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Original Research Article

Clinico-pathological profile of ovarian cysts in a tertiary care hospital

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ABSTRACT

Background: Ovarian cystic neoplasms are common in gynaecological practice. These may pose diagnostic difficulty to the pathologists. This study was conducted to analyse the clinical and histological profile of ovarian cystic neoplasms.

Methods: This is a retrospective study done from January 2016 to April 2017 in a tertiary care hospital in North East India. All the patients, who were clinically and radiologically diagnosed as ovarian cysts, which had histopathological confirmation were included in the study. Data including the age, parity, clinical symptoms, laterality and histopathological findings were analysed.

Results: A total of 101 patients operated for ovarian cysts in the study period were analysed. The most common clinical presentation was lower abdominal pain. There were 11 (10.9%) malignant cases, 4 (4%) were intermediate grade and borderline in nature, and 85 (84.1%) cases were benign in nature. There was 1 (1%) case of metastasis to ovary. Mature cystic teratoma was most common (20.8%) histopathological diagnosis. The second most common cyst was serous cystadenoma (19.8%).

Conclusion: Ovarian cysts are commonly encountered in gynaecological practice and equally encountered by the pathologists. Most commonly found ovarian cysts were mature cystic teratoma followed by serous cystadenoma.

Keywords: Cyst, Cystadenoma, Laparotomy, Teratoma

INTRODUCTION

Ovarian cysts though mostly benign pose a diagnostic dilemma to the gynaecologist as well as to the pathologist. Ovarian cysts are seen in all age groups, and are subdivided in physiological and pathological cysts.¹ They can be solid, cystic or can have both solid and cystic components. Physiological cysts are mainly follicular and luteal cysts. Pathological cysts can be benign, borderline or intermediate grade and malignant in nature.^{1,2} Benign ovarian cysts are the fourth leading gynaecological cause of hospital admissions and, ovarian malignancies constitute the sixth leading cause of cancer in women and the fourth common cause of cancer related death in females.^{3,4} Until these lesions attain a large size or cause signs and symptoms, they escape detection. Pre-

operative diagnosis of ovarian cysts largely depends on clinical examination, radiological imaging and tumour markers.⁵ However, sometimes it may be difficult to differentiate between benign and malignant ovarian cysts. A thorough histopathological examination is therefore necessary to confirm the nature of the ovarian cysts.³

Management of the ovarian cysts depend on the age, menopausal status, pregnancy, and their nature.⁶ Physiological cysts require no treatment unless secondarily complicated.² Prognosis of the neoplastic cysts largely depends on the histological type and grade.³

There is paucity of literature regarding the ovarian cysts from the north-eastern region of India. The present study was undertaken to study the clinical and histopathological

pattern of ovarian cysts in a tertiary care institute in north-east India.

METHODS

This is a retrospective observational study done over a period of 1 year 4 months from January 2016 to April 2017 in a tertiary care teaching hospital in Northeast India. All the patients, who were clinically and radiologically diagnosed as ovarian cysts, which had histopathological confirmation were included in the study.

All the cases underwent oophorectomy or hysterectomy with bilateral/unilateral salpingectomy. Most of the cases were operated laparoscopically. Laparoscopy was done under general anesthesia and by using a 7 mm Karl Storz laparoscope with a 30-degree deflection angle telescope. However, a few patients, who had large mass and unfit for laparoscopic surgery, underwent conventional laparotomy under regional anesthesia.

Clinical details regarding patients’ age, parity, presenting symptoms and laterality of the cysts were obtained from hospital records for analysis.

Specimens were sent and fixed in 10% formalin for pathological examination. Gross and histopathological information regarding the nature and typing of the ovarian cysts were noted. Tissue samples of the ovarian specimens were routinely processed and embedded in paraffin. The formalin-fixed, paraffin-embedded tissue sections were stained with haematoxylin and eosin stain for light microscopic examination. Special stains and immunohistochemical stains were done wherever applicable for diagnosis.

RESULTS

A total of 101 patients operated for ovarian cysts in the study period were analysed. The age of the patients ranged from 18 years to 83 years with a mean age of 38.41 (4.32) years. The ovarian cysts were most commonly seen in the age group 30-39 years.

