

## ORIGINAL RESEARCH

### To Study the Clinicopathological Features of Various Benign and Malignant Ovarian Tumours

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#### ABSTRACT

An attempt was made to study the Clinicopathological features of 100 ovarian tumours met with during the period of 2011 to 2013 in the department of obstetrics and Gynaecology of government general hospital, Kakinada. In 2 years period out of 100 tumours, 79 were benign, 16 were malignant, 5 were borderline malignant. An incidence of 79% benign, 16% malignant and 5% borderline malignant. The incidence of ovarian tumours was increased for the past few years. The cause for the increased incidence was could not be made out. The crystallization of the simple clinical classification of ovarian tumours in comparison with others were discussed. The detailed structure of ovary was discussed. The detailed study in relation to age, parity, socioeconomic status, educational standard, blood group, diet, menstrual function, signs and symptoms, histological patterns and the treatment adopted with follow up of cases in some were discussed at length with reference to benign and malignant tumours of the ovary. Highest incidence of benign tumours was 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 were associated with increased risk of ovarian cancer. No definite correlation was detected in particular blood group. The gross Histopathological study of all tumours were studied and their correlation with functional aspect of the tumour were stressed whenever possible. The incidence of all various histopathological pattern of both benign and malignant were thoroughly studied. In 4 patients ovarian tumours developed from retained ovaries after hysterectomy operation. 3 patients underwent abdominal hysterectomy previously for dysfunctional uterine bleeding, among this 1 patient developed malignant ovarian tumours and 2 patient s developed benign tumour. One patient underwent vaginal hysterectomy for prolapse uterus, benign tumour developed from retained ovary.

**Keywords:** Benign tumour, Malignant, Abdominal hysterectomy, Multiparous, Vaginal hysterectomy.

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## INTRODUCTION

Of all gynaecological cancers, ovarian malignancies represent the greatest clinical challenge. Ovarian cancer is the second most common malignancy of the female reproductive system and one of the leading causes of death among gynaecologic malignancies.<sup>[1,2]</sup> Ovarian cancer represents a major surgical challenge requiring intensive and often complex therapies.<sup>[3]</sup> A good part of it is malignant neoplasm and thereby increases the mortality rates in female genital cancers. A systematic study of ovarian neoplasms encountered in the institute over a period is more likely to produce a significant amount of useful data as regard to incidence of various types of ovarian tumours, risk factors analysis, clinical manifestations and type of treatment offered.<sup>[4,5]</sup> This data can then be utilized for the purpose of suggesting ways and means of early detection of ovarian neoplasm and also for a better therapeutic approach to the problem.<sup>[6,7]</sup>

Diagnosis remains greatly radiological, it is often challenging to diagnose and manage cases properly.<sup>[8]</sup> The present study aims to evaluate the ovarian tumours from a clinico-pathological stand point and thereby purports to serve as a guide for formulation of protocols for early and better management.<sup>[9,10]</sup>

### Aim of Study

To study the Clinicopathological features of various benign and malignant ovarian tumours during the study period

A detailed study in relation to age, parity, socio-economic status, educational standard, blood group, diet, menstrual function, signs and symptoms and incidence of various histopathological pattern of both benign and malignant tumours and their correlation with functional aspects of tumours.

## MATERIALS & METHODS

### Material

- A detailed personal study of 100 patients with the diagnosis of ovarian tumours admitted in Gynaec Wards of Government General Hospital, Kakinada during the study period 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.

### Methods

- A thorough clinical examination of the cases.
- Laboratory investigations like urine for Albumin, sugar and culture, blood counts, haemoglobin percentage and grouping were done.
- Radiological investigations like X-ray chest in suspected cases of metastatic ovarian tumours and intravenous pyelography whenever necessary were done.
- 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.
- Biochemical investigations like blood urea, estimation of renal function, liver function, analysis of peritoneal fluid for excluding tuberculosis were undertaken for study.
- Examination of the pleural and peritoneal fluid for malignant cells.
- 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 papanicolou method of stains for the following:

- To study the abnormal or excessive hormonal effect if any, in case of functional tumours.
- 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 tumours.
- Endometrial biopsy for evidence of any functional changes – primary growth or secondary metastatic deposits.
- In general surgical treatment was adopted both conservative and Total Abdominal Hysteroectomy with Bilateral Salpingoophorectomy depending upon the nature of neoplasm. Laparotomy and debulking or biopsy alone were done in some cases when tumour was inoperable at laparotomy. 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 laparotomy, Chemotherapy alone given in those patients who were not fit for surgery.

