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CLINICO-PATHOLOGICAL PROFILES OF OVARIAN CYSTS IN WOMEN OF VARYING AGE GROUPS-OUR EXPERIENCE IN 3 YEARS

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ABSTRACT
Background: The ovary is a well-organized mixture of germ and somatic cells suspended laterally from the uterus by the utero-ovarian ligament. Ovulation on one or both ovaries can result in the formation of an ovarian cyst, which is a fluid-filled sac. The majority of benign ovarian lesions are cystic and occur in women of reproductive age, whereas malignant tumours are more common in elderly postmenopausal women. Ovarian cancer accounts for almost 23% of all gynaecological tumour with a high fatality rate and poor prognosis. Hence, proper management depends on the histo - morphological division of non- neoplastic, benign and malignant lesions. This study was done to differentiate the lesion histo-morphologically and to know the commonest lesion in each age group. **Methodology:** A hospital based- retrospective cross-sectional study was conducted in a tertiary care hospital, Chennai, Tamil Nadu, from January 2018-January 2020 including 53 patients satisfying the inclusion criteria i.e clinically or radiologically diagnosed as ovarian cysts, with histopathological confirmation were included in the study". Data collected was entered and analyzed in SPSS software version 24. **Results:** The mean age and standard deviation among 53 study participants was found to be 38.66 ± 12.49, around 28 (52.8%) participants belong to > 20 to 40 years. The mean BMI and standard deviation of the study participants was found to be 30.21 + 3.84. Out of various surgeries undergone by the study participants, 26 (49%) patients had undergone laparotomy and proceed, 25 (47.2%) of them had undergone laparoscopic cystectomy and 2 (3.8%) had TAH with BSO. On histopathological examination, 39.6% turned out to be serous cystadenoma, 13.2% granulosa cell tumors and 11.3 % simple ovarian cyst. Majority (46.4%) of the total serous cystadenoma was turned out to be in the age group of 20 to 40 years **Conclusion:** Ovarian cysts are widely seen in gynaecological practise, and pathologists see them as well. serous cystadenoma was the most common type of ovarian cyst, followed by granulose cell tumours.

INTRODUCTION:
The ovaries and fallopian tubes make up the adnexa, which is a group of tissues next to the uterus. The ovaries will be the emphasis of this article, despite the fact that fallopian tubes are one of the major adnexal structures. The ovary is a well-organized mixture of germ and somatic cells[1] suspended laterally from the uterus by the utero-ovarian ligament. Ovulation on one or both ovaries can result in the formation of an ovarian cyst, which is a fluid-filled sac[2]. Ovarian cysts is a common gynecological problem which may be physiological or pathological[3] which accounts for 20% of women with pelvic mass in their lifetime[2]. Physiological cysts are mostly follicular and luteal cysts, which don't require much treatment unless they are complicated. Pathological cysts are classified as benign, borderline, intermediate, or malignant. [4,5].

The majority of benign ovarian lesions are cystic and occur in women of reproductive age, whereas malignant tumours are more common in elderly postmenopausal women[6,7]. Ovarian cancer accounts for almost 23% of all gynaecological tumours and is the 6th most frequent female cancer, with a high fatality rate and poor prognosis[8]. Ovarian cancer has a high death rate due to its silent appearance or concealed tumour growth, delayed onset of symptoms, and lack of effective screening, which results in late diagnosis at an advanced stage of the disease.[9].

Hence, proper management depends on the histo - morphological division of non- neoplastic, benign and malignant lesions. This study was done to differentiate the lesion histo morphologically and to know the commonest lesion in each age group.

OBJECTIVES:
1. To obtain age wise incidence of ovarian cystic lesions.
2. To study the various clinico-pathological presentations of ovarian cystic lesions.
3. To get incidence ratio of benign versus malignant in various age groups and morphological appearance.

METHODS AND MATERIALS
This is a retrospective study conducted in department of Obstetrics and Gynaecology at Chettinad Hospital and Research Institute, Kelambakkam, Tamil Nadu. It was conducted in the study period of 3 years, from January 2018-January 2020. About 53 patients satisfying the inclusion criteria were included in this study.

"Criteria for inclusion:
All patients, who were clinically or radiologically diagnosed as ovarian cysts, with histopathological confirmation were included in the study"."

"Criteria for exclusion:
Other adnexal cysts (hydrosalpinx, pyosalpinx, para ovarian cyst). Ovarian cyst size less than 7 cm."

Clinical details regarding patients' age, presenting complaints, histopathological findings including admission and surgical details were obtained from hospital records for analysis. Routine blood investigation and ultrasound abdomen was also done. The study population consist of patients diagnosed with ovarian cystic lesions and necessary tumor markers were sent. MRI was performed for only indicated patients. Later the patients were taken up for either ovarian cystectomy or staging laparotomy with 'frozen section' for rapid histological analysis of the suspected cancerous lesions as required.

