The Pattern of Ovarian Masses

F ZAHRA
Department of Obstetric and Gynaecology, Federal Government Services Hospital, Islamabad
Correspondence to Dr. Fatima Zahra

Objective: To find out the frequency of different types of ovarian masses and study their different characteristics. **Setting:** Obstetric and Gynaecology Department, Federal Government Services Hospital (FGSH), Islamabad. **Duration:** 1st January 2004 to 31st December 2005 (2 years) **Sample size:** 100 patients with ovarian masses. **Sampling technique**: non-probability convenience. **Study design:** Descriptive Study. **Data collection:** Patients presenting with an ovarian mass from January 1, 2004 to December 31, 2005 according to inclusion criteria underwent laparotomy after taking informed consent. The histopathology of 100 patients were of an ovarian tumour. **Data analysis:** Results were analyzed by SPSS version 10.0. **Results:** An overall number of 100 patients were seen with an ovarian mass at FGSH, Islamabad in the years 2004 and 2005. Benign masses were 78% and 22% were malignant. The histological types of ovarian tumours were Epithelial tumours 66(66%),Physiological Cysts 16(16%), Germ Cell Tumours 13(13%), Endometriotic Cysts 3(3%), Sex Cord Stromal Tumours 1(1%), Metastatic Tumours1(1%).Patients ranged from 10 to 80 years with maximum number of patients in the reproductive age. Maximum number of patients presented with the complaint of abdominal pain. Parity distribution was nullipara 37(37%) and multipara 63(63%). **Conclusion:** There is a 22% risk of malignancy in patients presenting with an ovarian mass. All patients of any age especially women in the reproductive age presenting with abdominal pain should be carefully evaluated for an ovarian tumour.

Key words: Ovarian tumour, ovarian carcinoma, ovarian mass, ovarian neoplasm and ovarian malignancy.

The ovarian surface is covered by a flattened monolayer of epithelial cells and beneath this are the ovarian follicles, with oocyte, granulosa layer and surrounding theca. Beneath this cortical layer is a stromal medulla[1]. Due to the complex embryological and histogenetic development, the ovaries are the source of great variety of tumours[2].

Ovarian tumours may be physiological or pathological and may arise from any tissue of the ovary[3]. Pathological tumours are further classified into benign or malignant. Most benign ovarian tumours are cystic and finding solid elements makes malignancy more likely. The incidence of ovarian tumours is increasing and diagnosis is often made late[4].

Benign ovarian cysts are common, frequently asymptomatic and often resolve spontaneously. 90% of all ovarian tumours are benign, although this varies with age. Ovarian tumours are classified as physiological cysts, epithelial tumours, germ cell tumours and sex cord stromal tumours[5].

Ovarian neoplasms present asymptomatically or with pain, abdominal swelling, pressure effects, menstrual disturbances, hormonal effects or an abnormal cervical smear[6]. The relative frequency of malignant ovarian tumours of all gynecological malignancies was found to be 24.01%[7]. Carcinoma of ovary is common in developed areas such as Europe and USA. It is the fourth most common site of carcinoma in women[8]. Despite the increases in our understanding of the molecular events underlying malignancy, improved surgical techniques and novel chemotherapeutic agents, ovarian cancer remains a challenging condition to manage and survival rates have hardly improved over the last three decades[9]. Most Ovarian tumours are epithelial in origin. These are rare before the age of 35 years but the incidence increases with age to a peak in the 50-70 years age group. Most epithelial tumours are advanced at diagnosis. Eventually 75-80% of women with ovarian cancer will die from their disease[8]. Epithelial tumours are most frequently associated with nulliparity, an early menarche, a late age at menopause and a long estimated number of years of ovulation, ovarian dysgenesis, use of fertility drugs, Certain environmental factors like exposure to asbestos, Cigarette smoking, talc and high fat intake[2,10].

