Check for updates

OPEN ACCESS

DOI: 10.46903/gjms/22.02.1598

ORIGINAL ARTICLE

HISTOPATHOLOGICAL SPECTRUM OF OVARIAN LESIONS UNDERGOING SURGICAL MANAGEMENT IN A TERTIARY CARE HOSPITAL, AN OBSERVATIONAL STUDY

Nazish Hayat[1], Samdana Wahab[2], Faryal Abid[1], Sania Azmat[3], Mahrukh Azmat[4], Aneela Rafiq[5]

Departments of Obstetrics & Gynecology, [1]Lady Reading Hospital, Peshawar, [2]Mercy Teaching Hospital, Peshawar, [3]DHQ Hospital Tank, [4]Fatima Jinnah Medical college Lahore, [5]Khyber Girls Medical College Peshawer, Pakistan

ABSTRACT

Background: Ovarian cysts affect 7% of women worldwide. Many resolve spontaneously, while a significant number end up in surgery. Histopathological type is used for the final diagnosis of these cysts. The objective of this study was to find out the frequency of various histopathological types of ovarian cysts undergoing surgical management in Lady Reading Hospital, Peshawar.

Materials & Methods: A retrospective observational study was conducted in the Obstetrics and Gynaecology Department of Lady Reading Hospital, Peshawar after approval from the Institutional Ethical Research Committee. About 4 years (January 2020 till December 2023), statistical data of all patients undergoing surgical removal of ovarian cysts was retrieved from Health Management Information System (HMIS). Cases of para ovarian cysts and already diagnosed cases of malignant ovarian cysts were excluded. Data was entered on SPSS version 26. Frequencies and percentages for categorical variables, Mean and standard deviation numerical variables were used.

Results: Total 229 cases were included. The mean age of patients was 31.71±10.60. Bilateral cysts occurred in 19 patients. On histopathological diagnosis, mature cystic teratoma occurred in 24.5%, endometriotic cysts in 22.7%, and serous cystadenomas in 18.3% of cases. Based on size, mucinous cysts were larger with overall diameters of 16.8cm ±6.6cm. About 7.8% of cysts were associated with torsion, 2% with ascites, and 1.7% with metastasis. The association of age more than 50 years was noted with risk of malignancy. No significant size difference in benign and malignant counter parts was noted.

Conclusion: Mature cystic teratomas were the most frequent histological type of ovarian cyst, followed by endometriotic cysts. Increasing age was found significantly associated with risk of malignancy.

KEY WORDS: Ovarian cysts; epithelial ovarian cancer; corpus luteum cyst; classification; surgical procedure.

Cite as: Hayat N, Wahab S, Abid F, Azmat S, Azmat M, Rafiq A. Histopathological spectrum of ovarian lesions undergoing surgical management in a tertiary care hospital, an observational study. Gomal J Med Sci 2024 Apr-Jun;22(2):127-31. https://doi.org/1046903/gjms/22.02.1598

INTRODUCTION

Ovarian cysts comprise a gynecological condition that frequently ends up in surgical procedures.

Corresponding Author:

Dr. Samdana Wahab
Associate Professor
Department of obstetrics and gynecology
Mercy Teaching Hospital
Peshawar, Pakistan
E-mail: samdana32@gmail.com

Date Submitted: 24-01-2024
Date Revised: 15-04-2024
Date Accepted: 26-04-2024

Several histopathological types of ovarian cysts can be identified during the surgical removal.[1] Ovarian cysts may be functional, like follicular cysts and corpus luteal cysts or they may be non-functional/ pathological including dermoid cysts, endometriotic cysts, serous cysts, mucinous cysts etc. Each type of ovarian cyst has distinct histopathological features that can provide insight into the underlying pathology and guide further management.

Worldwide, about 7 % of women are reported to have ovarian cysts at some point in their life.[2] Local data about incidence of ovarian cysts is lacking, however a study from Bangladesh indicated that ovarian cysts were found in 12.5% of gynecological admissions in the hospital.[3] Ovarian cysts may be asymptomatic

and diagnosed accidentally on clinical examination and/or on various imaging techniques. They may present with non-specific clinical symptoms like abdominal gaseous distention or sometimes with menstrual irregularities, lower abdominal pain, and heaviness.[4] However, not all of these cysts necessitate surgical removal. After clinical examination these cysts are further characterized on the basis of ultrasound or higher imaging techniques like CT scan and MRI.[2] By identifying the different signs on imaging techniques, multiple categorization systems, such as International Ovarian Tumour Analysis group (IOTA) and Risk of malignancy index (RMI) etc., are used to estimate the risk of malignancy in ovarian cysts.[5] These are aided by various biochemical markers such as Ca125, LDH, AFP, etc depending upon the nature of cysts. This becomes important in the planning of patients regarding the need and extent of surgery. However, the final diagnosis of the type and malignant potential comes through histopathological examination.