Statistical Analysis:
The data has been entered into Microsoft Office Excel 2013 and analyzed with the SPSS version 24 software. Before analyzing the data each variable was acquired to check for missing values, blank values and typing errors. The corresponding case numbers were used to trace the questionnaires and the information was rechecked and entered. Quantitative variables like age and BMI were expressed as mean and standard deviation. Description of categorical variables like Age Category, Comorbidities, Clinical presentation, Diagnosis, Surgery performed and Histopathological findings was expressed as frequency and proportion.

"Ethical Considerations:
Ethical principles such as patient respect, beneficence, and justice were strictly followed. Before beginning the study, an ethical committee (IHEC) approval was obtained. The study participants' confidentiality was maintained throughout the study."

RESULTS:

Total study participants included in the study was 53. The mean age and standard deviation of the study participants was found to be 38.66 ± 12.49, around 28 (52.8%) participants belong to ≥ 20 to 40 years, 21 (39.6%) participants were in ≥41 to 60 years, 2 (3.8 %) participants each ≥ 60 years and < 20 years. The mean BMI and standard deviation of the study participants was found to be 30.21 ± 3.84. Among 53 participants 14 (26.4%) had hypothyroid, 10 (18.9 %) had Anemia and 7 (13.2 %) participant had Diabetes Mellitus. Out of 53 patients, 40 (75.5%) patients had abdominal pain, 18 (34%) patients had mass per abdomen, 4 (7.5%) patients had vomiting, 3 (5.7%) patients had heavy menstrual bleeding, 2 (3.8%) had Postmenopausal bleeding, 2 (3.8%) had recurrent UTI and 1 (1.9%) patient each in fever and amenorrhea. Around 3 (5.7%) patients had both abdominal pain and heavy menstrual bleeding. (Table 1)

Out of 53 patients 49 (92.5%) of the study participants were diagnosed as ovarian cyst and 4 (7.5%) patients were diagnosed to have malignant tumor. Out of various surgeries undergone by the study participants, 26 (49%) patients had undergone laparotomy and proceed, 25 (47.2%) of them had undergone laparoscopic cystectomy and 2 (3.8%) had TAH with BSO. (Table 2)

On histopathological examination, 39.6% turned out to be serous cystadenoma, 13.2% granulosa cell tumors and 11.3 % simple ovarian cyst. Majority (46.4%) of the total serous cystadenoma was turned out to be in the age group of 20 to 40 years and (23.8%) in 41 to 60 years. The total number of cases in the age group of 21 to 40 years was found to be 28. Most common histological finding in the age group of 20 to 40 years was serous cyst adenoma followed by simple ovarian cyst (17.9%) and PID (10.7%). Granulose cell tumors (28.6%) are the most common histological finding in the age group of 40 to 60 years followed by serous cyst adenoma and PID (23.8%). The youngest patient was aged less than 20 years with serous cystadenoma and the oldest patient was aged above 60 years with serous cystadenoma and mucinous cystadenoma tumor.(Table 3)

DISCUSSION:

Ovarian cysts can have a wide range of clinical presentations, thus it's critical to distinguish them histologically before deciding on a treatment plan. Physiological and pathological cysts are the two most common types. It's also divided into benign, borderline, and malignant categories. Despite the fact that a multimodal approach involving clinical characteristics, ultrasonography, and tumour markers are required for a clear surgical diagnosis, histology is the mainstay of diagnosis in this study.

Among 53 study participants, age ranged broadly from 20 to 60 years. The age group of participants in other studies included girls as young as 3 months[10], 6 years[11], 15 years[4] upto 70 years[4] to 77 years[10]. The findings in the study showed that majority 52.8% of the study participants belong to the age group of 21 to 40 years. This is similar to the findings of the study Rathore et al[12] in which mean age was 32.5 ± 13.11 years. Prakash et al[13] also studied samples in which 53.2% belong to the age group of 20- 39 years. This is contradictory to the findings of Prince et al[14] in which 30.9% of the 102 participants belong to the age group of 41- 50 years of age. According to several other studies, the average age of presentation was 38 years, and 27.5 percent of ovarian cysts were detected in women between the ages of 21 and 30. [11].

While comparing the clinical presentation among the study participants, 75.5% were clinically presented with abdominal pain and 34% presented with mass per abdomen. This indicates that there is a strong link between adnexal mass and abdominal discomfort, as evidenced by Chanu et al's[5] findings, in which lower abdominal pain was the most prevalent clinical complaint among 101 patients. and Suksham Sharma et al[15] in which abdominal pain was the most common symptom (32.8%).

On histopathological examination, 39.6% turned out to be serous cystadenoma, 13.2% granulosa cell tumors and 11.3 % simple ovarian cyst. Jain et al[16] has shown that 85.43% were benign epithelial tumor, 61.16% were serous cystic and 22.33% were mucinous tumor. The findings of Chanu et al[5] are contradictory to the present study in which 20.8% presented with mature cystic teratoma and 19.8% presented with serous cystadenoma. Mukherjee et al[17] reported 20.5 percent of benign serous tumours and 31.5 percent of mucinous benign tumours, whereas Maheswari et al.[18] reported 32.46 percent of benign serous tumours and 14.53 percent of mucinous benign tumours. Rathore et al.

