International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Index Copernicus Value (2013): 6.14 | Impact Factor (2013): 4.438

Clinico-Pathological Analysis of 100 Ovarian Tumours at a High Volume Referral Hospital

SasikalaMootha[1], UshasreeDasari[2]

[1] Associate Professor, Department of gynaecology, Rangaraya Medical College, Kakinada, Andhra Pradesh, India

[2] Assistant Professor, Department of gynaecology, Rangaraya Medical College, Kakinada, Kakinada, Andhra Pradesh, India

Abstract: ***Ovarian tumors account for about 30% of female genital cancers. Approximately 80% of these are benign. Benign neoplasms occurred more commonly in younger age group i.e. 21-40 years as compared to the high incidence of malignant neoplasms in the 41-50 years of age group. Here we present a retrospective analysis of series of 100 ovarian tumors at a high volume referral center. Our results showed that Of 100 cases 79% were benign, 16% were malignant and the rest 5% were borderline malignant tumors. Of all benign tumors serous type are 35.4%, mucinous are 48.8%, dermoid cysts 15.2%. All borderline malignant tumors are mucinous cystadenoma. 50% of malignant tumors are serous cyctadenocarcinomas, 12.5% are mucinous cyctadenocarcinomas and 12.5% are papillary cycstadenocarcinomas. To conclude highest incidence of benign tumours were seen in the active reproductive age group, whereas for malignant tumours the maximum incidence was seen between 41 and 60 years. Majority of malignant tumours noticed in multiparous women with low socioeconomic status. However the risk of malignancy was noticed more in nulliparous compared to benign tumours. Largest group of women were illiterate.No definite correlation was detected in particular blood group. Early diagnosis in ovarian carcinoma is difficult without laparotomy. Total abdominal hysterectomy with bilateral Salping-oopherectomy in early stage gives best results. Postoperative chemotherapy resulted in better prognosis.***

Keywords: Ovariantumors, Benign, Malignant, Cystadenoma, Laparotomy

1. Introduction

Ovarian tumors account for about 30% of female genital cancers. Approximately 80% of these are benign. Benign neoplasms occurred more commonly in younger age group i.e. 21-40 years as compared to the high incidence of malignant neoplasms in the 41-50 years of age group. Mass per abdomen was the commonest presenting symptom followed by pain abdomen and menstrual disturbances.

The histological classification of ovarian tumors by World Health organization is based on the histogenesis of ovary.Primary ovarian tumors are largely divided into three types: Surface epithelial tumors arising from the surface epithelium of ovary, sex cord stromal tumors arising from ovarian stroma, from sex cord derivatives or both and germ cell tumors arising from germ cells.

Surface epithelial tumors are the most common, account for approximately two third of all ovarian tumors and their malignant forms represent about 90% of ovarian cancers. Serous cystadenoma (30%) was the most common benign tumor followed by mucinous cystadenoma(11%) in a study conducted by Mondal SK et al [1]. Similar findings were seen in the study conducted by Kuladeepa AVK et al [2] where serous cystadenoma accounted for 29.83% cases and mucinouss cystadenoma 28.35%. Serous cystadenocarcinomas was the commonest malignant tumor. Germ cell tumors account for approximately 30% of all ovarian tumors. Majority of these tumors were seen in less than 30 years of age group.Mature cystic teratoma being the commonest benign germ cell tumor. Mature cystic teratoma accounted for 16% and 12.69% of ovarian tumors in the study conducted by Mondal SK et al [1] and Kuladeepa AVK et al [2]. Dysgerminoma was the commonest malignant germ cell tumor.

Sex cord stromal tumors account for approximately 8% of ovarian tumors. They are the most common functioning ovarian tumors associated with endocrine manifestations.Mondal SK et al and Kuladeepa AVK showed 3.8% and 11.03% of sex cord stromal tumors respectively. Granulosa cell tumor was the commonest sex cord stromal tumor in their studies. Metastatic tumors to the ovary comprise 6-7% of all adnexal masses. Tumors that extend to ovary directly from adjacent organs are also included in the category of metastatic tumors. A wide variety of tumors metastasize to ovary. Carcinoma of colon, stomach, breast, endometrium and leukemias and lymphomas account for vast majority of tumors. Here we present a retrospective analysis of series of 100 ovarian tumors at a high volume referral center

2. Material and Methods

A detailed personal study of 100 patients with the diagnosis of ovarian tumours admitted in Gynaec Wards of Government General Hospital, Kakinada during the period November 2011to September 2013 were studied by me and they were analyzed for my study in detail.Biopsy records of Pathology Department, Rangaraya Medical College, Kakinada from November 2011 to September 2013 with the diagnosis of ovarian tumours were analyzed and reviewed. Detailed evaluation included:

1) A thorough clinical examination of the cases.
2) Laboratory investigations like urine for Albumin, sugar and culture, blood counts, haemoglobin percentage and grouping were done.
3) Radiological investigations like X-ray chest in suspected cases of metastatic ovarian tumours and intravenous pyelography whenever necessary were done.

