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To Study the Pattern and Clinicopathological Correlation of Adnexal Masses

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KEYWORDS
Adnexal Masses, Endometriosis Cysts, Treating Physician, Kishoregonj, Clinic Pathological, Microsoft Excel Software, Ovarian Pathology.

Abstract

Background: For a treating physician, adnexal masses may provide an indication for a problem. The current study's objective was to ascertain the frequency of several types of ovarian tumours and its association with clinico pathologic characteristics in patients visiting department of gynaecology, KIMS, Karad. Our goal was to investigate the ovarian lesions' and its clinico pathologic features.

Objective: Examine and corelate the relationship between pathological features of masses and its clinical appearances.

Method: This six-year retrospectively examination, which had 550 occasions of adnexal masses overall, was carried out at Department of Gynaecology, KIMS, Karad. The Pathology department provided the histological data, while the obstetrics and gynaecological department's system provided the clinical information. Microsoft Excel was used to record the findings and SPSS software to analyse the data.

Results: Of total adnexal masses, ovarian pathology was responsible for 76.36%, while the fallopian tube was the source of 23.63% of the cases. From the ovarian infections, we identified 168 cancerous and 252 non-neoplastic lesions. Of the ovarian neoplasms, 91 percent (91.1%) constituted benign, 7.1% cancerous, and 1.8% were intermediate aggressive. The most prevalent kind of cancers (46.4%) were serous tumours, which followed by mucinous and germinating cell cancers (23.2% each). Cysts caused by endometriosis were the most prevalent non-neoplastic lesion (34.5%).

Conclusion: Adhesion prevention techniques for benign ovarian tumours should be used, and surgical treatment should strive to preserve fertility. Tumour markers are a useful diagnostic tool, although they are unreliable when used alone and have little efficacy in identifying benign from aggressive pelvic masses.

I.INTRODUCTION

At birth, a woman has a 6.0–7.0% chance of developing an ovarian tumour, 1.0% chance of developing breast cancer, and roughly 1.5% chance of dying from the cancer of the ovary. Although benign serous tumours may develop at any age, they are more prevalent in the reproductive age range [1]. The first thirty years of life are very uncommon for serous cancers. Approximately 60.0% of ovarian tumours in individuals under the age of 21 are embryonic cell tumours, which make up two thirds of ovarian malignancies in the first two decades of life [2, 3].

The majority of ovarian masses in adolescents are functional in origin; they either disappear without symptoms or go away with no medical intervention. Ovarian cysts, however, may indicate a cancerous activity under the surface. Abdominal discomfort, [3], a lump, or irregular menstruation are frequent symptoms. Pancreatic adenocarcinoma is the primary cause of mortality from gynaecologic malignancy and the fifth most prevalent cause of cancer-related fatalities in the Western world [4].

In clinical practice, adnexal masses—both painful and asymptomatic—are often seen entities. Gynaecological

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physicians have several challenges while dealing with these infections, both malignant and non-neoplastic [5]. It's critical that they be properly identified and categorised to enable the right kind of medication. Globally, ovarian carcinoma ranks sixth among women's cancer-related deaths (age-standardized mortality prevalence: 4/100,000) [6]. In India, it contributes to as much as 8.7% of all cancer cases in certain regions [7].

Out of all the cancers found in the adult age ranges, ovarian lesions are mostly benign, with around 30% of postmenopausal women having malignant ones. Diverse clinical manifestations are common in ovarian tumours, and they often show as generic, [8], non-gynaecological symptoms. These carcinomas, which are categorised into three types: sex cord mesenchymal cell cancers, embryonic cell tumours, and epithelium cell tumours, often do not show symptoms in the early stages, which causes the illness to worsen before being discovered [9]. Ovarian cancer is known as the "Silent Killer" because of its high death rate, which is mostly brought on by delayed identification. Histopathological analyses are carried out in order to definitively diagnose an adnexal mass [10].

Making the distinction between tumours that are malignant and benign is the evaluation's primary goal. With US alone, over 90% of the abdominal masses may be properly described. Additional Ultrasound (US), [11, 12], CT, or MRI scans can be required in some circumstances. Serum CA125 level is a useful tool for epithelial malignancy assessment and follow-up. As of right now, there are no ovarian cancer screening tests available [13, 14]. There is currently not enough proof to support the combined use of blood CA125 levels and pelvic ultrasonography for ovarian cancer screening. Histopathological testing remains the industry's gold standard for differentiating benign from tumours that are malignant.

One additional noteworthy feature of tumour biomarkers is that some of them may become more abundant in non-cancerous circumstances. Furthermore, not all cancer types have a known set of tumour markers. Therefore, this investigation was carried out to evaluate the histological pattern and clinical symptoms of masses of the ovaries in teenagers, in addition to their tumour indicators.

