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Original research article

To analyze the clinic-demographic pattern of the patient with ovarian tumors: an observational study

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Abstract

Aim: to analyze the demographic pattern and the clinical presentation of the patient with ovarian tumors.

Material and methods: A Prospective study was conducted in the Department of Obstetrics and Gynaecology, Narayan Medical College and Hospital, Sasaram, Bihar, India from October 2018 to April 2019. Total 100 cases of ovarian tumours were included in this study. The tumours were cut and allowed to fix in 10% formalin for 24-48 hours. After formalin fixation, multiple bits were taken for histopathological examination. The blocks were cut at 3-5 microns thickness and stained with Haematoxylin and Eosin. Detailed microscopic examination of the tumour was done.

Results: Out of 100 cases of ovarian tumours, 71 were benign, 6 were tumours of low malignant potential and 23 were malignant. The youngest patient was 12 years and the oldest was 67 years forming a range of 12 years to 67 years. Highest incidence of ovarian tumour was noted in the 40-50years 38cases out of 100 cases accounting for 38%. Highest incidence of benign ovarian tumour was noted in 30-40years 26 cases out of 71 accounting for 36.62%. Highest incidence of malignant tumour was noted in the 40-50years 12 out of 23 cases accounting for 52.17%. 37% of the patients complained of dull aching lower abdominal pain, 24% complained of abdominal mass and 6% of the patients gave history of menstrual disturbance like menorrhagia. Urinary disturbances were found in 5% patients with tumours. Out of 100 patients 9 patients were not married and all were below twenty years of age. Among married, 83were parous and remaining were 8 nulliparous. Out of 100 cases of ovarian tumors, 29 were associated with appendicitis and 14 were associated with uterovaginal prolapse.

Conclusion: The ovarian tumors manifest a complex and varied spectrum of clinical, morphological and pathological features. Correlating the clinical parameters and categorizing the tumors according to the WHO classification help us in coming to an early diagnosis, management and hence in the prognosis of ovarian tumors.

Keywords: Ovarian tumor, benign, borderline, malignant, who classification, clinico-pathological correlation

Introduction

Ovarian malignancy is the sixth most common cancer[1] among women worldwide and the second most common cause of cancers of the female reproductive system.[2-4] Indian trend analysis reveals a steady increase in the age-standardized incidence rate of ovarian cancer ranging from 0.26% to 2.44% per year in different area registries. Ovary, being an organ concerned with progeny gives rise to complex variety of tumors, varying in presentation, structure and histopathology. The complex anatomy of ovary and its peculiar physiology with constant cyclical changes from puberty to menopause gives rise to a number of cells with

various differentiations. Each of which is capable of giving rise to tumors. Hence ovarian tumors have been rightly termed as spectrum of diseases rather than single entity. Ovarian cancer is a leading cause of death among gynecological malignancies. Among cancers of the female genital tract, the incidence of ovarian cancer ranks after carcinoma of the cervix and the endometrium. The complex nature, unpredictable behavior and prognosis make the ovarian neoplasm a difficult problem to the Pathologist and the Gynecologist. Also the insidious onset of the disease makes it very difficult for the patient to recognize the condition.[5] Hence when the patient reports to the doctor with symptoms the disease has already been spread and metastasized in different sites in many of the cases. Hence ovarian carcinoma often is called the 'silent killer' because symptoms do not develop until advanced stages when chances of cure are poor. However, the clinical spectrum varies widely, from an excellent prognosis and high likelihood of cure to rapid progression and poor prognosis, most probably reflecting variation in the tumor, biological properties. The survival rate of patients with early stage disease approaches 90%, but most cases are diagnosed late with an overall 5-year survival rate 45%.[5,6] The aims and objectives of this study are to analyze the demographic pattern and the clinical presentation of the patient with ovarian tumors, to study the different histopathological types of ovarian tumors, to establish the correlation between the clinical signs, symptoms and histological findings and to study the frequency of benign and malignant tumors in our population.

Material and methods

A Prospective study was conducted in the Department of obstetrics and gynaecology, Narayan Medical College and Hospital, Sasaram, Bihar, India from October 2018 to April 2019. Total 100 cases of ovarian tumours were included in this study.

Methodology

Clinical details like age, obstetric history, menstrual irregularities and other constitutional symptoms were collected in the proforma. The specimen, gross features such as size, shape, colour, external appearance, findings on cut section and contents were recorded. Then the tumours were cut at various levels depending on the individual cases and they were allowed to fix in 10% formalin for 24–48 hours. After formalin fixation, multiple bits were taken from representative areas of tumours and the accompanying tissues. They were processed for histopathological examination and paraffin blocks were made. The blocks were cut at 3-5 microns thickness and stained with Haematoxylin and Eosin.

