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CORRELATION OF CLINICAL, SONOLOGICAL AND HISTOPATHOLOGICAL FINDINGS IN ADNEXAL MASSES – A DESCRIPTIVE LONGITUDINAL STUDY

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ABSTRACT

Introduction: Adnexal masses are a common clinical diagnosis in women from puberty, affecting five to ten percent of them throughout the course of their lives. One prevalent gynaecological issue is adnexal masses. In the great majority of cases, masses are benign. However, the possibility of cancer must be taken into account.

Aims: To determine the occurrence of ovarian tumors in patients attending Obstetrics and Gynaecology department of Bankura Sammilani Medical College and Hospital and correlate the presenting clinical features with the sonological and histopathological type of tumor thus facilitating prompt diagnosis and treatment.

Materials and methods: We carried out the current study for correlation of clinical, sonological and histopathological findings in adnexal masses – a descriptive longitudinal study at Department of Obstetrics & Gynaecology, Bankura Sammilani Medical College and Hospital for a period of 1.5 years. A total of 70 female patients in the age group of 14 years to 40 years (post pubertal to pre-menopausal) with clinical diagnosis of adnexal mass were included in the study.

Result: In majority [65(92.86%)] of patients, clinical findings was abdominal mass followed by pain abdomen [62(88.57%)]. Clinical findings was ascites in only 18 out of 70 patients (25.71%). In majority [62(88.57%)] of patients, bimanual examination finding was unilateral

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mass followed by bilateral mass [5(7.14%)]. Bimanual examination finding was none in only 3 out of 70 patients (4.29%).

Conclusion: In majority of patients, clinical findings was abdominal mass followed by pain abdomen. Clinical findings was ascites in only 18 out of 70 patients. In majority of patients, bimanual examination finding was unilateral mass followed by bilateral mass. Bimanual examination finding was none in only 3 out of 70 patients.

Keywords: Adnexal, Cyst, Tumour and Carcinoma.

INTRODUCTION

Adnexal masses are a common clinical diagnosis in women from puberty, affecting five to ten percent of them throughout the course of their lives. One prevalent gynaecological issue is adnexal masses [1,2] In the great majority of cases, masses are benign[3]. However, the possibility of cancer must be taken into account.

Due to their size, closeness to other important pelvic organs, and potential for pain or discomfort, benign tumours can be problematic. It can be advised to have the lump surgically removed. Some benign lumps, however, could be essentially asymptomatic and can be watched. The advantages of avoiding an intrusive surgery and the related expenditures, both financially and in terms of recuperation time, are obvious[4].

The greatest death rate among all gynaecological malignancies is related to malignant epithelial ovarian tumours[5] With a 5-year survival rate as low as 10%, the majority of ovarian tumours are discovered at late stages. An up to 90% 5-year survival rate is possible with early diagnosis[6].

Gynaecologists can send women with suspected malignancies to a gynaecologic oncologist for the right treatment and optimum debulking, which is known to increase survival rates, with the support of a proper preoperative examination to distinguish between benign and malignant adnexal tumours[2].

Ovarian masses are already known to have a variety of clinical and pathological characteristics. Prepubertal, adolescent, and postmenopausal eras all have different potential explanations for pelvic masses seen during physical and radiological tests, most of which are benign ovarian-originated growths. Pelvic mass can develop from the gynaecological region, the urinary system, or the digestive system[7,8]. Adnexal masses can be benign or cancerous in nature. Although physiological follicle cysts and corpus luteum cysts are the adnexal masses most frequently found in premenopausal women, ectopic pregnancy or adnexal torsion must always

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be taken into consideration in the differential diagnosis since they necessitate immediate treatment[9,10]. In the reproductive age range, endometrioma, polycystic ovaries, tuboovarian abscesses, and benign neoplasia must also be taken into account. Aging causes a rise in malignant neoplasia. Therefore, histopathological examination is considered a gold standard for detection of adnexal masses.

Other differential diagnostic approaches for a suspected adnexal mass include imaging, most frequently with transvaginal ultrasonography. Based on its physical characteristics, imaging may plainly show the tumour to be benign or malignant, however there are numerous instances when the mass is uncertain[11]. In these situations, follow-up imaging after some time is advised in order to ascertain if the mass is persistent, stable, or has disappeared in the asymptomatic patient. Delay in the discovery and care of a malignant lesion is a concern of this strategy[12].

