ORIGINAL RESEARCH PAPER
Volume - 14 | Issue - 08 | August - 2025 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

HISTOMORPHOLOGICAL SPECTRUM OF CYSTIC LESIONS OF OVARY

Pathology

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ABSTRACT

Ovarian cysts are commonly encountered in gynecological practice and encompass a wide spectrum of lesions, ranging from non-neoplastic physiological cysts to neoplastic and potentially malignant tumors. This retrospective observational study was conducted over a period of 1 year and 10 months in a tertiary care center in North Karnataka to analyze the histomorphological spectrum of ovarian cysts. A total of 93 cases were examined. The majority of cysts occurred in the 40–49 years age group. Non-neoplastic cysts accounted for 53% of the cases, while 46.3% were neoplastic, of which 72.1% were benign and 27.9% malignant. The most common lesion was serous cyst adenoma (23.6%), followed by corpus luteal cyst (19.3%). Ovarian torsion was noted in 4.3% of the cases, predominantly affecting the right ovary. The study underscores the importance of histopathological evaluation in accurate classification and management of ovarian cysts.

KEYWORDS

Ovarian cysts, Histopathology, Serous cyst adenoma

INTRODUCTION

Ovarian cysts, defined as fluid-filled sacs that form within or on the surface of the ovaries, pose a considerable health concern for women in their reproductive years. These cysts represent a spectrum of lesions with diverse morphological features, ranging from benign functional cysts to complex neoplastic formations. These cysts vary in origin, reflecting either physiological processes or underlying pathological conditions, and each type exhibits distinct histopathological features that aid in diagnosis and treatment planning.[1]

Ovarian cysts are generally classified into two types: non-neoplastic and neoplastic. Non-neoplastic cysts, which are more prevalent, can be further divided into physiologic and pathologic types. Physiologic cysts, like follicular and corpus luteal cysts, are usually self-resolving, with about 95% disappearing naturally within one or two menstrual cycles.[2]

The potential of an ovarian cyst to become malignant, although rare, remains a critical concern in the clinical management of these cysts. A thorough histopathological examination is therefore necessary to confirm the nature of the ovarian cysts.

There is paucity of literature regarding the ovarian cysts from the north-Karnataka 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 Karnataka.

METHODOLOGY

Aim and Objectives

The aim is to study histopathological morphology of cystic ovarian lesions.

Objective: to find out the proportion of nonneoplastic and neoplastic lesions and categorize them histopathologically with special reference to North Karnataka region.

Study Design

This is a retrospective observational study done over a period of 1year 10 months- January 2023 to October 2024 in Department of Pathology, Mahadevappa Rampure Medical College and Basaveshwar Teaching& General Hospital, Kalaburagi. All the patients, who were clinically and radio-logically diagnosed as ovarian cysts, which were submitted for histopathological Examination were included in the study.

All the cases underwent Oopherectomy or hysterectomy with bilateral/unilateral salpingoopherectomy. Clinical details regarding patients' age, parity, presenting symptoms and laterality of the cysts were obtained from Medical records department for analysis.

Specimens were sent and fixed in 10% formalin for pathological examination. Gross and histopthological 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 wax. The formalin-fixed, paraffin-embedded tissue sections were stained with hematoxylin and eosin stain for light microscopic examination.

RESULTS

A total of 93 patients operated for ovarian cysts in the study period were analyzed. The age of the patients ranged from 20 years to 60 years with a mean age of 45years. The ovarian cysts were most commonly seen in the age group 40-49 years [Table 1].

Table 1: Frequency Distribution in Relation to Agegroup of Patients

Age	Frequency (%)
20-29	13 (13.9%)
30-39	24(25.8%)
40-49	49 (52.6%)
50-59	07 (7.5%)
Total	93(100%)

In terms of parity, 91 patients were multiparous and the rest 2 were nulliparous.

The most common clinical presentation was menorrhagia, followed by lower abdominal pain and constitutional symptoms like fever, fatigue and weakness.

53% lesions were non-neoplastic and 46.3% lesions were neoplastic. Among non-neoplastic lesions, 88% were physiologic and 12% were pathologic. Among neoplastic lesions, 72.1% were benign and 27.9% were malignant.[Table 2]

Table 2: Broad Categories of Ovarian Cystic Lesions

Type of ovarian cyst	Frequency (%)
Nonneoplastic- physiologic	44(47.3%)
Nonneoplastic- pathologic	06(6.4%)
Neoplastic- benign	31(33.3%)
Neoplastic- malignant	12(13%)
Total	93(100%)

Laterality of the ovarian cysts was studied. Out of 93cases, right ovary was involved in 69 cases and left ovary was involved in 22cases. Bilateral ovaries were involved in 2 cases [Table 3].

Table 3: Laterality of Cystic Lesion

Laterality	Frequency (%)
Right	69(74.2%)

Left	22(23.65%)
Bilateral	02(2.15%)
Total	93(100%)

Among all cases, most frequent lesions are serous cyst adenoma and Corpus luteal cysts -22cases (23.6%) and 18cases (19.3%) respectively [Table 4].