4) Ultrasonography used in some cases for confirmation of exact site, size, organ of origin, involvement of other organs, consistency and ascites where malignancy was suspected, kidney and liver were also scanned.
5) Biochemical investigations like blood urea, estimation of renal function, liver function, analysis of peritoneal fluid for excluding tuberculosis were undertaken for study.
6) Examination of the pleural and peritoneal fluid for malignant cells.
7) From all the cases of ovarian tumours diagnosed during the study period, vaginal smears were taken from posterior fornix and lateral vaginal wall and examined by paponicolou method of stains for the following:
   i)To study the abnormal or excessive hormonal effect if any, in case of functional tumours.
   ii) Secondly to see whether any malignant cells could be detected in vaginal smear as has been reported by various authors as one of the very early evidence of malignant ovarian tumous.
8) Endometrial biopsy for evidence of any functional changes – primary growth or secondary metastatic deposits.
9) MRI/ CECT abdomen and pelvis.
10) Serum CA-125 levels
11) In general surgical treatment was adopted both conservative and Total Abdominal Hystoroctomy with Bilateral Salpngoophorectony depending upon the nature of neoplasm. Laparotomy and debulking or biopsy alone were done in some cases when tumour was inoperable at laparotony. In these cases whenever necessary were followed up with chemotherapy and radiotherapy in selected cases. In some cases preoperative chemotherapy given in view of large ascites followed by laparotony, Chemotherapy alone given in those patients who were not fit for surgery.
12) Bilateral ovariotony with Salpingectomy alone done in those patients who were underwent hysterectomy previously. For various other disorders of uterus and later followed by chemotherapy.

3. Results

Of 100 cases 79% were benign, 16% were malignant and the rest 5% were borderline malignant tumors. The incidence of various histological types of benign and malignant tumorsaredesctibed in tables 1 and 2 respectively.

Table 1: Comparison of the Various Histological Types of Benign Tumours Of Ovary

Sl.No.	*Name of the Tumor*	*In my series*	
		No. of Cases	*Percent*
1.	Serous Tumours	28	35.4%
	a) Simple Serous Cyst	4	
	b) Serous Cystadenoma	20	
	c) Papillary serous	4	
2.	Mucinous cystadenoma	37	46.8%
3.	Endometroid tumours	0	…
4.	Brenner	0	…
5.	Fibrothecoma	2	2.5%
6.	Dermoid	12	15.18%

Table 2: Incidence of Malignant Tumours

Sl. No.	*Malignant Tumours*	*No. of Cases*	*Percentage to total malignant tumors.*
1	*Serous cystadenocarcinoma*	*8*	*50%*
2	*Papillary cystadenocarcinoma*	*2*	*12.5%*
3	*Mucinous cystadenocarcinoma*	*2*	*12.5%*
4	*Transitional cell carcianoma*	*0*	…
5	*Endometroid carcinoma*	*1*	*6.25%*
6	*Brenner*	*0*	…
7	*Granulosa & Theca cell carcinoma*	*1*	*6.25%*
8	*Dysgerminoma*	*2*	*12.5%*
9	*Embryonal Carcinoma*	*0*	
10	*Endometroid sinus tumour*	*0*	
11	*Malignant teratoma*	*0*	
12	*Krukenberg*	*0*	…

Age wise distribution of both benign and malignant tumors is shown in table 3.

Table 3: Comparative Age Incidence Of Benign And Malignant Tumours

Age Group	*Benign (79)*	*Percent*	*Malignant (16)*	*Percent*
11-20	5	6.3%	2	12.5%
21-30	21	26.5%	1	6.25%
31-40	28	35.4%	1	6.25%
41-50	20	25.3%	8	50%
51-60	4	5.06%	4	25%
61-70	1	1.26%	0	

Highest incidence of ovarian tumours seen in multipara in both benign and malignant tumours. However, the incidence of malignant tumors was more in nullipara. The details of presenting features of both benign and malignant tumors is shown in table 4.