To help with appropriate management, a number of grading systems and prediction models have been created to distinguish between benign and malignant ovarian tumours. These models include biochemical indicators, ultrasonography markers, and patient features[13]. Women should be checked for ovarian cancer if they have pelvic or abdominal discomfort, fast satiety, trouble eating, or increased belly size or bloating more than 12 times per month in less than a year. Negative pelvic examination findings in a sick woman should not discourage additional workup because pelvic examination has a low sensitivity for identifying an adnexal tumour. Women of reproductive age must rule out the possibility of an ectopic pregnancy[14].

In the right patients, a cancer antigen 125 (CA 125) test may help with the examination of an adnexal tumour. Other than ovarian cancer, illnesses with increased CA 125 levels exist. It is not advised to utilise CA 125 levels alone to distinguish between a benign and malignant adnexal tumour because there may be significant overlap in these values between pre- and postmenopausal women. The preferred method for imaging an adnexal mass is transvaginal ultrasonography. Cancer may be indicated by a large mass, complexity, projections, septation, irregularity, or bilaterality. Computed tomography may be recommended if a condition outside the ovaries is suspected; magnetic resonance imaging may be better able to detect ovarian cancer. Differentiating between benign and potentially malignant adnexal masses may be made easier with serial ultrasonography and routine measurements of CA 125 levels. Referral to a gynaecologist or gynecologic oncologist is necessary if an ultrasonographic discovery of an adnexal mass greater than 6 cm is made, or if the finding lasts for more than 12 weeks.

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The present study was a descriptive, longitudinal study which was aimed to study the correlation of clinical, sonological and histopathological findings in adnexal masses.

MATERIAL AND METHODS

Study Design: Descriptive longitudinal study

Study Setting: After approval from Institutional Ethics Committee, the present study was conducted at Department of Obstetrics & Gynaecology, Bankura Sammilani Medical College and Hospital, Bankura, West Bengal.

Study Period: 18 months

Study Population: The present study included all women admitted to the Dept. of Obstetrics & Gynaecology, for whom the clinical diagnosis of adnexal mass was made. An informed consent was obtained from all subjects before enrolling them for the study.

Inclusion criteria:

- Female patients in the age group of 14yrs to 40yrs (post pubertal to pre-menopausal) with clinical diagnosis of adnexal mass during the study period.
- Patients where adnexal mass is incidentally detected at time of routine bimanual pelvic or sonological examination done as a work up for other diagnosis.

Exclusion criteria:

- Pregnancy with adnexal masses
- Mass arising from an abdominal organ on laparotomy (non gynaecological causes)
- Women on Ovulation induction drugs
- Females unwilling to participate
- Females who do not get operated

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RESULTS

In majority [65(92.86%)] of patients, clinical findings was abdominal mass followed by pain abdomen [62(88.57%)]. Clinical findings was ascites in only 18 out of 70 patients (25.71%). In majority [62(88.57%)] of patients, bimanual examination finding was unilateral mass followed by bilateral mass [5(7.14%)]. Bimanual examination finding was none in only 3 out of 70 patients (4.29%). In majority [46(65.71%)] of patients, USG size (cm) was <10 followed by 10 to 15 [18(25.71%)]. USG size (cm) was >15 in only 6 out of 70 patients (8.57%). Majority [26(37.14%)] of patients were hypoechoeic followed by anoechoeic [18(25.71%)] and hyperechoeic [16(22.86%)]. Mixed echogenecity was present in only 10 out of 70 patients (14.29%). In majority [45(64.29%)] of patients, component was cystic followed by solid and cystic [17(24.29%)]. Component was solid in only 8 out of 70 patients (11.43%). 30(42.86%) patients had free fluid in POD. Ascites was present in only 17 out of 70 patients (24.29%). In majority [63(90.00%)] of patients, according to USG diagnosis, malignancy was absent. Malignancy was present in only 7 out of 70 patients (10.00%). In majority [64(91.43%)] of patients, according to histopathological diagnosis, malignancy was absent. Malignancy was present in only 6 out of 70 patients (8.57%). Clinical and USG diagnosis had sensitivity of 50.00% each. On the other hand, USG diagnosis had specificity of 93.75% followed by clinical suspicion (92.19%). Highest positive predictive value was found in USG diagnosis (42.86%) and highest negative predictive value was found in USG diagnosis (95.24%).