Histopathological examination of ovarian cysts also plays a crucial role in determining the appropriate follow-up and treatment plan for the patient. Understanding the specific characteristics of each histopathological type is vital for informing prognosis and potential recurrence. Furthermore, the histopathological type of ovarian cysts removed surgically can also provide valuable information for research and clinical studies on the prevalence, etiology, and prognosis of the disease. Finally, such research can contribute to the development of improved diagnostic and treatment strategies, ultimately benefiting patients with these conditions.

This study aims to know the histopathological diagnosis and hence the distribution of various types of cysts treated surgically in our hospital. This can help in developing insight, that which types of ovarian cysts are more common in our region. Furthermore, similar studies performed in other regions of the world can help identify the geographical distribution exhibited by various histopathological types that can stimulate further research in the future.

MATERIALS AND METHODS

It was a retrospective observational study conducted in the OBGYN Department of Lady Reading Hospital (LRH), Peshawar. Study duration was 4 years, from 1st January 2020 to 31st December 2023. Non-probability simple convenience sampling method was used. All patients undergoing surgical removal of ovarian cysts in our department, for which histopathology reports were available, were included in the study. Cases of para ovarian cysts, already diagnosed and previously treated cases of malignant ovarian cysts requiring debulking after adjuvant chemotherapy, and adnexal masses per-operatively diagnosed to be extra-ovarian in origin were excluded. After obtaining ethical approval (Ref: No. 46/LRH/MTI), data was retrieved from the hospital Health Management Information System HMIS. Clinical characteristics of patients such as patient's age, size of cysts and ovary which was involved (unilateral or bilateral), type of surgery, associated ascites, torsion, adhesions, and histopathological findings were noted. All necessary measures were adopted to maintain the confidentiality of the research subjects.

Data was analyzed using SPSS version 26. Frequencies and percentages, were for categorical variables, while Mean and standard deviation were used for numerical variables.

RESULTS

A total of 299 cases were retrieved from HMIS, who had undergone surgical removal of ovarian cysts. Among these, complete data was found for 229 cases (76.5%) with histopathology reports available, and hence, were included in the study.

The mean age of the patients was 31.71±10.60. Approximately 10% (n=24) of patients were below 20 years of age, while 9 patients were aged above 50.

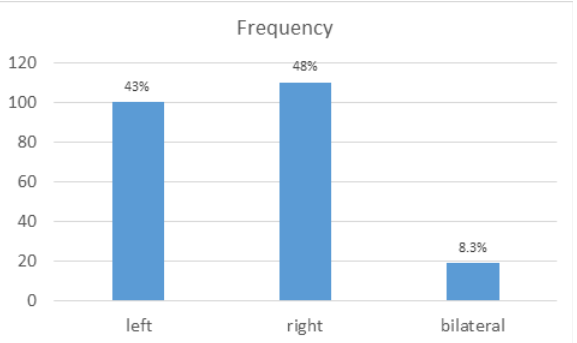
A significant association between age more than 50 years with risk of malignancy was noted. (p=0.001; OR 27; CI: 3.6-198). Table 1

Parity ranged from 0-9 with 37% being nulliparous (n=86). 45% were those with parity up to 4. Of 229 patients, 14 were pregnant at the time of surgery.

The site of ovarian cysts was as shown in Graph 1. 210 cases of cysts were unilateral with 110 cases on the right side. Bilateral cysts occurred in 19 patients (8.3%) of whom 7 had mature cystic teratoma, which accounted for 13% of all cases diagnosed with teratomas.

Table 1: Association of age with risk of malignancy

Age	P value	OR	95% CI. for OR	
20-40 years	0.801	0.815	0.167	3.983
41-50 years	0.317	2.411	0.430	13.502
>50 years	0.001	27.000	3.669	198.694
Ref <20 years				



Graph 1: Lateral distribution of cysts

Sizes of cysts on average were not much different on the two sides, with a mean left ovarian cyst size of 9.82±5.84 and a mean right ovarian cyst size of 10±5.39. Based on the size, mucinous cysts were found to have attained bigger sizes at 15.5cm ±6.8, serous cystadenomas were relatively smaller at 11.48 cm±5.8 while mature cystic teratomas averaged at about 8.8 cm±3.7, with size ranges of 5-36cm, 3-30cm, 3-20cm, and 3-18cm, respectively. When compared for size, there was no significant difference between the benign and malignant types in serous (p=0.541. 95% CI: -4.4-8.08) and mucinous histopathology (p=0.442, 95% CI: -7.8-3.4).

Table 2: Histopathological diagnosis of ovarian cysts

Histology	Frequency	Percent
Follicular cyst	9	3.9
Luteal cyst	8	3.5
Serous cystadenoma	42	18.3
Serous borderline tumor	2	0.9
Serous cystadenocarcinoma	4	1.7
Mucinous cystadenoma	23	10
Mucinous borderline tumor	5	2.2
Mucinous cystadenocarcinoma	5	2.2
Cyst adenofibroma	1	0.4
Mature cystic teratoma	56	24.5
Immature teratoma	1	0.4
Fibroma	1	0.4
Endometriotic cyst	52	22.7
Hemorrhagic cyst with no identifiable epithelium	9	3.9
Sex cord stromal cell tumor	1	0.4
Granulosa cell tumor	7	3.1
Sclerosing stromal tumor	1	0.4
Clear cell carcinoma of the ovary	1	0.4
Hydatid	1	0.4
Total	229	100

The histopathological diagnoses showed that 3% were borderline and 7.8% were malignant. Overall, mature cystic teratoma (24.5%, n=56), endometriotic cysts (22.7% n=52) and serous cystadenomas (18.3%, n=42) were the most frequently encountered cysts types. The overall case distribution was as in Table 2.