Table 4: Histological Types of Cystic Ovarian Lesions

Histological Type	Frequency (%)
Simple cyst	15(16.1%)
Corpus Luteal cyst	18(19.3%)
Follicular cyst	11(11.9%)
Chocolate cyst	02 (2.1%)
Serous cyst adenoma	22(23.6%)
Mucinous Cyst adenoma	03(3.2%)
Serous Cystadenofibroma	03 (3.2%)
Mature cystic Teratoma	03(3.2%)
Granulosa cell tumor	01 (1.07%)
Torsion +Simple cyst + Serous Cyst adenoma +Mucinous Cyst adenoma	04 (4.3%) 01 02 01
Mucinous cystadenocarcinoma	01(1.07%)
Serous Cystadenocarcinoma	10(10.7%)
Total	93(100%)

Ovarian Torsion

4.3% (4 cases) of all the ovarian cysts had undergone torsion. Histologic diagnoses in relation to torsion are mentioned below:
Simple serous cyst (1case), Serous cyst Adenoma (2 cases) and Mucinous cyst adenoma (1 case).

DISCUSSION

In this study, 74.2 % ovarian cystic masses were unilateral and 2.15% cases were bilateral; the data are similar to the observation of Pudasaini et al.[3]

National and international literature is not consistent on whether left or right ovary is more commonly involved. In this study, it was found that right ovary was more often affected than the left ovary similar to the study of Maharjan et al.[4] In contrast; left ovaries were involved more commonly than right ovaries in another study but Agrawal et al[5] concluded that both ovaries are equally affected.

Proportion of Ovarian Lesions

We found nonneoplastic lesions to be slightly more common than the neoplastic lesions. Among non-neoplastic lesions, the majority were physiologic in younger reproductive age. Among neoplastic lesions, 10.2% were malignant. In two national studies, the proportion of malignant tumors was 12.7% and 5.2%. These values assert that cystic tumors are more commonly benign than solid tumors[7].

Most Common Cyst:

Findings of several studies vary on the most common cystic ovarian lesion. We found , a neoplastic benign cyst, as the most common cystic mass lesion similar to study by Pudasaini et al[3] followed by Corpus luteal cyst and simple serous cyst.

The corpus luteal cyst was found as the most common cystic lesion in the study of Maharjan[4] and Zaman et al[6].

Torsion of Ovarian Cyst:

Ovarian cyst, physiologic or pathologic, tends to undergo torsion around the stalk. The ovary along with its stalk is covered by peritoneum. Among benign tumors, mature cystic teratomas are the most commonly affected[7].

We found 4.3% of all ovarian cysts to have undergone torsion. The most common type of neoplastic cyst in this study to undergo torsion was Serous Cyst adenoma.

In a study done by Mahin et al[8], functional cysts (43%) followed by mature cystic teratomas (24.5%) were affected by the torsion. In another study , functional cysts and mature cystic teratomas were equally affected.

Ovarian tumors, mostly benign and less commonly malignant, are responsible for most of the cases of torsion[7]. Malignant tumors are less likely to undergo torsion because cancerous adhesions fix the ovary to surrounding structures[9]. 60% cases of ovarian torsion occur on the right side.[10] In this study, 75% cases of torsion involved right ovarian cystic masses.

CONCLUSION

Serous cyst adenoma emerged as the most common ovarian cystic lesion in this North Karnataka cohort, followed by corpus luteal cysts. Torsion was an uncommon but significant complication, mainly affecting neoplastic cysts like serous cyst adenoma. Histopathological evaluation remains essential for accurate diagnosis and management.

Image 1: Multiloculated ovarian mass with solid and cystic areas.

Image 2: unilocular, translucent, thin-walled cystic ovarian mass filled with clear or straw-colored serous fluid,

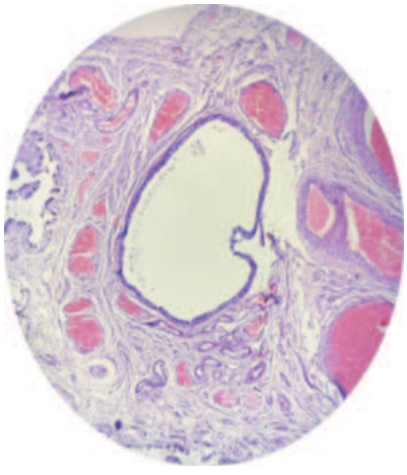

Image 3: unilocular cyst lined by a single layer of flattened to cuboidal epithelium with a fibrous wall and no atypia or papillary projections, consistent with a benign simple cyst.

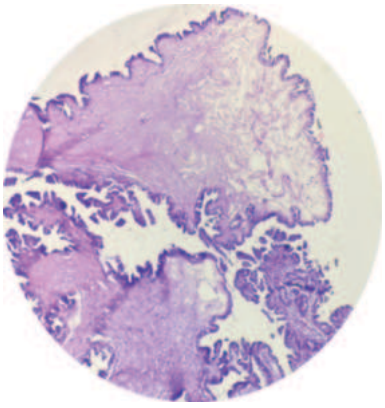

Image 4: Papillary structures lined by bland cuboidal to columnar epithelium with intervening fibrous stroma, characteristic of serous Cystadenofibroma

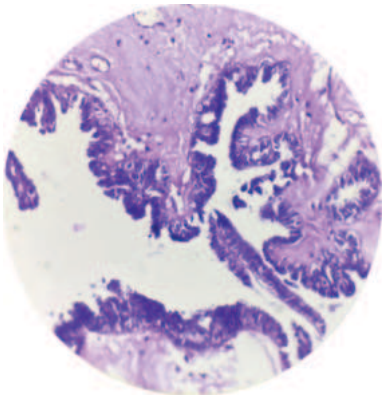

Image 5: Complex papillary structures with multilayered atypical epithelial cells, nuclear stratification, and stromal invasion, characteristic of serous cystadenocarcinoma.

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