In the female reproductive years range, benign malignancies, endometriosis cysts, tubo-ovarian abscesses, and ectopic pregnancies are the most prevalent causes of adnexal mass; malignancy is less common. Primary and subsequent ovarian neoplasms should be regarded as differential diagnosis for adnexal tumours in postmenopausal women [14, 15]. The objective of this research was to evaluate the incidence, clinical features, and histopathological features of adnexal masses in addition to various forms of ovarian neoplasms.

1.1 Objectives of the study

- Identify and evaluate the clinical signs and risk factors connected to various adnexal mass types.
- To improve diagnosis accuracy, establish a relationship between the imaging features of mass in the adnexal region and the histological diagnoses associated with them.

II.LITERATURE REVIEW

(Preeti Pushpam, S. 2020) [16] Throughout a woman's life, the ovaries are the organs that have the potential to develop benign and malignant tumours. Cancer of the uterus continues to rank as the fifth most common cause of cancer-related mortality. Given that 10% of those diagnosed have a transmitted genetic susceptibility, the family history is the most significant factor. Both the luteal and follicular stages of the ovarian cycle depend on angiogenesis. It also plays a role in a number of pathologic ovarian cycles. The remaining group, which is mostly benign, is made up of neoplasms. Participants in the menstrual and prior to menopause age groups who were admitted to ISOKGH for a year-long examination were included in the research. Menarche their ages, parity, last period, menstrual cycle symptoms, and family history were among the gynaecological and basic data (age, the occupation, education, and residence) that were collected from each patient.

(Reiter, M. J., Schwope, R. B., 2014) [17] Despite being less frequent than their cystic equivalents that solid adnexal masses may nevertheless provide a challenge to radiologists because to the variety of histologic groups that can exist in this area. Pelvic masses might first seem overpowering, particularly if they are big, but using an algorithmic method enables more confident evaluation. This method initially focuses on focusing the mass's origin by using the anatomic linkages and interactions of several pelvic tissues. For example, ureteral displacement direction might indicate whether a mass is intra- or extra-peritoneal.

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(Temma-Asano, K., Kimura, T., 2006) [18] By using transvaginal ultrasonography in routine clinical settings, we were able to detect asymptomatic adnexal masses in postmenopausal women more often. Historically, these lumps were thought to be a sign that a surgical excision was necessary to make a histological diagnosis. Recently, it has been shown that ultrasonography benign diagnosis is relatively trustworthy, therefore cautious care may be appropriate if the look of the cyst is simple. Here, we examine the validity of the benign diagnosis for both simple and complicated postmenopausal adnexal cystic tumours using MR imaging enhanced by gadolinium as.

(Perveen, S. A. I. M. A., 2014) [19] To investigate the relationship between the hysterectomy specimen's histological diagnosis and preoperative clinical diagnosis. descriptive research. Location and length of study: From November 2010 to November 2011, the division of obstetrics and the field of g at Baqai Medical University Karachi's Fatima Hospital. Patients provided information such as age, parity, presenting problems, and reason for hysterectomy. Every hysterectomy specimen's histopathology was gathered. A total of 81 hysterectomies were done during the course of the study's one-year duration. Period abnormalities were the most prevalent presenting symptom, followed by persistent lower abdomen discomfort. In 52 patients (64%) hysterectomy and bilateral salpingoophrectomy has been carried out.

(Park, S. B., Kim, 2018) [20] To assess the radiological, pathological, and clinical characteristics of ovarian SSPBTs (Serous Surface Papillary Borderline Tumours) in retro. The existence of ascites, tumour size, laterality, and dissemination were among the imaging findings that were examined. Additionally assessed were the morphological nature (protected normal ovary, MRI features) and the improvement in contrast (increased flow on Delta ultrasonography). An analysis was conducted on clinical and pathological characteristics, including tumour markers (CA 125), methods of treatment, follow-up results, and surgical staging.

(Swamy, G. G., 2010) [21] Ovarian neoplasms have grown in significance owing to their progressive rise in the mortality rate from female genital malignancies, rather than only the wide diversity of neoplastic entities. Between March 2005 and March 2010, 120 cases of ovarian tumours were examined at the Laboratory of Pathological Sciences, Konaseema University of Medicine in Amalapuram, India, in order to determine the incidence of various histological patterns associated with ovarian tumours in the Konaseema Region. Granulosa cell tumours and endometrial carcinomas were the most prevalent malignant tumours, whereas serous cyst adenoma was the most common benign tumour. The most prevalent kind of ovarian cancers were epithelial tumours, which were followed by germ cell tumours. In this investigation, a comparatively high proportion of cancers had been identified.