Cancer of the female genital tract constitutes a significant number of cancers seen in women in Pakistan. Ovarian carcinoma is the second most common gynaecologic malignancy and is responsible for more deaths than endometrial and cervical carcinoma combined. Over the last two decades advances in epidemiology, diagnostic techniques, screening and treatment have led to earlier diagnosis and improved treatment[11].

Benign ovarian neoplasms have the capacity to undergo malignant change and are difficult to diagnose in early stages. Although rarely life threatening, they can cause patients considerable physical and psychological distress.

In view of the high morbidity and mortality associated with ovarian tumours, I have carried out this study to find out the frequencies of different types of ovarian masses and their different characteristics including age distribution, presenting complaints and parity distribution in the patients we come across.

Patients and methods

This was a descriptive study conducted from January 2004 to December 2005 (2 years) at Federal Government Services Hospital, Islamabad. The inclusion criteria for this study was patients having asymptomatic echo-free

ovarian cysts more than 7.9 cm in diameter, Asymptomatic ovarian cysts of any size that are not echo-free are multilocular or have septa, solid parts or papillary formations, Asymptomatic ovarian cysts of any size associated with raised serum CA-125 levels or symptomatic ovarian cysts of any size associated with symptoms like severe acute pain or signs of intraperitoneal bleeding or torsion. The exclusion criteria was patients having asymptomatic, simple, echo free, unilocular, unilateral ovarian cysts without solid parts or papillary formations, less than 8cm in diameter and normal CA-125 levels. All patients presenting from January 1, 2004 to December 31, 2005 according to inclusion criteria underwent laparotomy after taking informed consent. Histopathology of the ovarian mass was done at the pathology department of Federal Government Services Hospital and women who turned out to have masses of ovarian origin were included in the study. The histological characterization of the tumours was done according to the classification proposed by WHO. A proforma was designed to fill the relevant data about the patient. Data was analyzed by SPSS version 10.0. Frequencies and Percentages were calculated for the different histological types of ovarian tumours both benign and malignant, the parity of the patients, presenting complaints and age groups of the patients.

Results

An overall number of 100 patients presented with an ovarian mass at Federal government Services Hospital, Islamabad in the 2 year time period of this study. Patients ranged from 10 to 80 years. Mean age was 34 years while, median age was 33 years. The distribution into different age groups was Paediatric (6-12 years) 3%, Adolescent (13-18 years) 9%, Reproductive (19-45 years) 73%, perimenopausal (46-50 years) 2%, Menopausal (51+) 13%.

Table I. Histopathological characterization of benign ovarian masses (n=78)

Histopathology	Frequency	%age
Benign	78	78
Endometriotic cyst	3	3.8
Epithelial tumours	48	61.5
Mucinous cystadenoma	14	29
Serous cystadenoma	34	71
Total	48	100
Germ cell tumours	11	14.1
Mature cystic teratoma	8	73
Struma ovarii	3	27
Total	11	100
Physiological cyst	16	20.5
Follicular cyst	3	19
Luteal cyst	13	81
Total	16	100

The most common clinical presentation was abdominal pain (76%) followed by abdominal mass (26%), Menstrual irregularity (20%), Infertility (14%), Gastrointestinal complaints (7%) and frequency of urination (5%). In our study, 78% of the patients had benign ovarian masses and 22% had malignant ovarian masses. The different types of ovarian masses histologically were Epithelial tumours 66(66%), Physiological cysts 16(16%), Germ cell tumours 13(13%), Endometriotic cysts 3(3%), Sex cord stromal tumours 1(1%), Metastatic tumours 1(1%).

The parity distribution was Nullipara 37(37%), Multipara 63(63%). The mean and median parity were 2.6 and 3 respectively.