Bilateral ovariectomy with Salpingectomy alone done in those patients who were underwent hysterectomy previously. For various other disorders of uterus and later followed by chemotherapy.

## RESULTS AND DISCUSSION

Ovarian tumours were one of the major gynecological diseases in this part of the country. Ovarian cancers accounts for 10-15% of all gynaecological cancers in developing countries including India.

The following are the general statistical incidences studied from gynec ward of Government General Hospital, Kakinada during the period from november 2011 to September 2013.

- 1) Total Benign Tumours of the Ovary 79
- 2) Borderline malignant tumours of ovary 5
- 3) Total malignant tumours of ovary 16
- 4) Total ovarian tumours diagnosed and histologically Confirmed 100
- 5) Incidence of benign ovarian tumours 79%
- 6) Percentage incidence of malignant ovarian tumours 16%
- 7) Percentage of potentially malignant ovarian tumours to total ovarian tumours 5%

**Table 1: Total Number of cases**

		Total cases(100)	
		No. of cases	Percentage to total tumours
1.	Benign tumours	79	79
2.	Borderline malignant	5	5
3.	Malignant Tumours	16	16

The incidence of ovarian tumours increased particularly for the past few years.

**Table 2: Comparison of the Various Histological Types of Benign Tumours of Ovary in Study Period**

	Name of the Tumor	2 Years Period	
		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%

In my 2 years study period mucinous tumours (46.8%) are more common than serous tumours (35.4%).

**Table 3: Borderline Malignant Tumours**

		(5 Cases)
1	Papillary serous cystadonoma	0
2	Serous cystadonoma	0
3	Mucinous Cystadenoma	5
4	Granslosa cell tumours	0

**Table 4: Incidence of 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	1	6.25%
5	Endometroid carcinoma	1	6.25%
6	Brenner	0	...
7	Granulosa & Theca cell carcinoma	0	
8	Dysgerminoma	2	12.5%
9	Embryonal Carcinoma	0	
10	Endometroid sinus tumour	0	
11	Malignant teratoma	0	
12	Krukenberg	0	...

The incidence of malignant tumours (16%) was increased in my study period. The exact cause for increased incidence was not known.

**Table 5: 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 benign tumours was seen within 31-50 years, whereas for malignant tumours highest incidence is seen between 41-60 years.

**Table 6: Comparative Study of Parity**

No. of Children	Benign (79)		Malignant (16)	
	No. of Cases	Percent	No. of Cases	Percent
Nil	13	16.45%	3	18.75%
1	7	8.86%	3	18.75%
2	34	43.03%	8	50%
3	13	16.45%	1	6.25%
4	8	10.12%	1	6.25%

5	3	3.79%	0	
6	1	1.26%	0	

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.

**Table 7: 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	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%

In majority cases of benign tumours, the common symptom was mass per abdomen whereas in malignant tumours it was pain abdomen.

**Table 8. Incidence of Menstrual Irregularities Comparative Analysis of Benign and Malignant Ovarian Tumours**

	Benign (79 cases)		Malignant (16 cases)	
	No. of Cases	Percent	No. of Cases	Percent
Amenorrhoea	6	7.59%	3	18.75%
Regular periods	52	65.82%	12	75%
Irregular periods	17	21.51%	1	6.25%
Menorrhagia	4	5.06%	0	...

**Table 9: Nature of the Tumours**

	Benign		Malignant	
	No. of Cases	Percent	No. of Cases	Percent
Cystic	62	78.48%	1	6.25%
Solid	10	12.65%	12	75%
Partly cystic & solid	7	8.86%	3	18.75%

Cystic tumours are mostly benign and the incidence of solid tumours are more with malignant tumours.

#### Potentially Malignant

Cystic	3
Solid	2

**Table 10: Menstrual functions and ovarian neoplasms**

	Age of Menarche(in years)		Age of Menopause(in years)		
	10-12	13-16	<40	41-50	>50
Benign	57	22	4	19	14
Malignant	11	5	0	8	4

In my 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.<sup>[5]</sup>

**Table 11: Blood Group Distribution (in 2 Years Period)**

	A	B	O	AB Group
Benign	10	18	48	3
Malignant	2	5	8	1

No definite correlation was detected between a particular blood group and incidence of ovarian neoplasms specially of malignant type.