Table: - Distribution of clinical findings of study subjects

		Frequency	Percentage
Clinical findings	**Abdominal mass**	65	92.86%
	Ascites	18	25.71%
	Pain abdomen	62	88.57%
Bimanual examination	**None**	3	4.29%
	Unilateral mass	62	88.57%
	Bilateral mass	5	7.14%

Table:-Distribution of USG parameters of study subjects

USG parameters	Frequency	Percentage
USG size(cm)		
<10	46	65.71%
10 to 15	18	25.71%

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>15	6	8.57%
ECHO		
Anoechoeic	18	25.71%
Hypoechoeic	26	37.14%
Hyperechoeic	16	22.86%
Mixed echogenicity	10	14.29%
Component		
Cystic	45	64.29%
Solid	8	11.43%
Solid and cystic	17	24.29%
Ascites	17	24.29%
Free fluid in POD	30	42.86%

Table:-Distribution of USG diagnosis of study subjects, histopathological diagnosis of study subjects

		Frequency	Percentage
USG diagnosis	Malignancy present	7	10.00%
	Malignancy absent	63	90.00%
	Total	70	100.00%
Histopathological diagnosis	Malignancy present	6	8.57%
	Malignancy absent	64	91.43%
	Total	70	100.00%

Table:-Sensitivity, specificity, positive predictive value and negative predictive value of clinical diagnosis and USG diagnosis for predicting malignancy taking histopathological diagnosis as gold standard

Variables	Clinical suspicion	USG diagnosis
Sensitivity (95% CI)	50 %(11.81% to 88.19%)	50 %(11.81% to 88.19%)
Specificity (95% CI)	92.19 %(82.70% to 97.41%)	93.75 %(84.76% to 98.27%)
AUC (95% CI)	0.71(0.59 to 0.81)	0.72(0.60 to 0.82)
Positive Predictive Value (95% CI)	37.5 %(8.52% to 75.51%)	42.86 %(9.90% to 81.59%)
Negative Predictive Value (95% CI)	95.16 %(86.50% to 98.99%)	95.24 %(86.71% to 99.01%)
Diagnostic accuracy	88.57%	90.00%

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DISSCUSSION

- The current study was carried out to determine the occurrence of typical and uncommon causes of adnexal masses, their varied manifestations, and their relationships to ultrasonographic, surgical, and histopathologic results.
- This study on adnexal masses aims to determine the most common organ of origin and histological type, as well as to compare the diagnostic efficacy of preoperative bimanual pelvic and ultrasonographic tests to histopathological examination, the gold standard for adnexal mass diagnosis.
- Distribution of patients was done on the basis of age into 3 groups i.e., 14-20 years, 21-30 years and 31-40 years of age. It was observed that 55.71% of the patients belonged to age group 31-40 years followed by 32.86% patients under age group 21- 30 years while 11.43% patients were under age group of 14-20 years. Mean age of the patients was 31.03 ± 6.8.
- Distribution of patients was done according to the family history of ovarian/breast cancer. It was observed that none of the patient had any family history of ovarian/breast cancers.
- Further, distribution of patients was done on the basis of clinical findings. It was observed that abdominal mass was found in 92.86% of patients followed by pain in abdomen (88.57%). Ascites was seen in 25.71% of the patients. Further, under bimanual examination, unilateral mass was seen in 88.57% of patients whereas bilateral mass was found in 7.14% patients. No bimanual examination finding was found in 4.29% patients.
- Distribution of patients was then done according to the clinical suspicion. It was observed that malignancy was absent in 88.57% of the patients whereas it was present in only 11.43% patients.
- Distribution was then done according to the USG parameters. It was observed that USG size was <10 cm in 65.71% of patients, followed by 25.71% patients with USG size 10-15 cm while only 8.57% patients had USG size >15 cm. 37.14% of patients were hypoechoic followed by anechoic (25.71%) and hyperechoic (22.86%). Mixed echogenicity was present in only 14.29% patients. In majority (64.29%) of patients, component was cystic followed by solid and cystic (24.29%). Component was solid in 11.43% patients. 42.86% patients had free fluid in POD. Ascites was present in only 24.29%.
- Distribution was further done according to USG diagnosis. It was observed that malignancy was absent in 90% patients whereas it was present only in 10% patients.