(Saha, D., Bhadra, R. C., 2022) [22] Diagnosing adnexa masses might be difficult. Determining the degree of suspicion for malignancies is the most important step after ovarian mass detection. The techniques of imaging and clinic pathology connection serve as its primary foundations. Goals & Aspirations: The purpose of this radiological investigation was to use abdominal Composite Enhanced-Computed Tomography (CECT) to distinguish between benign and malignant ovarian tumours, and to correlate the radiological results with the histological report.

III.METHOD

The masses of the adnexal area that were treated surgically at the Department of Obstetrics and Gynaecology, KIMS during a six-year period (2015 to 2021) were the subject of this retrospective study .550 patients' complete clinical history and other pertinent information were gathered from the hospital database [23].

The research eliminated patients without a histopathological diagnosis, without relevant tests, and with inadequate clinical data or history. Women receiving both chemotherapy and radiation for ovarian cancer were also not included. The research covered newly diagnosed and surgically treated patients with a histological diagnosis of tubo-ovarian mass [24]. Written informed consent was obtained both at the time of procedure and admission. The specimens were properly labelled.

After using the proper staining method (hematoxylin and eosin), the pathology department examined the specimens histopathologically. Microsoft Excel was then used to record the findings and SPSS software to analyse the gathered data.

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IV.RESULTS

One third (n=130, 23.63%) of adnexal masses were caused by tubal lesions, while two thirds (n=420, 76.36%) had links to ovarian disease. Ruptured Ectopic pregnancy Tubal Pregnancy (41.3%), Not-specific Salphingo-Oophoritis (40.6%), Tubo-Ovarian Abscesses (9.52%), Tubal Endometriosis (7.7%), and Tubercular Salphingo-Oophoritis (6.9%) were the most prevalent pathologies among the 130 tubal lesions. Figure 1 illustrates this relationship.

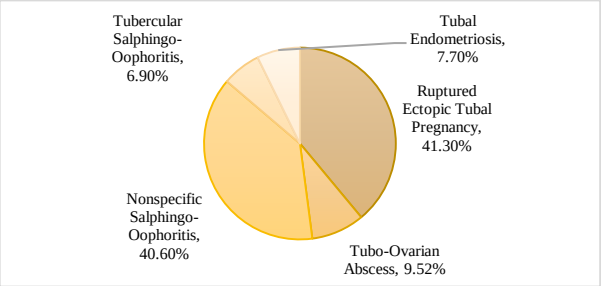

Fig. 1 Tubo-Ovarian Mass Distribution of Tubal Diseases (n=130).

Out of the 420 gynaecological lesions, we documented 168 neoplastic and 252 non-neoplastic lesions. Ninety-one percent of the neoplastic tumours were determined to be benign, with the remaining lesions being either malignant or borderline malignant. Serous cyst cancers (44.6%) were the most prevalent benign tumours, followed by mucinous cyst carcinoma (17.8%) and germ cell tumours (23.2%). Out of the 12 malignant tumours found, three cases each of serous cystadenocarcinoma and a condition called end carcinogenesis were found, and six cases of mucinous cyst adenocarcinoma Table 2.

Table 2 Distribution of ovarian tumours histopathologically (n=168).

Histopathological type	**No.**	**%**
Surface Epithelial Tumours	124	63.9
Serous Tumour	78	59.9
Serous Cystadenoma	74	44.6
Serous Cystadenocarcinoma	3	1.7
Mucinous Tumour	38	25.6
Mucinous Cystadenoma	30	16.9
Mucinous Cystadenocarcinoma	5	4.6
Borderline Mucinous Cystadenocarcinoma	4	1.9
Endometriosis Adenocarcinoma	5	1.5
Germ Cell Tumour	38	23.9
Benign Cystic Tertoma	41	25.6
Struma Ovary	4	1.8
Fibroma/Fibrothecoma	9	5.8
Granulosa Cell Tumour	4	1.7

The borderline cancer was found in the mucinous group. Inclusion cysts, at 28.5% (n=256), were the most prevalent non-neoplastic mass, followed by endometriosis cysts, at 34.5% (n=87). The arrangement of non-neoplastic ovarian diseases is shown in Figure 2.