In terms of parity, there were 79 (78.1%) patients, who were multiparous and the rest 22 (21.8%) were nulliparous. The most common clinical presentation was lower abdominal pain (29.7%), followed by pain with lump (22.8%) and menorrhagia (14.9%) (Table 1).

Laterality of the ovarian cysts was studied. Out of 101 cases, right ovary was involved in 43 (42.6%) cases and left ovary was involved in 39 (38.6%) cases. Bilateral ovaries were involved in 19 (18.8%) cases. Histopathological data of the 101 cases were analysed (Table 2). There were 11 (10.9%) malignant cases, 4 (4%) were intermediate grade and borderline in nature, and 85 (84.1%) cases were benign in nature. There was 1 (1%) case of metastasis to ovary. Mature cystic teratoma

was most common (20.8%) histopathological diagnosis (Figure 1a). The second most common cyst was serous cystadenoma (19.8%) (Figure 1b) followed by haemorrhagic corpus luteal cyst (15.8%). Serous cystadenocarcinoma (Figure 1c) and mucinous cystadenocarcinoma (Figure 1d) constituted 5.9% and 3.0% of cases respectively. Omental metastasis was seen in 3 cases while colon was involved in 1 case.

Table 1: Clinical presentation of the cases.

Clinical presentation	Number of patients	Percentage (%)
Pain lower abdomen	30	29.7
Abdominal lump	10	9.9
Pain lower abdomen with lump	23	22.8
Amenorrhoea	10	9.9
Menorrhagia	15	14.9
Polymenorrhagia	07	6.9
Post-menopausal bleeding	12	11.9
Retention of urine	02	2.0

Table 2: Histopathological findings of the cases.

Histopathological findings	Number of patients	Percentage
Mature cystic teratoma	21	20.8
Serous cystadenoma	20	19.8
Mucinous cystadenoma	05	5.0
Serous cyst adenofibroma	01	1.0
Cystic fibroma	01	1.0
Sertoli Leydig cell tumour-intermediate grade	01	1.0
Mucinous borderline ovarian tumour	03	3.0
Serous cystadenocarcinoma	06	5.9
Mucinous cystadenocarcinoma	03	3.0
Teratoma with malignant transformation	02	2.0
Haemorrhagic corpus luteal cyst	16	15.8
Endometriotic cyst	15	14.8
Follicular cyst	06	5.9
Metastasis	01	1.0
Total	101	100

Most of the cases were operated laparoscopically. However, the malignant cases, unfit for laparoscopic surgery, underwent conventional laparotomy. The benign ovarian cysts, which were large in size and unfit for laparoscopic surgery, underwent conventional laparotomy. Intra-operative frozen sections were done in doubtful cases. Out of 11 malignant cases, there was 1 case with colonic involvement and 3 cases with Omental metastasis.

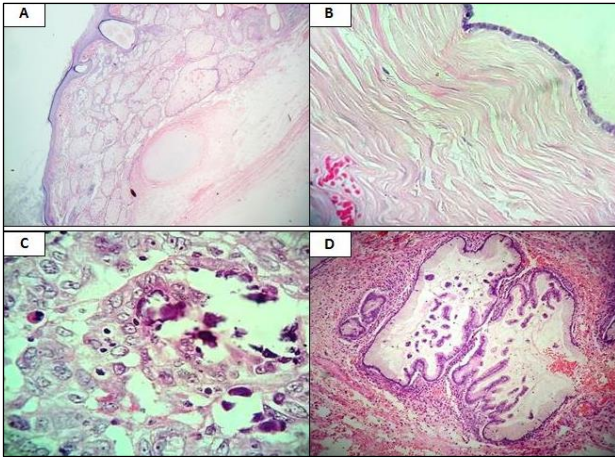


Figure 1a, 1b, 1c and 1d: (a) Section from mature cystic teratoma showing cartilage, sebaceous glands and squamous epithelium, (H and E, 40x). (b) Section from serous cystadenoma showing cyst lined by ciliated columnar epithelium (H and E, 400x). (c) Section from serous cystadenocarcinoma showing psammoma bodies (H and E, 400x). (d) Section from mucinous adenocarcinoma showing glands lined by mucinous epithelium infiltrating the stroma, (H and E, 100x).

