# A Clinicopathological Study of 236 Cystic Ovarian Lesions at Jos University Teaching Hospital, Jos, Nigeria

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## Abstract

**Background:** Cystic ovarian lesions are defined by an ovarian fluid containing space limited by a membrane. The exact prevalence of the disease is unknown. A proper diagnosis is imperative for the choice of appropriate therapy. The objective of this study is to establish the different histological variants of ovarian cysts diagnosed at the Histopathology Department of Jos University Teaching Hospital between January 1, 2000 and December 31, 2019.

**Methodology:** This is a descriptive study of consecutive cases of ovarian cysts at the Jos University Teaching Hospital, Jos, Nigeria between January 1, 2000 and December 31, 2019. Demographic and histopathologic data were collated from patients' request forms and duplicate copies of histology reports of all histologically diagnosed cases of ovarian cysts at the Histopathology Department during the study period.

**Result:** A total of 236cases of cystic ovarian lesions were seen during the period of the study. Benign and malignant cases constituted 226(95.76%) and 10(4.24%) cases respectively. Corpus luteum cyst was the commonest histological type accounting for 28.33% of cases. Lesions located on the right ovary were 145(61.44%), while those on the left were 95(40.25%). The commonest symptom was abdominal pain. The age range was 4-70years, with a mean, median and mode of 35.02±11.9 years, 33.0years, and 35.0 years respectively.

**Conclusion:** The vast majority of ovarian cysts in our environment are benign, and commonly occurs in women during their reproductive age. Abdominal pain is the commonest presentation and cysts of the ovary occur more on the right.

**Keywords:** Ovary; Cysts; Corpus Luteum; Pain.

## Introduction

Cystic ovarian lesions are defined by an ovarian fluid containing space limited by a membrane.[1] Owing to the many asymptomatic and thereby undiagnosed cases, the exact prevalence of the

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disease is unknown.[2] Globally, an estimate of 7% of women will during their lifetime be affected with the pathology,[3] and up to 4% of these will be admitted to the hospital.[2] Ovarian lesions could be benign or malignant and both could present a diagnostic challenge.[4] While most ovarian lesions are benign, malignant ovarian lesions are the third most common gynaecological malignancy worldwide, and also the commonest cause of death among all gynaecological cancers.[5,6,7] In Nigeria, ovarian cancer is the second most common gynaecological malignancy after cervical cancer; it is an important public health problem.[7] Most cases of cystic ovarian lesions are incidental findings, and are asymptomatic.[5] Abdominal pain, palpable mass, and irregular menses represent some of the common presentations of the disease.[2,5] A proper diagnosis is imperative for the choice of appropriate therapy. This study aimed at establishing the different histological variants of ovarian cysts diagnosed at the Histopathology Department of the Jos University Teaching Hospital between January 2000 and December 2019, and relating this finding with the frequency, age, site and symptoms of the pathology. This will be further compared with findings in published scholarly literature.

## Methodology

This is a descriptive study of consecutive cases of ovarian cysts at the Jos University Teaching Hospital, Jos, Nigeria over a 20-year period, from January 1, 2000, to December 31, 2019. Patient request forms and duplicate copies of histopathology reports of all histologically diagnosed cases of ovarian cysts at the Histopathology Department during the study period were retrieved and the demographic and histopathologic data collated. The patient folders were also reviewed to obtain other information including frequency, age, site and symptoms of the pathology. The archival slides of all identified cases were retrieved and reviewed again to confirm the diagnosis. In cases with faded or missing slides, archival formalin-fixed, paraffin-embedded tissue blocks were used to make new slides. The histological review of slides was carried out independently by two consultant anatomical pathologists involved in the study. The few variations were harmonized in a joint session. Cases with complete medical records and definitive

histological diagnosis were included. Cases where the above data or tissue blocks were missing were excluded from the study. The data obtained were entered into a Microsoft Excel worksheet, using the 2016 Microsoft Excel software and analyzed. Data were presented using tables and charts, Frequencies, percentages, range, mean and standard deviations were also obtained and presented.

## Results

A total of 236 cases of cystic ovarian lesions were seen during the period of the study. Benign and malignant lesions constituted 226(95.76%) and 10(4.24%) cases respectively. Table, 1 showed that- Malignant cases included: immature teratoma 2(0.85%), serous carcinoma 5 (2.12%) and mucinous carcinoma 3(1.27%). Corpus luteum cyst was the commonest histological type of cystic ovarian lesion accounting for 68 (28.81%) cases. Lesions located on the right ovary were 145(61.44%), while those on the left were 95(40.25%). The commonest symptom was abdominal pain occurring in 151(63.98%) cases. Table 2 showed the age range of 4-70years, with a mean, median and mode of 35.01+11.7years, 33.0years, and 35.0 years respectively.