**Other factors studied are:****Socio-Economic Status** **Percentage**Low socioeconomic status 85%Middle socioeconomic status 14%High socioeconomic status 1%

**Occupation:**Majority of the women were house-wives, applicable to both benign and malignant.

**Diet:**Most of the patients were non-vegetarian.

**Education:**Largest group of women were illiterates i.e. 75%, the patients had primary school education were 22%, the rest had higher education 3%.

**Use of hormones:**No correlation was detected among women who used exogenous hormones for Gynaecological disorders. Relation of oral pill was not studied as the majority of the cases were ignorant of any methods.

**Mumps:** No definite correlation was detected.

**Residence:**Majority of patients belonged to rural areas.

**Table 12: Treatment of benign tumours of ovary**

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

In my study period simplest treatment adopted was Salpingo ovariectomy 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.

**Table 13: Treatment and Management of Malignant Ovarian Tumours**

	<b>Treatment and Management</b>	<b>16 cases</b>
1	Total Abdominal Hysterectomy with B.S.O. with Omentectomy + Chemotherapy	9
2	Salpingoovariectomy + Chemotherapy	-
3	Bilateral Salpingoophorectomy + Chemotherapy + Radiotherapy	-
4	Bilateral Salpingoophorectomy + 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 Salpingoovariectomy + Radiotherapy	-

The total abdominal hysterectomy with Bilateral Salpingoophorectomy done for Stage I, II and III according to FIGO's Classification. In 2 years, analysis Salpingoovariectomy done in 4 patients who already underwent total abdominal Hysterectomy previously. In 3 cases debulking done in view of advanced carcinoma.

### **Benign Ovarian Tumours**

In my study period 79 benign neoplasms were noted. A review of literature indicates that benign cystic neoplasms are more common than solid variety. Young, Jeffcoate et al stated that mucinous cystadenomas were the commonest benign neoplasms. Similar findings noted in my analysis. 46.8% mucinous tumours and 35.4% serous tumours were obtained in 2 years study period.

### **Serous Tumours of the Ovary:**

**Incidence:** In my 2 years study period among 79 benign tumours, 28 were serous tumours giving an incidence of 35.4%. Serous cystomas are most common between the age of 21-40 years. In my series they are most common between 20-40 years.

**Table 14: Age Incidence**

<b>Age Group(in years)</b>	<b>No. of Cases</b>	<b>Percentage(28 cases)</b>
10-20	4	14.28%
21-30	10	35.7%
31-40	10	35.7%
41-50	3	10.7%
51-60	1	3.57%

These tumours are most common in the reproductive age group.

**Table 15: Menstrual History**

<b>Menstrual History</b>	<b>No. of Cases</b>	<b>Percentage(28 cases)</b>
Regular cycles	21	75%
Menorrhagia	1	3.57%
Menopause	5	17.8%
Polymenorrhagia	1	3.57%

**Table 16: Other Associated Lesions**

Genital Prolapse	0
Cancer cervix	0
Fibroid	2
Irregular bleeding per vagina	2
Hypertension and diabetes	3

In my 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 above cases, 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 Amathya et al,<sup>[8]</sup> series of non-functional serous cystadenomas 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.

**Table 17: clinical features**

Leading Complaint	No. of cases(28)	Percent
Mass per abdomen	21	75%
Pain in the lower abdomen	16	57.1%
Mass per Vagina	-	-
Leucorrhoea	13	46.4%
Infertility	1	3.57%
Acute Pain Abdomen	-	...
Fever	4	14.2%
Burning Micturition	7	25%
Bleeding per Vagina	6	21.4%

**Treatment adopted in 2-year period:**

Out of 28 cases of serous tumours Salping ovariectomy done in 3 cases (10.7%). Total Abdominal Hysterectomy with Bilateral Salpingophorectomy done in 22 cases in view of age above 40 years and associated menstrual disorders (78.5%). In 3 cases total Abdominal Hysterectomy with Salpingoovariectomy on the affected side done.

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**CONCLUSION**

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