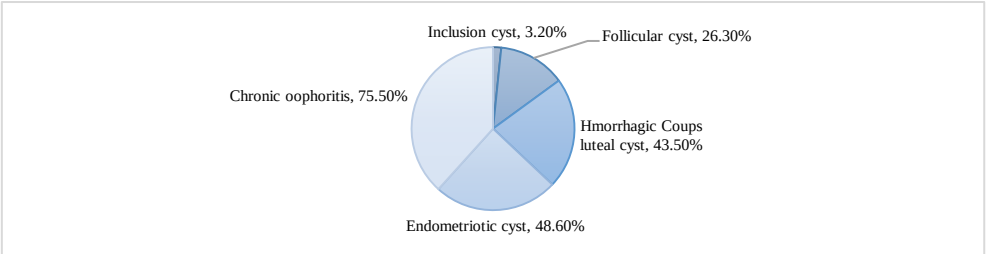

Fig. 2 Distribution of ovarian tumours that are not cancerous (n=252).

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The age range of 21–40 years old showed the greatest frequency of benign ovarian tumours. Most of the non-neoplastic lesions were seen in the age group of 41–60 years old, then in the age group of 21–40 years old. All malignant tumours were found in the age range of 41 to 60. Table 2 shows the pattern of gynaecological lesions in various age groups.

Age (years)	**Neoplastic Tumour**								**Non-Neoplastic lesion**				
	Serous (T)		**Mucinous (T)**			**Germ Cell (T)**	**Endometriosis Adenocarcinoma**	**Sex Cord (T)**	**Inclusion Cyst**	**Follicular Cyst**	**Endometriotic Cyst**	**Coupus Luteal Cyst**	**Chronic Oophoritis**
	B	M	B	B L	M	6	-	4	5	-	-	6	-
<20	3	-	-	-	-	25	-	-	14	8	9	-	-
21-40	25	-	17	5	-	14	-	5	41	35	36	6	-
41-60	39	2	8	-	5	6	3	-	9	26	67	-	4
>60	8	-	-	-	-	-	-	-	2	-	58	-	-

The most common clinical presentation among neoplasia and non-neoplastic lesions in our analysis was abdominal discomfort (Table 3), with 29.3% of patients initiating with the condition falling within the reproductive age range.

Table 3 Patients' clinical presentations (n = 550).

Clinical presentation	**No. of patients with %**
Pain abdomen	165 (26%)
Abdominal Lump	129 (36%)
GI Symptoms	79 (32%)
Post-menopausal bleeding	69 (26%)
Menstrual abnormality	60 (31%)
Infertility	52 (23%)
Incidental finding	108 (18%)

V.DISCUSSION

76.36% of the 550 instances of tubo-ovarian masses were caused by disease connected to the ovaries, whereas 23.63% of cases were caused by other tubal pathologies. Ectopic tubal the pregnancy, [25], undifferentiated salphingo-oophoritis, tub ovary abscess, and tubal endometriosis were the most recurrent tubal pathologies. Two tubercular salphingo-oophoritis instances were discovered [26].

Lower abdomen discomfort was the most common clinical complaint (29.3%), followed by an abdominal lump sensation (25%) [27]. The ovarian torsion, tubo-ovarian abscess, and prolonged inflammation of the pelvis were the causes of this stomach discomfort. In tub ovarian mass lesions, torsion, intracystic haemorrhaging adhesion, [28], and central necrosis are often experienced as painful conditions [29].

Menorrhagia, dysmenorrhea, and irregular bleeding were the three menstrual disorders identified in this research. Results pertaining to lumps, irregular menstruation, and abdominal discomfort that are comparable to our research [30]. Because of lesions known as lei, a condition known as or cervical prolapse, a significant percentage of ovarian masses were unintentionally discovered during radiological inspection or histological analysis of hysterectomy tissues used in salpingo-

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ophorectomy procedures. We discovered that the ovarian tumours varied in size from 1 to 22.5 cm.

Lessons greater than 15 cm were mostly endometriosis and mucinous, with no malignant lesions predominating in masses less than 5 cm. Comparing benign tumours to malignant cancers, the former were smaller. On a sliced section, tumours that are benign are less variable than malignant ones. The nature of malignant tumours was more solid. These results are consistent with those of previous studies.

VI.CONCLUSION

Adhesion prevention techniques for benign ovarian tumours should be used, and surgical treatment should strive to preserve fertility. Tumour markers are a useful diagnostic tool, although they are unreliable when used alone and have little efficacy in identifying benign from aggressive pelvic masses.

Ectopic tubal pregnancy was the most common tubal disease seen. Another prominent source of adnexal masses was pelvic neoplasms, with peritoneal cyst adenoma constituting the most prevalent benign tumour. While malignant ovarian tumours were more prevalent in post-menopausal women, benign ovarian tumours were mostly seen in the female reproductive age range. The most often reported clinical symptoms were lower abdominal discomfort and an abdominal lump, which were frequently linked to tubo-ovarian abscess and torsion.

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