**Table 1:** Distribution of histological types of cystic ovarian lesions according to frequency, age, site and symptoms

| HISTOLOGICAL DIAGNOSIS | FREQ (%) | <10 R | <10 L | 10-19 R | 10-19 L | 20-29 R | 20-29 L | 30-39 R | 30-39 L | 40-49 R | 40-49 L | 50-59 R | 50-59 L | 60-69 R | 60-69 L | 70-79 R | 70-79 L | BLEEDING | AMENORRHOEA | PAIN | MASS | INFERTILITY | INCIDENTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INCLUSION CYST | 26(11.02) | 1 | - | - | - | 3 | 1 | 8 | 3 | 4 | 4 | 1 | 1 | - | - | - | - | 9 | - | 15 | 9 | - | 1 |
| FOLLICULAR CYST | 29(12.29) | - | - | - | - | 8 | 8 | 3 | 4 | - | 2 | 3 | 1 | - | - | - | - | 9 | - | 18 | 9 | 1 | 1 |
| CORPUS LUTEUM CYST | 68(28.81) | - | 2 | 1 | 2 | 9 | 10 | 1 | 0 | 1 | 3 | 4 | 5 | - | 1 | 1 | - | 29 | 4 | 43 | 16 | 1 | - |
| ENDOMETRIOSIS | 4(1.69) | - | - | - | 1 | 1 | - | - | 1 | - | 1 | - | - | - | - | - | - | - | - | 3 | 1 | - | - |
| HEMORRHAGIC CYST | 13(5.50) | - | - | - | 2 | 1 | 3 | 2 | 1 | 1 | 1 | 2 | - | - | - | - | - | 10 | - | 12 | - | - | - |
| INFLAMMATION/ ABCESS | 18(7.62) | 1 | - | - | - | 6 | 2 | 1 | 4 | 2 | 1 | 1 | - | - | - | - | - | 3 | 1 | 17 | 10 | - | 1 |
| MATURE TERATOMA | 40(16.95) | 2 | - | 4 | 1 | 6 | 6 | 8 | 6 | 3 | 2 | 1 | 1 | - | - | - | - | 10 | - | 24 | 20 | 1 | 2 |
| IMMATURE TERATOMA | 2(0.85) | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 1 | - | - | - | - | 1 | 2 | - | - |
| POLYCYSTIC OVARY | 4(1.69) | - | - | - | - | - | 2 | - | 1 | 1 | - | - | - | - | - | - | - | 4 | 1 | 3 | 3 | - | - |
| SEROUS ADENOMA | 15(6.36) | - | - | 1 | 1 | 2 | 1 | 1 | 5 | 2 | 1 | - | 1 | - | - | - | - | - | 4 | - | 7 | 13 | - | - |
| SEROUS CARCINOMA | 5(2.12) | - | - | - | - | - | 1 | - | 1 | - | - | 2 | - | - | 1 | - | - | - | 2 | 4 | - | 1 |
| MUCINOUS ADENOMA | 9(3.81) | - | - | - | 2 | - | 2 | 1 | 1 | - | - | 2 | 1 | - | - | - | - | - | - | 4 | 6 | - | - |
| MUCINOUS CARCINOMA | 3(1.27) | - | - | - | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 3 | - | - |
| TOTAL | 236 (100.00) | 4 | - | 6 | 3 | 5 | 3 | 2 | 0 | 3 | 9 | 3 | 3 | 23 | 17 | 1 | 8 | 3 | 2 | 1 | 1 | 78 | 6 | 151 | 96 | 3 | 6 |
| | | 4 (1.69) | | 9 (3.81) | | 82 (34.74) | | 72 (30.51) | | 40 (16.95) | | 22 (9.32) | | 5 (2.11) | | 2 (0.85) | | | | | | | |