Table 4: Comparative Study of the Leading Symptoms in Benign and Malignant Ovarian Tumours

Symptoms	*Benign (79 cases)*		*Malignant (16 cases)*	
	No. of Cases	*Percent*	*No. of Cases*	*Percent*
Mass per abdomen	54	68.35%	11	68.75%
Pain abdomen	49	62.02%	13	81.25%
Loss of appetite/ dyspepsia	12	15.18%	9	56.25%
G.I.T. Disturbance	13	16.45%	4	25%
Leucorrhoea	23	29.1%	1	6.25%
Dyspnoea	10	12.6%	4	25%
Mass per vagina	-	-	…	…
Bleeding per vagina	10	12.6%	1	6.25%
Distension of abdomen	19	24.05%	9	56.25%
Burning micturition	18	22.78%	1	6.25%
Fever	11	13.92%	3	18.75%

Management of the benign and malignant tumors is described in tables 5 and 6 respectively.

Table 5: Treatment of Benign Tumours of Ovary

1	Ovariotomy	14
2	Total abdominal hysterectomy with unilateral Salpingoovariotony	5
3	Total Abdominal Hysterectomy with Bilateral Salpingooopherectomy	54
4	Ovarian cystectomy	-
5	Ovariotomy with Wedge Resection of opposite ovary	-
6	Bilateral Salpingo – Ovariotomy	6

Table 6: Treatment and Management of Malignant Ovarian Tumours

Sl.No.	*Treatment and Management*	*16 cases*
1	Total Abdominal Hysterectomy with B.S.O. with Omentectomy + Chemotherapy	9
2	Salpingoovariotomy + Chemotherapy	-
3	Bilateral Salpingoopherectony + Chemotherapy + Radiotherapy	-
4	Bilateral/unilateral Salpingoopherectomy + Chemotherapy	4
5	Debulking + Chemotherapy	3
6	Chemotherapy only	-
7	Biopsy and closure of abdomen + Chemotherapy	-
8	T.A.H. with B.S.O. + Radiotherapy	-
9	T.A.H. with Salpingoovariotomy + Radiotherapy	-

4. Discussion

The incidence of ovarian tumours increased particularly for the past few years. Among ovarian tumours 80% are benign tumours. In my study benign tumours constitutes 79%, malignant tumours 16%. Similar findings seen in study conducted by Mondal SK et al [1].Benign tumours 78%, malignant tumours 18%. In our series mucinous tumours (46.8%) are more common than serous tumours (35.4%) as patients are unaware of small size tumours and present to the hospital when the tumour size is large. Mucinous tumours are large in size compared to serous tumours.

Highest incidence of benign tumours were seen within 31-50 years, whereas for malignant tumours highest incidence is seen between 41-60 years. Similar findings were observed by Kuladeepa AVK et al [2]., i.e. Benign neoplasms occurred more commonly in younger age group i.e. 21-40 years as compared to the high incidence of malignant neoplasms in the 41-50 years of age group.

Highest incidence of ovarian tumours seen in multipara in both benign and malignant tumours. However, the incidence of nullipara was more in malignant tumors than in benign tumours. Tyagi et al., [3] observed that incidence of nullipara is more with malignant tumours.

In majority cases of benign tumours, the common symptom was mass per abdomen (68.35%) whereas in malignant tumours it was pain abdomen (81.25%) according to Jeffcoate benign tumours present with mass per abdomen and malignant tumours present with pain abdomen.

Cystic tumours are mostly benign and the incidence of solid tumours are more with malignant tumours. Similar findings are seen in study conducted by Mondal SK et al., Kuladeepa AVK et al.

In our study, malignant tumours were noticed in patients with early menarche and late menopause. Mondal SK et al. (2011) observed that early menarche and late menopause was associated with increased risk of ovarian cancer.

No definite correlation was detected between a particular blood group and incidence of ovarian neoplasms specially of malignant type. But according to Jeffcoate ovarian tumours are more common in patients with 'A' blood group.

In our series simplest treatment adopted was Salpingoovariotomy in 14 cases (17.72%). In 54 cases total abdominal Hysterectomy with removal of adnexae on one or both sides were adopted as the patients were above 36 years and postmenopausal.

The total abdominal hysterectomy with Bilateral Salpingoopherectomy done for Stage I, II and III according to FIGO's Classification. In my analysis Salpingoovariotomy done in 4 patients who already underwent total abdominal Hysterectomy previously. In 3 cases debulking done in view of advanced carcinoma. In my analysis 68.35% of patients were treated with total abdominal hysterectomy with bilateral Salpingoopherectomy. Similar findings were in seen in study conducted by Sahu et al. (71.2%) [4]. These tumours are most common in the reproductive age group. In our series, in one case abdominal hysterectomy done 4 years back for dysfunctional uterine bleeding. Retained ovaries developed serous cystadenoma on the right side in both cases.

