age was 40.4 years[21]. Borderline ovarian tumors constitute 10-15% of epithelial ovarian tumors; more than 96% of which are either of serous or mucinous origin[22]. Regarding the histologic subtypes in our study, out of three, two were borderline mucinous and one was borderline serous.

Overall the pattern of histological types of ovarian tumors is almost the same in our study as in all the other studies done worldwide reporting epithelial tumors being the commonest. However in our study the frequency of ovarian malignancy has not increased between years 2002-2009. Similarly the type of ovarian tumors has also remained the same.

CONCLUSION

In study period 1 and 2, the frequency of ovarian tumors was 7.1% and 5.4% respectively amongst all gynecological admissions. The malignancy was reported in 18% and 27% of the cases who had ovarian cyst larger then 5 cm. However the frequency of ovarian tumors did not differ in these two study periods. Similarly the pattern of types of ovarian tumors was almost the same in these patients.

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None Declared

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CONTRIBUTORS

IS conceived the idea and planned the study. ZH & SS did the data collection and analyzed the study. All the authors contributed significantly to the research that resulted in the submitted manuscript.