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A Retrospective Study of Organic Ovarian Cysts

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Abstract- *Background:* An ovarian cyst is a sac filled with liquid or semi liquid material that arises in an ovary. These cysts can develop in females at any stage of life, from the neonatal period to postmenopausal. Most ovarian cysts occur during infancy and adolescence, which are hormonally active period of development. Most are functional in nature and resolve without treatment.

Objectives: The objectives of the retrospective study to evaluate the basic knowledge about the ovarian cysts, clinical presentation and clinical assessment, outline the treatment of the ovarian tumors, about the histological study of ovarian cysts, and follow up.

Methodology: This retrospective study is conducted in Apollo Hospital Dhaka, Bangladesh from January 2019 to March 2020.We have collected all data from medical record charts, patients details, clinical presentation, ovarian cysts description, and pathological type were recorded and management by laparoscopy or laparotomy was identified. We assess the above variable among 250 indoor patients.

Keywords: *ovarian tumors, laparoscopy, functional ovarian cyst, contraceptive pills.*

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S K Chowdhury A [α] & M Z Hussain. B [σ]

Abstract- Background: An ovarian cyst is a sac filled with liquid or semi liquid material that arises in an ovary. These cysts can develop in females at any stage of life, from the neonatal period to postmenopausal. Most ovarian cysts occur during infancy and adolescence, which are hormonally active period of development. Most are functional in nature and resolve without treatment.

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Result: A total 250 cases were analyzed retrospectively, there were we find 120 (48%) are benign tumors, among them 47 (18.8%) serous cyst adenoma, 24 (9.6%) mucinous cyst adenoma and 22 (8.8%) corpus lutium cyst. The least common benign tumor was serous fibroadenoma, which was seen in 4 (1.6%) cases. We have found only 4 (1.6%) cases of malignant ovarian tumors in postmenopausal group.

Conclusion: Simple ovarian cysts, unilocular in nature, are usually functional ovarian cysts and resolve spontaneously. If not resolve spontaneously, 3 to 6 months of oral contraceptives, usually resolves them and this also helps to distinguish between physiological and pathological ovarian cysts. Benign ovarian tumors exhibit a wide range of clinical symptoms. Pain abdomen is the commonest symptom in cystic ovarian tumors. Ultrasonography accurately diagnosis mature cystic teratoma Decision of surgical intervention depends on size of cysts, histopathological finding. Epithelial tumors are commonest of the benign ovarian tumors.

Keywords: ovarian tumors, laparoscopy, functional ovarian cyst, contraceptive pills.

I. Introduction

Ovarian cysts are fluid-filled sacs in the ovary. They are common and usually form during ovulation.[1] Benign ovarian cysts are common in asymptomatic premenarchal girls and found in approximately 68% of ovaries of girls 2–12 years old and in 84% of ovaries of girls 0–2 years old.[2] Most of them are smaller than 9 mm while about 10-20% is larger macro cysts. While the smaller cysts mostly disappear within 6 months the larger ones appear to be more persistent. Only 8% of women present with symptom before menopause and 16% of women after menopause. The cysts are usually harmless. Patient usually present with complaints of abdominal pain, uterine bleeding, fullness, heaviness, pressure, swelling or bloating sensation abdomen.[3] Few patients may attend with sudden sharp pain abdomen. Sometimes patient comes with vague symptoms like frequent micturation, constipation, fatigue, headache, nausea, vomiting, weight gain etc. Patient of PCOS may present with increase facial hair, body hair, obesity andinfertility.[4] A Patient may present with complication like rupture and torsion of cyst, a ruptured ovarian cyst is usually self-limiting, and only requires keeping an eye on the situation and pain medications. The main symptom is abdominal pain, which may last a few days to several weeks, but they can also be asymptomatic. Rupture of large ovarian cysts can cause bleeding inside the abdominal cavity and in some cases shock. Cyst over then 4 cm diameter has increase risk (17%) of torsion followed by ischemic infarction. Definite diagnosis is made by histopathology.[5] Most cysts are functional (Follicular cyst, corpus lutium cyst) others are cystadenoma (serous cystadenoma, mucinous cystadenoma), dermoid cyst, andrometriosis, borderline tumor, chocolate cysts, hemorrhagic ovarian cysts, PCOS, ovarian cancer and simple squamous cyst. A total 95% of ovarian cysts are benign. Functional ovarian cysts and hemorrhagic ovarian cysts usually resolve spontaneously.[6] Cysts that persist beyond two or three menstrual cycles, or occur in post-menopausal women, may indicate more serious disease and should be investigated through ultrasonography and laparoscopy, especially in cases where family members have had ovarian cancer.