In the serous cystadenoma, menorrhagia and polymeorrhoea was noted in 2 cases. 2 cases associated with fibroid uterus, 2 cases showed proliferative type of endometrium, one case showed cystic glandular epithelium.

In Eddies series [5] of non-functional serous cyctadenomas out of 12 cases, 3 showed estrogenic effect as shown by menorrhagia with active endometrium in postmenopausal individuals where the normal ovarian function is said to have been lacking. Similarly in my series out of 28 cases, one showed menorrhagia and one showed polymenorrhagia with active endometrium and estrogenic vaginal smears, probably these 2 cases represent the hormonal activity in non-functional serous cystadenomata where histologically the cyst wall showed cortical stromal cells of darkly stained spindle cells with hypoestrogenic effect as shown by the active endometrium and estrogenic vaginal smears.

Among germ cell tumours dermoid cyst is more common constituting 80% in my series and constitutes 15.18% among benign tumours. The incidence of benign cystic teratoma varies from 5-25% of ovarian neoplasms (Peterson et al) in comparison to 15% of all ovarian tumours (Novak &Woodraft). According to Sahu et al (1993) teratomas constituting 80.43% of germ cell tumours and 22.15% of all ovarian tumours. Among germ cell malignant tumours Dysgerminoma is more common, accounting for 12.5% and constitutes 2% of ovarian tumours. These tumours treated conservatively followed by chemotherapy. In Sahu et al series (1990) dysgerminomas constitutes 8.7% of germ cell tumours and 2.4% of all ovarian tumours.

Among malignant ovarian tumours serous cystadenocarcinoma is more common. In my series it constitutes 8% of all ovarian tumours and 50% of all malignant ovarian tumours. Prognosis depends on the accurate staging of tumours and appropriate surgery. Saxena et al [6] showed that 72.5% of patients with Stage I disense survive 5 years or more as opposed to only 7% of patients surviving stage III and IV disense. According to Firusa R. Parikh et al [7] five year survival rate were 80% for stage I, 66.6% for stage II, 12.5% for stage III and 18.1% for stage IV.

In our present series one tumour was developed in the left ovary 3years after Total Abdominal Hysterectomy with Right Salpingoopherectomy granulosa cell carcinoma associated with omental deposits seen.

To conclude highest incidence of benign tumours were seen in the active reproductive age group, whereas for malignant tumours the maximum incidence was seen between 41 and 60 years. Majority of malignant tumours noticed in multiparous women with low socioeconomic status. However the risk of malignancy was noticed more in nulliparous compared to benign tumours. Largest group of women were illiterate. Early menarche and late menopause was associated with increased risk of ovarian cancer. No definite correlation was detected in particular blood group.Early diagnosis in ovarian carcinoma is difficult without laparotomy. Total abdominal hysterectomy with bilateral Salping-opherectomy in early stage gives best results. Postoperative chemotherapy resulted in better prognosis. Unfortunately the cases that were admitted often only in late stages when the patients were unfit for surgery, even though an improvement in survival rates would be expected with the introduction of now chemotherapy modalities. We are unable to collect accurate data regarding survival in malignant tumours of ovary due to lack of proper turnup of patients for further follow up.

References

[1] Mondal SK, et al. Histological pattern, bilaterality and clinical evaluation of 957 ovarian neoplasms: A10 years study in tertiary hospital of Eastern India. Journal of cancer research and therapeutics 2011; 7(4): 433-437.
[2] Kuladeepa AVK, et al. Histomorphological study of 134 primary ovarian tumors. Advance Laboratory Medicine International. 2011; 1(4): 69 - 82.
[3] Tyagi S.P. et al., Granuloa cell tumours of ovary (A report of 6 cases) I.J.O.G. June 1979 Vol. XX IX. No.3. P.700.
[4] Sahu et al., Germ cell tumours of ovary Review of 46 cases I.J.O.G June 1990. Vol. 40.No. 3. P.446
[5] Eddie. D.A.S. Hormonal activity with ovarian tumours Obst.& Gynaecology of Brt. Common Wealth. April 1967. Vol.74, P. 283 – 285.
[6] Saxena et al., Ovarian neoplasms I.J.O.G. June 1980. Vol. XXX.No. 3.P.522.
[7] Firuza R. Parik et al., Ovarian cancer (A 5 year study of 30 patients). I.J.O.G. June 1989 Vol. XXXIX No. 3 P. 406.