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Original Research Article

A clinicopathological study of adnexal masses in the tertiary care hospital, Kadapa

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ABSTRACT

Background: Adnexal mass is a common clinical presentation among women of all age groups and is extremely common among reproductive age groups. It may be gynecological or non-gynecological origin. The exact prevalence of adnexal mass could not be determined, as most of them develop and resolve without any clinical symptoms. Adnexal mass poses a special perplexity to the attending gynecologists, because the differential diagnosis is extensive and most masses are benign. Differential diagnosis of adnexal mass is complex and includes benign and malignant ovarian tumors, functional cysts, para ovarian cysts, tubo-ovarian abscess, ectopic pregnancy, hydrosalpinx, fimbrial cyst, tubal malignancies, broad ligament fibroid.

Methods: It was a prospective study conducted in the department of gynecology, GGH, Kadapa. It was a tertiary care hospital. Total of hundred cases were included in the study based on selection criteria. Ethical committee approval was taken prior to the study.

Results: A total 100 cases of adnexal masses were included in the study. 40% of study subjects had parity 2 and 11% had maximum parity 4. 81% of study subjects had surgical management. 45 patients had CA125 >35 u/ml. Among them 48% have benign lesions and 51% have malignant lesions. 92.72% of patients with CA125 <35 u/ml have benign lesions and 7.27% have malignant lesions.

Conclusions: Adnexal mass was found to be more common in middle females (54%) in age group 31-50 years. Serous cystadenoma and simple serous cyst (25%) were common benign lesions and most common malignant lesion was serous cystadenocarcinoma.

Keywords: Abdominal mass, Ultrasonography, Tumor marker, RMI, Malignancy index, Treatment given

INTRODUCTION

The adnexa of the uterus include ovaries, fallopian tubes and the structures of the broad ligament. Adnexal mass refers to the ovarian mass or cysts, para tubal cysts, hydrosalpinx, tubo-ovarian mass, ectopic pregnancy. An adnexal mass may be found in women of all ages with significantly variable prevalence. Adnexal mass occurs more frequently in women of reproductive age. Adnexal mass can be of gynecological or non-gynecological etiology.

Approximately, 289000 women are hospitalized annually in the United States because of adnexal mass.¹ 1 in 5 women will develop an adnexal mass 13-21% of these masses will be malignant.² Adnexal mass is usually benign but sometimes malignant. It is the risk of malignancy that incites us for early accurate and prompt diagnosis to lessen morbidity and mortality. Overall, about 10% of ovarian cancers were found to be hereditary. Patients with a family history of breast-ovarian cancer syndrome or non-polyposis colorectal cancer were at an increased risk for developing malignancy.

The causes have a wide range of origins and require versatility in their management. This is because the mass may range from the very benign to the most aggressively malignant lesion. The incidence of different types of adnexal masses is peculiar to our country. Hence a detailed study of the various causes of adnexal mass will help in analyzing the different types of presentation and management.

Approximately 8200 patients attend gynecology OPD of Government General Hospital, Kadapa every year. These hospitals were equipped with ultrasonography, CT scan, MRI, necessary hematological investigations which were required for this study.

Aims and objectives

Primary objective

The primary objective was to study the etiology, symptomatology of patients presenting with adnexal mass.

Secondary objectives

The secondary objectives were evaluation of adnexal mass clinically, using imaging techniques, using biochemical markers and histopathological examination and management and outcome of the patients presenting with adnexal mass.

METHODS

Study setting

The study was undertaken in the Department of Gynecology in Government General Hospital, Kadapa. This was a tertiary care institute serving population of about 4 lakhs.

Study period

The study duration was from November 2019 to June 2021.

Study design

This was a prospective, descriptive, observational, and cross-sectional study.

Study population

A total of 100 cases were included in the study based on below mentioned.

Inclusion criteria

Patients aged between 14 to 70 years with clinically suspected adnexal mass and patients with adnexal mass

who were incidentally detected by imaging techniques were included.

Exclusion criteria

Pregnant women were excluded from the study population.

Source of data

A total 120 patients with adnexal mass were admitted in gynecology department during the study period. Out of 120 patients, 20 patients were ovarian cyst complicating pregnancy and were excluded from the study as the exclusion criteria was pregnant women. 100 patients were taken into study.