[12] found that mature cystic teratoma was the most prevalent tumour in all age categories, with 11 cases of immature teratoma and 8 cases of malignant teratoma identified out of 1102 samples. The most frequent ovarian neoplasm seen in teens is mature cystic teratoma[19].

The study findings of histopathological diagnosis with corresponding age groups are similar to the study by Neelgund et al [20]were the age of the patients ranged from 16 years to 70 years. And the maximum number of cystic ovarian tumours occurred in the age group of 20 to 29 years (47.96%). Most common lesions were found to be benign whereas very few of the cases presented were malignant (less than 5%). Prakash et al[13] has reported that 44% of the cases were non neoplastic lesions of the ovary, follicular cysts constituted 45.5% of those lesions. Malignant lesions constituted only 2.0% of all the pathologies. The incidence of malignant transformation in teratoma is calculated as 0.17% to 2%[19].

Complete ovarian cyst management depends on an accurate pre-operative diagnosis, which varies depending on whether the cysts are benign or malignant[20]. Based on markers and MRI findings, surgical therapy is advised in patients with a diameter of more than 5 cm[21]. Regardless of age, menopause status, or radiological findings, symptomatic patients should be surgically treated.

CONCLUSION:

Unilocular simple ovarian cysts are functional ovarian cysts that normally disappear on their own. With ovarian cysts that are pathological, ovarian benign tumours show a wide spectrum of clinical and histological characteristic patterns. The most common symptom is abdominal pain. Ultrasonography is a technique which determines the accurate diagnosis of a mature cystic teratoma. Tumors of the epithelial cells are benign ovarian tumours. Germ cell tumours were found to be the most prevalent, followed by surface epithelial tumours. As a result, in patients with risk factors, early assessment of adnexal masses is always necessary to avoid future consequences. Both gynaecologists and pathologists should have a sound understanding of benign, borderline, and malignant ovarian cysts, as well as their regional variations so as to deliver appropriate management.

Limitations:
The study's key disadvantage is sample size small and it is a hospital-based study, which makes it vulnerable to referral bias and lacks a control group.

Table 1: Basic Characteristic of the study participants

Basic Characteristic	Number	Percentage
Age Group		
Less than 20 years	2	3.8 %
> 20 to 40 years	28	52.8 %
> 41 to 60 years	21	39.6 %
> 60 years	2	3.8 %
Mean Age + Standard deviation	38.66 + 12.49	
Mean BMI + Standard deviation	30.21 + 3.84	
Comorbidities		
No Comorbidities	30	56.6 %
Hypothyroid	14	26.4 %
Anemia	10	18.9 %
DM	7	13.2 %
Clinical presentation*		
Abdominal Pain	40	75.5%
Mass per abdomen	18	34.0 %
Vomiting	4	7.5%
Heavy menstrual bleeding	3	5.7 %
Postmenopausal bleeding	2	3.8%
Recurrent UTI	2	3.8%
Amenorrhea	1	1.9%
Fever	1	1.9%
Total	53	100.0

Note: * Multiple response question

Table 2: Distribution of Preoperative diagnosis and surgery performed among study participants

	Number	Percentage
Diagnosis		
Ovarian cyst (Benign)	49	92.5 %
Malignant	4	7.5 %
Surgery performed		
Laparotomy and proceed	26	49.0 %
Laparoscopic cystectomy	25	47.2 %
TAH with BSO	2	3.8 %
Total	53	100.0 %

Table 3: Comparison of Histopathological findings with age category

Histopathological finding	< 20 Yrs	"> 2☐ to 4☐ yrs"	"> 41 to 6☐ yrs"	> 6☐ years	Total
Serous cyst adenoma	2 (100%)	13 (46.4%)	5 (23.8%)	1 (50%)	21 (39.6%)
PID	0	3 (10.7%)	5 (23.8%)	0	8 (15.1%)
Granulosa cell tumors	0	1 (3.6%)	6 (28.6%)	0	7 (13.2%)
Simple ovarian cyst	0	5 (17.9%)	1 (4.8%)	0	6 (11.3%)
Mucinous carcinoma	0	1 (3.6%)	2 (9.5%)	1(50.0%)	4 (7.5%)
Mucinous cyst adenoma	0	1 (3.6%)	2 (9.5%)	0	3 (5.7%)
Mature cystic teratoma (dermoid cyst)	0	2 (7.1%)	0	0	2 (3.8%)
Benign mesothelial inclusion cyst	0	1 (3.6%)	0	0	1 (1.9%)
Torsion ovary	0	1 (3.6%)	0	0	1 (1.9%)
Total	2 (100%)	28 (100%)	21 (100%)	2(100%)	53 (100%)

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