Table II. Histological Characterization of malignant ovarian masses (n=22)

Histopathology	Frequency	%age
Malignant	22	22
Epithelial Carcinomas	18	81.8
Serous cystadenocarcinomas	8	44.4
Mucinous cystadenocarcinoma	5	27.8
Endometrioid carcinoma	3	17
Undifferentiated carcinoma	1	5.6
Metastatic tumour	1	5.6
Total	18	100
Germ Cell Tumours	2	9.1
Dysgerminoma	1	50
Endodermal Sinus Tumour	1	50
Total	2	100
Sex Cord Stromal Tumour	1	4.5
Granulosa cell tumour	1	100
Metastatic Tumour	1	4.5

Table III. Clinical presentation of ovarian masses (n=100)

Presenting Complaints	Frequency
Abdominal Pain	76
Abdominal Mass	26
Menstrual Irregularity	20
Infertility	14
Gastrointestinal Complaints	7
Frequency of Micturition	5

Discussion

In international studies percentage of malignant ovarian tumours ranges from 28-33% in different studies.[12,13] In some studies carried out in Pakistan it ranged from 30 to 41%[14,15,16]. Our percentage of malignant ovarian tumours was less at 22% and it compared with a study carried out at Karachi which was 21%[7]. Mean age in different studies was 32 years and age range was 9 to 80 years[12,14]. Our results showed an age range from 10 to 80 years and mean age of 34 years which compared with these studies. The distribution of our patients with ovarian masses into different age groups were similar to other international studies[12]. Maximum number of patients with ovarian masses in our study were in the reproductive age group similar to other studies[17].

In our study epithelial tumours were 66(66%), physiological cysts 16(16%), germ cell tumours 13(13%), endometriotic cysts 3(3%), sex cord stromal tumours

1(1%), metastatic tumours 1(1%) of all the ovarian masses. In national and international studies epithelial tumours have ranged from 57-75%[18,15,14,19].

Nulliparity is considered to be a risk factor for the development of ovarian carcinoma. Most of the western studies have shown that nulliparous women have a higher incidence of ovarian cancer and the risk of ovarian cancer is inversely related to the number of full term pregnancies and each additional sibling is associated with a risk reduction[20,21,22,23,24,25]. However, 37% of our patients were nullipara and 63% multipara. These findings in our study are similar to earlier observations from Rawalpindi, Karachi, Lahore and Nigeria[2,3,26,27].

Ovarian tumours are known to remain clinically silent and early symptoms are usually very vague. By the time symptoms are produced the disease is already well advanced. The most common presentation of these tumours is abdominal mass. Most of our patients presented with abdominal pain(76%) followed by abdominal mass(26%).