II. Justification

a) Objectives

The objectives of the retrospective study to evaluate the basic knowledge about the ovarian tumors, clinical presentation and clinical assessment, outline the treatment of the ovarian tumors, about the histological of ovarian cancer, and follow up.

III. Methods

a) Study design

This retrospective study is conducted in Apollo Hospital Dhaka, Bangladesh during the period of one

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year six months. This analysis was done keeping in mind the objectives to know the clinical symptoms, treatment and histopathology of patients who required the surgery for ovarian cyst. We have operated most of the case, laproscopically; however few patients who had large mass and unfit for laparoscopic surgery underwent conventional laparotomy. Indication for surgery were large mass >6 cm, mass with symptoms and solid components, persisting ovarian cyst <6 cm even after 3 months of oral contraceptive treatment, acute symptoms suggestive of torsion. All elective cases were done after routine investigations, anesthetic check-up and with valid consent after explaining procedure and complications of the surgery (laparoscopy / laparotomy). CA-125 was not done routinely for all patients except for few patients who were more than 40 years or any high risk for malignancy. The decision for cystectomy or ovariotomy was taken on the operation table. Specimen was retrieved by colpotomy or through the side port of laparoscopy. All the tissues were sent for histopathology analysis on the day of the surgery. Our patients were discharged 48hrs after laparoscopic surgery and after 7 days after laparotomy. All patients were followed up after 2 week with histopathologic report, retrospectively all the clinical symptoms, and histopathology reports are analyzed to know the fact whether really, these patients required the surgery.

b) Study Area, Duration

This study was conducted in Gynae & Obst Department of Apollo Hospital Dhaka, Bangladesh during the period from January 2019 to April 2020.

c) Population

A total 250 subjects were enrolled in this study.

Inclusion criteria

Simple or endometriotic ovarian cysts (3.0–10.6 cm) at ultrasonic examinations.

At USG, a simple cyst was defined as a cyst with no papillary projections, a clearly defined wall, and clear content. Although color Doppler US was used in many cases to examine the neovascularity of the cyst, specific Doppler studies were not done routinely in every patient.

Exclusion criteria

1. Evidence of renal or hepatic disease.
2. An abnormal value (>35 IU/mL) of serum CA-125 .
3. Patient with adnexal mass.

d) Methods of data collection

Data was collected from computerized data base using a questionnaire made specifically for the manner of the research and the data was next analyzed by using SPSS program. Variables included age in years, married or not, parity, height in cm, weight, BMI, and pregnant or not. Clinical presentation abdominal pain or otherwise, number of cysts, location and type of cysts was also included.

e) Ethical Clearance

This study was approved by the Ethical committee of the hospital.

IV. Results

A total of 250 cases of ovarian cysts were included. The mean ± standard deviation [SD] age of these patients was 35.36±15.849 years. The mean±SD parity was 2.20±2.675. The height ranged was from 128-180 cm with a mean±SD of 150.88±16.227. The weight ranged from 35-92 kg with a mean±SD of 65.58±22.506. The calculated BMI ranged from 15-47 with a mean±SD of 27.76±6.314. Out of 250 patients diagnosed with ovarian cysts, 165 were married (66%), and of those only 16 were pregnant (6.4%). (Table 1)

Table 1: Demographic characteristics of 250 cases diagnosed with ovarian cysts

Variables	Minium	Maximum	Mean	Standard deviation
Age	13	78	35.36	15.849
Parity	0	5	2.20	2.675
Height	128	180	150.88	16.227
Weight	35	92	65.58	22.506
BMI	15	47	27.76	6.314

Only 59 (47.96%) patients were benign cystic ovarian tumors, of which 47 (18.8%), cases were serous cystadenoma which was the commonest of all in this study. This was followed by mucinous cystadenoma 24 (9.6%).In our study the least common benign tumor was serous fibroadenoma, which was seen in 4 (1.6%). We came across only two (0.8%) case of malignant ovarian tumor, which was found in a postmenopausal woman. Border malignancies were encountered in 8 patients (3.2%), of which 4 were border line papillary serous tumor and 4 were of border line mucinous tumor. In our study there were 62 cases of functional cysts, of which 41 (16.4%) were Simple follicular cysts and 22 (8.8%) corpus luteum cysts. Majority of these cases responded for the three months of cyclical oral contraceptive pills. The patients with no response were subjected for the

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laparoscopy, which were turned to be cases of either paraovarian or endometriotic cysts. Among these tumors 4 cases were para ovarian cysts and 33 (13.2%) endometriotic cysts (Table 2).