Detailed microscopic examination of the tumour was done to arrive at a histopathological diagnosis following the WHO classification of the ovarian tumours.

Results

Out of 100 cases of ovarian tumours, 71 were benign, 6 were tumours of low malignant potential and 23 were malignant. (Table 1)

In the present study, the youngest patient was 12 years and the oldest was 67 years forming a range of 12 years to 67 years. Highest incidence of ovarian tumour was noted in the 40-50years 38cases out of 100 cases accounting for 38%. Highest incidence of benign ovarian tumour was noted in 30-40years 26 cases out of 71 accounting for 36.62%. Highest incidence of malignant tumour was noted in the 40-50years. 12 out of 23 cases accounting for 52.17% (Table 2).The distribution of symptoms is varied. 37% of the patients complained of dull aching lower abdominal pain, 24% complained of abdominal mass and 6% of the patients gave history of menstrual disturbance like menorrhagia. Urinary disturbances was y 5% patients with tumours. (Table 3). Out of 100 patients 9 patients were not married and all were below twenty years of age. Among married, 83were parous and remaining were 8 nulliparous. (Table 4). Out of 100 cases of ovarian tumors, 29 were associated with

appendicitis and 14 were associated with uterovaginal prolapse. (Table 5). The surface epithelial tumours were the commonest tumours accounting for 64%, germ cell tumours were 28% of cases and sex cord stromal tumours formed 6% and metastatic tumour 2%. The tumours were classified according to the WHO histological classification of the ovarian tumours and the incidence of different histological types noted. (Table 6)

Left sided tumours of ovary (52%) were more common than right sided tumours (44%). 4 cases were bilateral out of which 2 were borderline and 2 malignant.

The largest tumour (mucinous cystadenoma) in the present study measure 35x25x29cm in size and weighed 11.7 kg while the smallest tumour (serous cystadenoma) was 3x2.5x1cm in size and weighed 65gms.

Table 1: Distribution of ovarian tumours

Type of tumour	No. of cases	%
Benign tumour	71	71%
Borderline tumour	6	6 %
Malignant tumour	23	23%
Total	100	100%

Table 2: Age group distribution of benign, borderline and malignant ovarian tumours

Age	Benign	Borderline	Malignant	Total	Percentage
Below 20years	4	-	-	4	5%
20-30	11	-	2	13	13%
30-40	26	-	5	31	31%
40-50	20	6	12	38	38%
50-60	5	-	4	9	9%
Above 60	5	-	-	5	10%
Total	71	6	23	100	100%

Table 3: Symptoms of ovarian tumours

Clinical presentation	No. of cases in Benign tumours	No. of cases in Borderline tumours	No. of cases in Malignant tumours	Percentage
Pain abdomen	30	3	4	37%
Mass per abdomen	18	1	5	24%
Pain abdomen with mass	5	-	4	9%
Menstrual disturbance	4	-	2	6%
Urinary disturbances	2	-	3	5%
Constitutional symptoms	4	-	1	5%
White discharge per vagina	2	-	2	4%

Table 4: Distribution of ovarian tumours in parous women

Type of tumours	Unmarried	Married	
		Nulliparous	Parous
Benign	5	8	60
LMP	0	0	6
Malignant	4	0	17
Total	9	8	83

Table 5: Conditions associated with ovarian tumors

Associated conditions	No. of cases=54
Utero Vaginal prolapse	14
Leiomyoma	7
Appendicitis	29
Calculus cholecystitis	2
Pregnancy	2

Table 6: Incidence of various histological types of the ovarian tumours

Types of Tumour	No. of cases	Percentage
I. Common Epithelial tumours		
A. Serous tumours	64	64%
a) Benign	36	36%
b) Low Borderline malignancy	2	2%
c) Malignant	6	6%
B. Mucinous tumours		
a) Benign	8	8%
b) LBM	2	2%
c) Malignant	4	4%
C) Mixed epithelial tumours Benign	-	
Malignant	2	2%
D) Endometrioid carcinoma	4	4%
E) Transitional cell carcinoma	-	-
F) Undifferentiated Carcinoma		
II) Sexcord stromal tumours	6	6%
A) Granulosa cell tumour	2	2%
B) Fibroma / thecoma	4	4%
III) Germ cell tumours	28	28%
A) Dysgerminoma	2	2%
B) Endodermal Sinus tumour	2	2%
C) Embryonal carcinoma	-	-
D) Teratoma, mature cystic	23	23%
E) Immature teratoma	1	1%
IV) Metastatic tumours	2	2
Krukenbergtumour	2	2

Discussion

Ovarian/tubal neoplasms may arise from stem cells, which typically give rise to the surface epithelium, fallopian tube epithelium, germs cells, or sex cord-stromal cells. The incidence, clinical appearance and the behaviour of the different types of ovarian tumours is extremely variable. Through physical examination, imaging studies like pelvic ultrasound and laboratory studies like serum biomarkers and immunological tests have been reported to be of some help in predicting the nature of the pathology. It is generally impossible to diagnose the nature of the ovarian tumours preoperatively. Surgical evaluation allows a definitive histologic diagnosis. Microscopic examination and diagnosis is essential for further management of the tumour.[7] Out of 100 ovarian tumours in the present study 71 % were benign tumour, 6% were borderline tumours and 23% were malignant tumours.