Methodology

Ethical committee approval was obtained in certificate no. M197214078. Consent was obtained in prepared study consent. Structure proforma had been prepared. A detailed history was taken from all the patients. Every patient was evaluated clinically and by relevant imaging techniques. An ultrasound examination consisting of transabdominal sonography with color Doppler for suspicious cases of malignancy were done to evaluate. After assessment of sonographic findings like size of adnexal mass, laterality, locularity, solid elements, hemorrhage, presence of ascites, evidence of metastasis, an ultrasound diagnosis was made. Standard laboratory tests which include complete hemogram, liver and renal function tests and CA-125 with a cut off value of 35 U/ml were done. Based on the ultrasound features, menopausal status and CA-125, RMI was calculated using the formula,

$$RMI=U \times M \times CA - 125.$$

RESULTS

100 cases of adnexal mass were included in this study.

The majority of the study subjects were in the reproductive age group and 10 patients were post menopausal.

Table 1: Distribution of study subjects based on their menstrual details.

Menstrual details	Frequency	Percentage
Reproductive	90	90
Post menopausal	10	10
Total	100	100

Table 2: Distribution of the study subjects based on the parity.

Parity	Number	Percentage
Nulliparous	16	16
Multiparous	84	84

Table 3: Correlation of USG score of the surgically managed patients with their histopathological report.

Correlation of USG score		Benign	Malignant	Total	
USG score	1	Number	71	2	73
		% of Total	87.65	2.46	90.12
	3	Number	6	2	8
		% of Total	7.40	2.46	9.87
Total		Number	77	4	81
		% of Total	95.06	4.93	100.0
Chi-square test					
P value=0.005					
Significant					

Table 4: Correlation of CA-125 of the surgically managed patients with their histopathological report.

Correlation of CA-125		Benign	Malignant	Total	
CA-125	<35	Number	71	2	73
		% of Total	87.65	2.46	90.12
	>35	Number	6	2	8
		% of Total	7.40	2.46	9.87
Total		Number	77	4	81
		% of Total	95.06	4.93	100.0
Chi-square test					
P value=0.05					
Significant					

Table 5: Correlation of RMI of the surgically managed patients with their histopathological report.

Correlation of RMI		Benign	Malignant	Total	
RMI	<200	Number	77	2	71
		% of Total	95.06	2.46	97.52
	>200	Number	-	2	10
		% of Total	-	2.46	2.46
Total		Number	77	4	81
		% of Total	95.06	4.93	100.0
Chi-square test					
P value=0.05					
Significant					

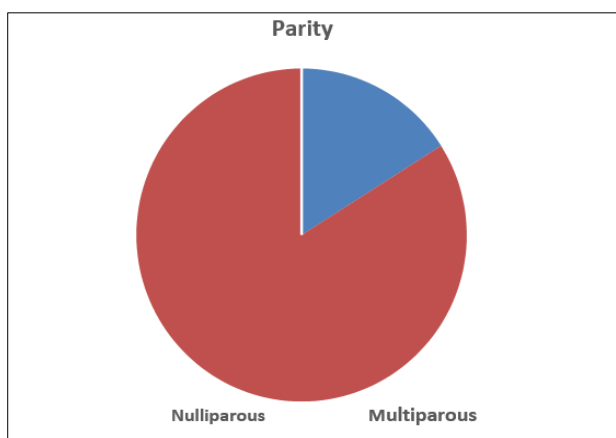


Figure 1: Distribution of the study subjects based on the parity.

Table 2 shows the distribution of the study subjects based on parity. 40% of the study subjects had parity 2 and 11% had the maximum parity of 4. Among the nulliparous women, 5 were unmarried.

In this study, 73 patients had an ultrasound score of 1, that was the presence of one or none of the parameters in ultrasound. Among 73 patients, 97.26% had benign lesions and 2.73% patients had malignant ovarian tumors.

8 patients had an ultrasound score of 3 indicating the presence of 2 or more parameters of ultrasound criteria. Among these patients, 75% had benign lesions and 25% had a malignant ovarian tumor.

The performance status of the ultrasound score has been analyzed with the sensitivity of 50%, specificity of

92.21%, the positive predictive value of 25% and negative predictive value of 97.26% respectively.

Table 6: Most common presenting symptom-comparative study.

S. No.	Study	Most common presenting symptom (%)
1.	Das ⁷	72.41
2.	Present study	66

Table 7: Corpus luteal cysts-comparative study.

Study	Number	Percentage
Sheela (2008) ³	7	8.75
Ashraf et al (2012) ¹³	38	44.70
Present study	10	10

Table 8: Relation of menstrual status and malignancy.