Table 2: Incidence of ovarian cysts and tumors

Type of cystic lesion	Nos of cases	Percentage
Serous cystadenoma	**47**	**18.8**
Mature Cystic teratoma	**45**	**18**
Simple follicular cyst	**41**	**16.4**
Endometriotic cyst	**33**	**13.2**
Mucinous cystadenoma	**24**	**9.6**
Corpus luteum cyst	**22**	**8.8**
Haemorrhagic cyst	**20**	**8**
Borderline mucinous Tumor	**4**	**1.6**
Borderline serous papillary tumor	**4**	**1.6**
Serous adenofibroma	**4**	**1.6**
Para ovarian Cyst	**4**	**1.6**
Serous cystadenoma Carcinoma	**2**	**0.8**
Total	**250**	**100**

Majority of the patients had presented with pain abdomen, which was vague and associated with a feeling of heaviness in the lower abdomen. However, six (2.43%) patients had presented with severe pain abdomen and there were signs of acute abdomen. These patients were clinically suspected to have twisted ovarian cysts. A diagnosis was confirmed by Ultra-sonography and Doppler study. In the reproductive age group 24 (9.75%) cases had presented with menorrhagia and dysmenorrhea. Only five were diagnosed as cystic ovarian lesion by clinical examination. However, all were diagnosed by Ultra-sonography. Only 14 (5.7%) patients presented with mass per abdomen. Only 6 (2.44%), patients presented as Postmenopausal bleeding, and were diagnosed by ultrasonography as anechoic multiseptate ovarian cyst in 4 cases and two as anechoic multiseptate ovarian cyst with solid components. All were borderline malignant ovarian tumors, which were confirmed postoperatively by the histopathology (Table 3).

Table 3: Symptomology of cystic ovarian tumors

Presentation	No of cases	%
Abdominal pain	168	67.2
Abdominal mass	15	6
Menorrhagia/ Dysmenorrhoea	24	9.6
Incidental finding	24	9.6
Infertility	12	4.8
Post menopausal bleeding	7	2.8

Forty (16.26%) patients were found to have cystic ovarian masses incidentally by Ultrasonography, of which 24 cases were investigated for infertility. Mature cystic teratoma, which numbered 44 cases (17.89%), was diagnosed by ultra-sonography as cystic ovarian lesion with hyperechoic areas and calcification. The serous cystadenoma were reported as, anechoic cysts in 22 cases, anechoic cyst with septa in 10 cases and

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anechoic cyst with echoic foci in 14 cases. Functional ovarian cysts were reported as simple unilocular cysts, and Haemorrhagic cysts as anechoic cysts. Ultrasonography results were fairly correlated with the histopathological diagnosis (Table 4).

Table 4: Correlation between histopathology and USG finding

Histopathology	No	USG Report
Corpus luteal cyst	23	Simple unilocular cyst
Paraovarian cyst	4	Simple unilocular cyst
Follicular cyst	40	Anechoic with septa-15 Simple unilocular cyst-25
Endometriotic cyst	33	Simple unilocular cyst-16 cyst with internal echo-12 Anechoic with septa-3
Mature cystic teratoma	45	Cysts with hyperechoic area/caicification-44
Serous cystadenoma	46	Anechoic cysts 22 Anechoic cysts with septa - 10 Anechoic cysts with echogenic foci-14
Mucinous cystadenoma	24	Multiseptal anechoic cysts-16 simple anechoic cysts8
Serous adenofibroma	4	Solid tumour-4
Hemorrhagic cyst	20	Anechoic cysts-20
Serous cystadenocarcinoma	3	Multiseptal anechoic cysts with solid components-3
Borderline mucinous tumour	4	Multiseptal anechoic cysts with solid components-4
Borderline papillary serous tumor	4	Multi septate anechoic cysts-4

The age of the patients in our study ranged from 16yrs to 70 yrs. The maximum number of cystic ovarian tumors occurred in the age group of 20 to 29 are 44.18% (patient-108) and in the age group 30 to 39 are 33.33% (patient 82). The total numbers of cases in the age group 16 to 39 years were 200 (77.51%). The youngest patient was aged 16 years with mature cystic teratoma and the oldest patient was aged 64 years, with borderline papillary serous tumor. The two who have serous cyst adenocarcinoma was aged 60 to 69 group (Table 5).