Among the different histopathological patterns the surface epithelial tumours formed the largest group of tumour (64 cases, 64%) followed by the germ cell tumour (28cases, 28%), sex cord stromal tumours of (6cases, 6 %) and metastatic tumours (2%). Nalini et al.[8] and Mondal et al.[9] observed that the epithelial tumours were the most frequent tumour followed by germ cell tumours and sex cord tumours. The commonest epithelial tumours were serous cystadenoma (44 cases) and the commonest germ cell tumour was benign cystic teratoma (23cases) in the present series. Similar observations were made by Mondal SK et [9] and Nalini et al .[8] Among the benign lesions, serous cystadenoma was the commonest (36 cases, 36%) followed by mature cystic teratoma (23 cases, 23%) in the present study. This was similar to the observations of Di Bonito et al.[10], Nalini et al and Mondak SK et al. But Ahmed et al,[11] in his paper, stated that mature cystic teratoma (35.17%) was the commonest benign tumours followed by surface epithelial tumours. The commonest malignant tumours in the present study is serous cystadenocarcinoma (6%) and the next commonest being Mucinous cystadenocarcinoma and endometrioid carcinoma each constituting 4%, this is followed by Granulosa cell tumour 2 % and Metastatic tumour 2%. In a study from eastern India, the same was found to be 5% of all malignant tumors.[12] 4 cases were bilateral out of which 2 were borderline and 2 malignantin the present study. similar findings have been reported by Couta F et al.[13] whereas Ramachandran G et al.[14] Gupta SC et al.[15] and Kapas MM et al.[16] reported more number of bilateral tumours compared to the present study. Bilaterality in malignancies implies spread to the opposite ovary as part of extension throughout the pelvis and abdomen as seen in advanced cases. In the present study, there were Left sided tumours of ovary (52%) were more common than right sided tumours (44%) the remaining 4% were bilateral. Ramachandran G at el.[14] found 46.04 % of all ovarian tumours on the right side and 38.5 % on the left side. The rest were bilateral.

The youngest age is a 12 months old child with mature cystic teratoma. Similarly Pilli et al.[17] reported the youngest patient of 8 months. In the present study highest incidence of ovarian tumour was noted in the 40-50years 38cases out of 100 cases accounting for 38%. Highest incidence of benign ovarian tumour was noted in 30-40years 26 cases out of 71 accounting for 36.62%. Highest incidence of malignant tumour was noted in the 40-50years. 12 out of 23 cases accounting for 52.17%. The present findings concurred with those of Ashley DJB(1990) and Herbst A (1994).[18] Similar observations were also made by Ramachandran G et al and Mondal SK et al . In 2006 Gunnar et al did a prospective study on reproductive factors and risk of ovarian cancer in 6565 females in Norway and found that highest risk of ovarian tumours was observed among nulliparous women. The risk decreased significantly with increasing parity.[19] In 2006 Marine et al did a study on the incidence of ovarian cancer on 87,929 grand multiparous women and concluded that the risk of ovarian cancer was low in all grand multiparous women, no matter how many children and at which age they delivered or contracted cancer. Out of 100 cases in the present study, 83 were multiparous, 8 were nulliparous of whom 9 were unmarried.

The commonest clinical features in the present study were 37% of the patients complained of dull aching lower abdominal pain, 24% complained of abdominal mass and 6% of the patients gave history of menstrual disturbance like menorrhagia. Urinary disturbances were 5% patients with tumours. Present study concorded with Pilli et. al[17] where abdominal pain was the commonest symptoms. But cases presenting as mass per abdomen were less in the present study when compared to other studies. The largest tumours encountered in the present study were mucinous cystadenoma measuring 35x25x29cm in size. Similar observations were made in Tyagi et al[20] and Gupta et al who reported a mucinous cystadenoma with maximum diameter of 44.5cms. Majority of the cases were uni/multilocular with a cystic appearance. The tumours with mixed solid and cystic areas and completely solid tumours

were mostly malignancies. Similar observations were made by Gupta SC et al11 and Maheshwari et al.[21]

Conclusion

The ovarian tumors manifest a complex and varied spectrum of clinical, morphological and pathological features. Correlating the clinical parameters and categorizing the tumors according to the WHO classification help us in coming to an early diagnosis, management and hence in the prognosis of ovarian tumors.

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