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- Further, distribution of patients was done according to histopathological diagnosis. It was observed that malignancy was absent in 91.43% patients whereas it was present in only 8.53% patients.
- According to adnexal mass, patients were further distributed. It was observed that the most common site of adnexal mass was ovarian (95.71%) followed by broad ligament (2.86%) and fallopian tube (1.43%). Among the ovarian origin adnexal masses, 26.87% were non neoplastic, 62.69% were benign neoplasms and 10.45% were malignant neoplasms. Chronic follicular salpingitis and broad ligament leiomyoma were the only fallopian tube pathology and broad ligament pathology detected in the study respectively.
- Distribution of patients was then done according to non-neoplastic ovarian mass. It was observed that in patients with non-neoplastic ovarian mass, endometriosis was present in majority (38.89%) of patients followed by hemorrhagic corpus luteal cyst (27.78%). Fimbrial cyst, simple cyst and tubo-ovarian mass was present in only 11.11% patients each.
- According to benign tumor, patients were again compared, it was observed that in patients with benign tumor, majority (42.86%) of patients had serous cyst adenoma followed by mucinous cyst adenoma (38.10%). Mature teratoma (dermoid) was present in only 19.05% patients.
- Further, distribution of patients was done according to malignant tumor. It was observed that in 28.57% patients with malignant tumor, granulosa cell tumor, mucinous tumor of borderline malignancy was present each. Dysgerminoma, papillary serous cyst adenosarcoma and serous cyst adenocarcinoma was present in only 14.29% each.
- Association of clinical findings was done with histopathological diagnosis. It was observed that distribution of malignancy was comparable with abdominal mass, pain abdomen and bimanual examination. Malignancy was seen in 9.23% patients with Abdominal mass (p value =1), 12.5% patients with no pain in abdomen vs 8.06% with pain (p value=0.531), Bimanual examination with Unilateral mass in 6.45% patients vs Bilateral mass in 40% patients (p value=0.072). Malignancy rate was significantly higher in patients with ascites (27.78%) as compared to patients without ascites (1.92%). (p value=0.004).
- Further, association of clinical suspicion with histopathological diagnosis was done. It was observed that proportion of patients with malignancy was significantly higher in cases with clinically diagnosed malignancy (37.50%) as compared to cases with clinically diagnosed non-malignancy (4.84%) (p value=0.017).
- Association of USG parameters with histopathological diagnosis was done. It was observed that malignancy was comparable with USG size, ECHO, free fluid in POD. (USG size <10

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cm in 6.52% patients vs 10 to 15 cm in 11.11% patients vs >15 cm in 16.67% patients (p value=0.487), Echo as Hypoechoic in 7.69% patients vs Hyperechoic in 18.75% patients vs Mixed echogenicity in 10% patients (p value=0.216), Free fluid in POD in 13.33% patients (p value=0.391).

- Proportion of patients with malignancy was significantly higher in solid and cystic (23.53%) as compared to cystic (2.22%), solid (12.50%) (p value=0.026). Malignancy rate was significantly higher in patients with ascites (23.53%) as compared to patients without ascites (3.77%) (p value=0.028).
- Association of USG diagnosis with histopathological diagnosis was done. It was observed that proportion of patients with malignancy was significantly higher in cases with USG diagnosed malignancy (42.86%) as compared to cases with USG diagnosed non-malignancy (4.76%) (p value=0.011).
- Sensitivity, specificity, positive predictive value and negative predictive value of clinical diagnosis and USG diagnosis were compared for predicting malignancy taking histopathological diagnosis as gold standard. It was observed that clinical and USG diagnosis had sensitivity of 50% each. On the other hand, USG diagnosis had specificity of 93.75% followed by clinical suspicion (92.19%). Highest positive predictive value was found in USG diagnosis (42.86%) and highest negative predictive value was found in USG diagnosis (95.24%).

CONCLUSION

Our study concludes the correlation of clinical, sonological and histopathological findings in adnexal masses – a descriptive longitudinal study. The current study was conducted at Department of Obstetrics & Gynaecology, Bankura Sammilani Medical College and Hospital for a period of 1.5 years. A total of 70 female patients in the age group of 14 years to 40 years (post pubertal to pre-menopausal) with clinical diagnosis of adnexal mass were included in the study. Mean age of the patients was found to be 31.03 ± 6.8. There was no family history of ovarian/breast cancers. Abdominal mass was found in majority (92.86%) of patients followed by pain in abdomen (88.57%). Unilateral mass was seen in majority (88.57%) of patients whereas bilateral mass was found in only 7.14% patients. Malignancy was absent in majority (88.57%) of the cases according to the clinical suspicion. USG size was <10 cm in majority (65.71%) of patients. Further, according to USG and histopathological diagnosis, malignancy was absent in 90% of patients. The most common site of adnexal mass was ovarian (95.71%) followed by broad ligament (2.86%) and fallopian tube (1.43%). Endometriosis was present in

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majority (38.89%) of patients followed by haemorrhagic corpus luteal cyst (27.78%). Majority (42.86%) of patients had serous cyst adenoma as benign tumor and granulosa cell tumor and mucinous tumor as borderline malignancy. Clinical and USG diagnosis had sensitivity of 50% each. USG diagnosis had specificity of 93.75% followed by clinical suspicion (92.19%). Highest positive predictive value was found in USG diagnosis (42.86%) and highest negative predictive value was found in USG diagnosis (95.24%).

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