**Table 2:** Distribution of histological types of cystic ovarian lesions according to age range and measures of central tendency

| HISTOLOGICAL DIAGNOSIS | Age Range (years) | Measure of Central Tendency (years) | | |
|---|---|---|---|---|
| | | Mean | Median | Mode |
| INCLUSION CYST | 9-56 | 35.35+9.55 | 33.0 | 33.0 |
| FOLLICULAR CYST | 20-57 | 32.10+11.61 | 29.0 | 20.0 |
| CORPUS LUTEUM CYST | 5-60 | 33.52+11.38 | 33.0 | 26.0 |
| ENDOMETRIOSIS | 25-50 | 35.50+12.56 | 33.5 | 25.0 |
| HEMORRHAGIC CYST | 24-50 | 34.08+10.41 | 32.0 | 24.0 |
| ABCESS (TUBO - OVARIAN) | 16-50 | 32.28+9.05 | 30.5 | 35.0 |
| MATURE TERATOMA | 4-58 | 29.87+11.24 | 30.0 | 35.0 |
| IMMATURE TERATOMA | 40-70 | 55.00+21.21 | 55.0 | - |
| POLYCYSTIC OVARY | 30-41 | 36.50+5.07 | 37.5 | 30.0 |
| SEROUS ADENOMA | 17-56 | 37.60+11.44 | 40.0 | 41.0 |
| SEROUS CARCINOMA | 37-57 | 46.50+8.81 | 46.0 | 37.0 |
| MUCINOUS ADENOMA | 23-65 | 41.30+15.46 | 35.0 | 35.0 |
| MUCINOUS CARCINOMA | 32-32 | 32.00+0.00 | 32.0 | 32.0 |
| TOTAL | 4-70 | 35.01+11.7 | 33.0 | 35.0 |

## Discussion

The clinical and radiological diagnosis of an ovarian cyst is a source of significant anxiety to an affected patient owing to the uncertainty of its malignant potential.[1] One of the most important information required from a histological report is to know if a lesion is malignant.[8] This will determine the course of treatment as more is usually done for lesions that are cancerous.[8] In this study, 4.24% of ovarian cysts diagnosed were malignant. In a retrospective study of 123 cases ovarian cysts, Neelgund and Hiremath reported malignancies to constitute 4.1% of the samples.[5] Similarly, Abduljabbar analyzed 244 cases and found 4% to be malignant.[9] Pudansi et al reported 5.9%,[10] while higher values of 8% and 9% were reported by two other researchers respectively.[11,12] It therefore follows that the likelihood of a cystic lesion of the ovary to be malignant is very low.

The commonest histological entity in this study is the corpus luteum cyst accounting for 28.81% of all cases seen. Follicular cyst follows closely to corpus luteum cyst accounting for 12.29% of cases. The umbrella name "functional cyst" is the common designation for both corpus luteum cyst and follicular cyst. While both are products of the graafian follicle as part of the menstrual cycle, the later develop from the un-ruptured follicle, while the former results from the remnant of the follicle after the ovum has been released.[13] Functional cysts were the commonest cystic lesions of the ovary in reports by Seeglund et al, Suleiman et al, Sanwat et al, Malehi et al, and Farooq et al.[5,11,14,15,16] However, follicular cysts where not the commonest in studies by Pudansaini et al and Al-Shukri et al.[10,12]

Ovarian cysts presents at any point in females life from birth to geriatric age.[1] The age range in this study is 4-70 years. Pudansaini et al found a similar age range of 6-70 years in 102 ovarian cysts in a report from Nepal.[10] The mean of 35.02+11.9 years in this study approximates the 35.35±12.85 years and 33.44+9.30 reported by Abduljabbar et al and Zahra respectively.[9,17] In Nigeria, the age of menarche and menopause were reported to 12.3 ± 1.18 years and 48.0 ± 5.9 years respectively.[18,19] The period between this age-range is the reproductive age in which the reproductive hormones play a key role in health and disease. The mean age in this study, peak age incidence and other measures of central tendency fell within this age bracket. Furthermore, 86.25% of cyst here-in studied occurred between 10 and 49 years. This finding in our study is consistent with reports from other researchers.[5,9,10,16,17,20] Increasing age during reproductive life have been demonstrated to have a concomitant significant rise in serum levels of follicle stimulating hormone and attendant increase in estradiol-17β.[21] Estrogen has been implicated in the pathogenesis of non-neoplastic and neoplastic ovarian cysts.[13,22]

Most cases of ovarian cysts are asymptomatic thereby casting a shadow on the actual incidence of the disease.[2,9] Abdominal pain was the commonest symptom of cystic ovarian lesions in this study. This was similarly reported by other researchers.[1,5,9,17] The pain experienced has been reported to be characteristically dull or sharp, and may be constant, remitting and relapsing.[23] Acute pain do results from torsion, intra-cysic hemorrhage, cyst rupture or infection.[12,23,25,26]

The right ovary has been reported to be commonly affected with pathologies leading to cyst formation.[9,11] This was the finding in our study, with 60.42% of cases occurring on this side.

## Conclusion

The vast majority of ovarian cysts in our environment are benign, commonly occur in women during their reproductive age. These present mostly with abdominal pain and occur more on the right side. Proper characterization is necessary for institution of appropriate treatment.

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