References

1. Maclean AB. Benign disease of the vagina, cervix and ovary. In: Edmonds DK. Dewhurst's textbook of obstetrics and gynecology for postgraduates. 6th Ed. Edinburgh: Blackwell Science, 1999. 582-9
2. Jamal S, Malik A, Ahmad M, Mushtaq S, Khan AH. The pattern of malignant ovarian tumours –A study of 285 consecutive cases at the Armed forces Institute of Pathology Rawalpindi. Pakistan J Pathol 1993; 4: 107-10.
3. Saeed M, Khawaja K, Rizwana I, Malik I, Rizvi J, Khan A. A clinicopathological analysis of ovarian tumors. J Pak Med Assoc 1991; 41: 161-3.
4. Zohra N. Ultrasonography of ovarian tumours: Predictability of tumour type. J Liaquat Uni Med Health Sci 2004; 3: 60-3
5. Soutter P, Girling J, Haidopoulos D. Benign tumors of the ovary. In: Shaw R, Soutter WP, Stanton S. Gynecology. 3rd ed. Edinburgh: Elsevier Science, 2003: 665-76.
6. Zafar AF, Fazil A, Asifa A, Karim A, Akmal N. Clinical Manifestations of benign ovarian tumours. Ann King Edward Med Coll 2005; 11: 258-9.
7. Sultana A, Hasan S, Siddique QA. Ovarian tumours: A 5 year retrospective study at Abbassi Shaheed hospital, Karachi. Pakistan J Surg 2005; 21: 37-40.
8. Dina R, Rustin G, Soutter P. Carcinoma of the ovary and fallopian tube. In: Shaw R, Soutter WP, Stanton S. Gynecology. 3rd ed. Edinburgh: Elsevier Science, 2003: 677-98.
9. Barnholtz-Sloan JS, Schwartz AG, Qureshi F, Jacques S, Malone J, Munkarah AR. Ovarian cancer: Changes in pattern diagnosis and relative survival over the last three decades. Am J Epidemiol 2004; 159: 133-9.
10. Zhang Y, Coogan PF, Palmer JR, Stroma BL, Rosenberg L. Cigarette smoking and increased risk of mucinous epithelial ovarian cancer. Am J Epidemiol 2004 ;159: 133-9.
11. Baloch R, Abro H, Abassi SA. Ovarian carcinoma-local experience at Shaikh Zayed hospital for women (CMCH) and (LINAR) Larkana. Med Channel 2003; 9: 59-62.
12. Stanczuk G. Neoplastic and non-neoplastic ovarian disease in Zimbabwean women. Cent Afr J Med 1995; 41(9): 274-8.
13. Lancaster EJ, Muthupher MN. Ovarian tumours in Africans: A study of 512 cases. Cent Afr J Med 1995; 41(8): 245-8.
14. Ahmed M, Malik TM, Afzal S, Mubarik A. Clinicopathological study of 762 ovarian neoplasms at Army medical college, Rawalpindi. Pakistan J Pathol 2004; 15: 147-52.
15. Ahmad Z, Kayani N, Hasan SH, Muzaffar S, Gill MS. Histological pattern of ovarian neoplasm. J Pak Med Assoc 2000; 50: 416-9.Pathol 2004; 15: 147-52.
16. Jamal T. Malignant ovarian tumours. J Postgrad Med Inst 2001; 15: 176-8.
17. Malik M, Aziz F, Malignant ovarian tumours: A study of 75 patients. Pak J Obstet Gynaecol 1999; 12: 83-6.
18. Nakashima N, Nagasaka T, Fukata S, Oiwa N, Nara Y, Fukatsu T, Takeuchi J. Study of ovarian tumours treated at Nagoya university hospital, 1965-1988. Gynecol Oncol 1990; 37: 103-11.
19. Cusido MT, Jorda B, Gonzalez J, Garcia A, Xercavina J. Ovarian germ cell tumours. Eur J Gynecol Oncol 1998; 19: 130-4.
20. Harlap S, Olson SH, Curtin JP, Caputo TA, Nakraseine C, Sanchez D, Xue X. Epithelial ovarian cancer and fertility of patients. Epidemiol 2000; 13: 59-65.
21. Chiaffaine F, Pelluchi C, Parazzini F, Negri E, Franceshi S, Talamini R et al. Reproductive and hormonal factors and ovarian cancer. Ann Oncol 2001; 12:337-41.
22. Greggi S, Parazzini F, Paratore MP, Chatenoud L, Legge F, Mancuso S et al. Risk factors for ovarian cancer in central Italy. Gynecol Oncol 2000; 79:50-4.
23. Salazar-Martinez E, Lazeano-Pance EC, Gonzalez Lira-Lira G, Escudero- De Los Rios P, Salmeron-Castro J, Hernandez-Avila M. Cancer Res 1999; 59:3658-62.
24. Yen ML, Yen BL, Bai CH, Lin RS. Risk factors for ovarian cancer in Taiwan: a case control study in a low incidence population. Gynecol Oncol 2003; 89: 318-24.
25. Zhang M, Lee AH, Binns CW. Reproductive and dietary risk factors for epithelial ovarian cancer in China. Gynecol Oncol 2004; 92: 320-6.
26. Rashid S, Saman G, Ali A. Clinicopathological study of ovarian cancer. Mother & Child 1998; 36: 117-25.
27. Odukogbe AA, Adebamowo CA, Ola B, Olayemi O, Oladokum A, Adeuole IF et al. Ovarian cancer in Ibadan: Characteristics and Management. J Obstet Gynecol 2004; 24: 294-7.