Authors	Malignant tumors (%)	
	Premenopausal	Postmenopausal
Koonings et al ⁸	35	65
Valentin et al ⁶	25	75
Our study	25	75

Table 9: Sensitivity, specificity, PPV and NPV of CA-125 in detection of malignancy.

Parameters	Benjapibal et al ¹⁶	Putri et al ¹⁷	Our study
Sensitivity	83.1	81.43	85
Specificity	39.3	60	69.85
PPV	-	87.69	92.73
NPV	-	48	51.11

CA 125 was analyzed with a cut-off value of 35 U/ml. The normal range is 0-35 U/ml. In our study, CA 125 with a cut-off value of 35 U/ml. 45 patients had >35 U/ml.

Among them, 48% had benign lesions and 51% had malignant lesions. 92.72% of patients with CA 125 <35 U/ml had benign lesions and 7.27% had malignant lesions. RMI was analyzed with a cut-off value of 200. In our study, RMI of >200 was seen in 2 patients and had malignant lesions.

Among the patients with <200, 97.46% had benign lesions and 2.53% had malignant lesions. The performance status of RMI had been analyzed with a sensitivity of 50%, specificity of 100%, the positive predictive value of 100%, and negative predictive value of 97.47% respectively.

DISCUSSION

The present study was conducted with the objective of evaluating the clinical profile of adnexal mass presenting

in women of age between 14 years to 70 years. The adnexal mass presents a wide range of clinical manifestations. According to the study done by Sharma et al 87.50% presented with abdominal pain.⁴ In the present study, the commonest presenting symptom was pain abdomen similar to the study done by Das.⁸

Corpus luteal cysts

Corpus luteal cysts constituted 10% of this study similar to the study done by Sheela.³ All the corpus luteal cysts were in women who were less than 50 years of age similar to the observation by Sheela.³ Corpus luteal cysts were less prevalent than follicular cysts.

Among the corpus luteal cysts, 5 were treated conservatively and the remaining 5 were operated and cystectomy was done because of torsion.

Simple cysts

Ovarian cysts without identifiable lining were termed simple cysts. In this study, there were 25 cases. This incidence is in contrast to the study done by Sheela (14.16%) and Paravatala et al (15.24%).^{3,15} The age of the patients with simple cysts ranged from 19 years to 60 years similar to the observation by Paravatala et al.¹⁵ In our study, among the 100 adnexal mass, 19 were treated conservatively and the remaining 81 underwent surgical intervention. Functional cysts of size less than 7 centimeters, with no evidence of torsion and normal CA-125 levels were offered medical management.

The commonest type of ovarian neoplasm seen in our study was surface epithelial tumor whether benign or malignant (42/100). The studies carried out by Aziz et al and Khanum et al also observed serous cystadenoma to be the commonest tumor.¹³

There were 7 cases of dermoid cysts which was similar to the incidence reported by Akshata (12%) and Manivasakam et al (14%).¹⁰ The frequency of malignant tumors in our study was highest for serous cystadenoma (50%) followed by clear cell carcinoma (25%) and mucinous cystadenoma (25%).

Our results were similar to the results obtained in Kayastha et al and Fathima et al study.¹² Hence proving that nulliparity was not an important etiological factor in the development of an ovarian tumor and increasing parity was not protective against ovarian tumors in our setup.

The findings of the present study revealed a higher percentage of malignant ovarian tumors in postmenopausal women, which was consistent with previous studies. This confirmed that malignant ovarian tumors were common in postmenopausal women.

CA-125 screening has a sensitivity of 61% to 90% in distinguishing benign from malignant adnexal mass, a

specificity of 71% to 93%, a positive predictive value of 35% to 91%, and a negative predictive value of 67% to 90% according to reports. The values vary widely due to variances in cancer prevalence in the study population, the proportion of postmenopausal patients and the threshold of CA-125 levels considered abnormal.

CONCLUSION

Adnexal mass was found to be more common in the middle age females particularly in the reproductive women and the usual presentation was with symptoms of abdominal pain and mass per abdomen. Right sided adnexal mass was more common than left sided or bilateral masses. Elevated levels of CA-125 in post-menopausal women has high index of suspicion of malignancy. Ultrasound and CA-125 were important adjuvants which would play vital role in the diagnosis and treatment of adnexal masses in perimenopausal and post-menopausal women. Of all the adnexal mass, 4% were malignant and 96% were benign. Serous cystadenoma and simple serous cysts were the most common benign lesion and the most common malignant lesion was serous cystadenocarcinoma.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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