DISCUSSION

Ovarian cysts present with a variety of clinical manifestations. For a definitive management of ovarian cysts, it is important to differentiate between the physiological and pathological cysts. Further it is essential to differentiate the pathological cysts into benign, borderline and malignant.⁶ A multimodal approach including clinical features, ultrasonography and tumour markers CA-125 is required for a definitive pre-operative diagnosis. However, histopathology remains the mainstay of diagnosis.⁷

The age of the patients ranged from 18 years to 83 years. The age range varies in different series. The age range was 6 years to 70 years by Pudasaini et al, whereas it was 15 years to 70 years by Kant et al.^{1,2} The age range was 3 months to 77 years in the study by Abduljabbar et al.⁸

The most common clinical presentation was lower abdominal pain (29.7%), followed by pain with lump (22.8%). These findings are comparable with Kant et al.² Out of total 101 cases; bilateral ovarian involvement was seen in 18.8% of cases. The finding is similar to Pudasaini et al, who reported 18.6% of bilateral ovarian involvement.¹ Abduljabbar et al also reported 18.9% of bilateral involvement of ovaries.⁸

In the present study, there were 85 (84.1%) benign cases and 11 (10.9%) cases were malignant in nature. Pudasaini et al from the neighboring country Nepal reported 87.3% of benign ovarian cyst and 12.7% of malignant ovarian cyst.¹ Kant et al from Kashmir valley reported 71.8% of

benign cystic neoplasms and 28.12% of malignant cystic neoplasms.² In a study by Jones KD from the United Kingdom, benign cysts constituted 88.5% and malignant cysts constituted 8.3% of cases.⁹

There were 4 (4%) cases of ovarian cysts, which were intermediate grade and borderline in nature in the present study. Kant et al from Kashmir valley and Neelgund et al from Pondicherry reported 1.9% and 3.25% of borderline ovarian cystic neoplasms.^{2,7} Jones KD from the United Kingdom reported 2.5% cases of borderline ovarian tumours.⁹

In the present study, mature cystic teratoma (20.8%) was the most common benign neoplasm followed by serous cystadenoma (19.8%). However, in most of the series, serous cystadenoma is the most common benign ovarian cystic neoplasm.^{1,2,7} Serous cystadenomas are the most common benign surface epithelial neoplasms of ovary while mature cystic teratomas are the most common ovarian germ cell neoplasms.^{1,2} Mature cystic teratomas are the most common ovarian neoplasms found in adolescents.¹⁰

The incidence of malignant transformation in teratoma is estimated to be 0.17-2%.¹⁰ In the present study, there were 2 cases (2.0%) of teratoma with malignant transformation. Serous cystadenocarcinoma was the most common (5.9%) malignant cystic ovarian malignancy. This is comparable with findings of Pudasaini et al.¹ However, Kant et al reported mucinous cystadenocarcinoma as the most common cystic ovarian malignancy.² Metastasis to ovary from gastrointestinal tract was found in 1 case (1%) in the present study. Pudasaini et al reported 3.1% cases of metastasis to ovary whereas Powari et al reported 5% of cases.^{1,11}

The variations of the findings among the different studies could be explained by different duration of study period, geographical and racial variations. Among the physiological cysts found in the present study were haemorrhagic corpus luteal cyst (15.8%) and endometriotic cyst (14.8%). In a study done by Choi et al, corpus luteal cysts were the most common among hemorrhagic ovarian cysts.¹²

The management of ovarian cysts depends on the accurate pre-operative determination regarding the benign or malignant nature of the ovarian cysts.^{6,7} Surgical management is recommended in patients with cysts size more than 5 cm in diameter and/or elevated serum levels of CA-125. Symptomatic patients should be managed surgically irrespective of age, status of menopause and radiological findings.⁶

CONCLUSION

Mature cystic teratoma was the most common ovarian cyst followed by serous cystadenoma in the present study in contrast to most other studies. A thorough knowledge

of the benign, borderline and malignant ovarian cysts as well as of their regional variations is desirable for both the gynaecologists and the pathologists.

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

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