Table 5: Age wise distribution of ovarian tumors

Histopathology	<19	20-29	30-39	40-49	50-59	60-69	>70
Serous cystadenoma	2	16	24	2	2	0	0
Mucinous cystadenoma	2	10	7	4	2	0	0
Mature cysts teratoma	2	30	6	2	0	2	0
Serous adenofibroma	0	0	4	0	0	0	0
Follicular cysts	0	16	20	4	0	0	0
Corpus luteal cyst	0	14	14	0	0	0	0
Para ovarian cyst	0	4	0	0	0	0	0
Hemorrhagic cyst	2	12	4	2	0	0	0
Endometriotic cyst	4	16	10	2	0	0	0
Serous cyst adencarcinoma	0	0	0	0	2	0	0
Borderline mucinous tumor	0	0	0	0	2	2	0
Borderline papillary serous tumor	0	0	0	0	2	2	0

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V. Discussion

Cystic ovarian masses or ovarian tumors are common problem encountered by women and they present with vague symptoms. The lesions are either physiological, or pathological. They can occur as functional cysts, benign or malignant tumors. It is very essential to differentiate as it requires executing a definitive treatment. As the symptoms are being vague, in making the definitive diagnosis, it is advised to take the combination of clinical examination, Ultra-sonography and tumor marker CA 125 levels to arrive at proper diagnosis. However, histopathology gives the final diagnosis. Malignancy is usually less in ovary as the ovary is a partially cystic organ. Ovarian malignancy is rarely seen in the age group of 15-40 years.[7] The functional, nonneoplastic and benign cystic ovarian lesions are common in the younger age. However, the chance of malignancy increases as the age advances.[8] Functional ovarian cysts, which are unilocular usually resolve spontaneously.[9] Oral contraceptives, over a period of 3 to 6 months, also resolves the functional ovarian cysts, this also helps to distinguish a physiological ovarian cyst from a pathological one.[10] A simple, unilocular cystic ovarian lesion, can be monitored with serial ultra-sonography and CA 125, for its resolution over a period of time and unnecessary excision avoided. A unilocular echo free ovarian cyst, to be malignant, is less than 1.6%.[11] This descriptive study was undertaken, to analyse and correlate the histopathological diagnosis with the, clinical presentations, age factors and ultra-sound findings of the 250 cases of cystic ovarian masses, during the study period.

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In our study, abdominal pain was the commonest symptom, 168 (67.2%) cases; same incidence was reported by Kayastha.[12] In their study the incidence of benign cystic ovarian tumors was 59 (47.9%). The benign epithelial was 37 (62.71%) cases. The benign germ cell tumor-mature cystic teratoma was 22 (37.3%). In our study benign cystic ovarian tumor was the commonest, the age incidence was 20 to 49 years, and pain abdomen was the commonest symptom. Similar findings were reported by Pilli and suneeta.[13] Among the benign epithelial tumors, serous cystadenoma were 23 (38.98%). mucinous cystadenoma were 12 (20.34%) and serous fibroadenoma were 2 (3.39%). Bhattachery et al reported benign epithelial tumors (61.60%) and mature cystic teratoma (24.8%).[14] Gupta et al reported the incidence of benign epithelial tumors as (48.8%) and mature cystic teratoma as (23.9%). Mondal et al reported, serous cystadenoma (29.9%) mucinous cystadenoma (11.1%) and mature cystic teratoma (15.9%).[15] In our study also, benign epithelial tumors are more common and there is a preponderance of serous cystadenoma over mucinous cystadenoma. Maliheh et al reported, that the commonest benign ovarian tumor was serous cystadenoma (38%) followed by mature cysticteratoma (30%), mucinous cystadenoma (22%), Yasmin et al reported serous cystadenoma (24%) and mature cysticteratoma (18%).[15] Non-neoplastic cystic ovarian tumors in our study were 108 (43.2%), of which simple follicular cyst were 41 cases and Corpus luteum cysts 22 cases. The endometriotic cysts in our study were 33 (13.2%). Maliheh reported Functional cysts as (57.54%) and endometriotic cysts as (5.9%). Cohen et al reported that ovarian endometriosis is common.[16] Serous cyst adenocarcinoma was the malignant ovarian tumor in our study, two cases (0.8%). There were 4 (1.6%) cases of borderline serous papillary tumor and 4 (1.6%) cases of borderline mucinous tumor, in our study, Same findings were reported by Mondal et al and Bhattachery et al that epithelial malignant tumors are the commonest. DeKroon et al reported that ultra-sonography diagnosed Mature Cystic teratoma accurately.[17] In our study all of 45 cases of mature cystic teratoma were diagnosed by ultrasonography.

VI. Conclusion

Simple ovarian cysts, unilocular in nature, are usually functional ovarian cysts and resolve spontaneously. If not resolve spontaneously, 3 to 6 months of oral contraceptives, usually resolves them and this also helps to distinguish between physiological and pathological ovarian cysts. Benign ovarian tumors exhibit a wide range of clinical symptoms. Pain abdomen is the commonest symptom in cystic ovarian tumors. Ultrasonography accurately diagnosis mature cystic teratoma Decision of surgical intervention depends on size of cysts, histopathological finding. Epithelial tumors are commonest of the benign ovarian tumors.

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