Lastly, about 7.8% (n=18) of cysts were associated with torsion, among these 33% were diagnosed as having hemorrhagic cyst with no identifiable epithelium. 23 were associated with adhesions (73% of which were endometriotic), 2% (n=5) were associated with ascites and 1.7% with metastasis (n=4).

DISCUSSION

This study aimed to look at the histopathological diagnosis of ovarian cysts removed surgically in our setup. In our study, the mean age of participants was 31 years with only 10% of cases operated under the age of 20 years. A significant association was noted in our study between advanced age and risk of malignancy. Most ovarian cysts were unilateral with right side predominance, with an average size of 10 cm. Mucinous cysts were larger. Mature cystic teratoma was most common histopathologic diagnosis. One third of the ovaries presenting with torsion had no identifiable epithethelium.

A study performed on Qatari women showed that the mean age of patients was similar (32%) but only 3.7% of patients were aged 11-20 years.[6] Another study however, showed that average age of their patients was of 32 years, while 12.7 % of cases were less than 20 years of age, the results are consistent to our study.[7] This data implies that ovarian tumors are more common in reproductive age group. Increased risk of malignancy in association with age was confirmed by Mukta et al in their study.[8]

A study performed by Shadab also showed that 10.5% of cases were bilateral while among the remaining 89.5% of cases, 51% were on right side, which was similar to our study.[7] Another study from Kolkata also showed that 88 % of cases studied by them had unilateral while approximately 12 % of cases had bilateral ovarian cysts.[9] This shows that roughly around one tenth of ovarian tumors affect both ovaries, while in unilateral cases there was more preponderance towards involvement of ovary on right side.

In an Indian study, mean size of tumor in epithelial tumor, germ cell tumor, sex cord–stromal tumor and others category was 11.2 ±6.9 cm, 11.5 ±4.8 cm, 8.5 ± 2.8 cm, 9.2 ± 5.3 cm with the size range

of 1–30 cm, 4–24 cm, 4–12 cm, and 5.4–13 in cm, respectively.[10] Teratomas, in our study, had an average size of 8.8 cm and were bilateral in 13% of cases. Similar size but lesser percentage of bilaterality (8.5%) was noted by Malileh et al. in their study. In a Chinese study, bilaterality was reported to be 10.8%, while average size of mature cystic teratomas was 6 cm.

Local study performed in Lahore showed mature cystic teratomas to be commonest among the benign ovarian masses (38%), as in our study, followed by serous cystadenomas (24%).[12] Endometriosis was encountered in 9.4% of cases in their study. In study by Shadab, the most common histopathological type of ovarian cyst encountered was mature cystic teratoma (17%), followed by mucinous cystadenomas (9.4%).[7] Serous cystadenomas were found in 9% of cases whereas endometriosis was found in 7.9% of cases. In the study by Neha et al, serous cystadenomas were most common (18.9%), followed by mucinous cystadenomas 14.6%, mature cystic teratomas was diagnosed in 13.2% of cases while endometroid tumor was found 10.8%.[10] In a Nepalese study, Sabin et al found that follicular cysts were most common (27.2%), followed by mature cystic teratoma (25.4%) and serous cystadenoma (16.7%). Mucinous cystadenoma was found in 8.8% of cases.[13] Concluding from above, the most common histopathology's encountered in various studies are mature cystic teratomas and serous cystadenomas. Endometriotic cysts were however, higher in proportion in our study.

About 7.8% of ovarian cysts in our study were found to have torsion. Torsion was found in 14.9% of cases by Sabin et al. Necrosis was confirmed on histopathology in 14.2% of patients in a study by Maria et. al[14], a figure which is relatively half of our study. This may be accounted for by delay in seeking/provision of surgical care. Endometriotic cysts were frequently found to be associated with adhesions by Chaggar et al (OR, 25.7; 95% CI: 23.0-32.6%), an association noted in our study also.[15]

CONCLUSION

Mature cystic teratomas was the most frequent histological type of ovarian cyst removed surgically, followed by endometriotic cysts, which were frequently accompanied by adhesions. There was no significant difference in sizes of benign and malignant counterparts of serous and mucinous cysts. Increasing age was found significantly associated with risk of malignancy.

REFERENCES

1. Bhattacharjee S, Sharma SS. Laparoscopic management of adnexal masses: a hospital-based study. Int J Reprod Contracept Obstet Gynecol [Internet]. 2018;7(4):1427-31. https://doi.org/10.18203/2320-1770.ijrcog20181329
2. Farghaly SA. Current diagnosis and management of ovarian cysts. Clin Exp Obstet Gynecol. 2014;41(6):609-12. PMID: 25551948. https://doi.org/10.12891/ceog20322014
3. Haque R, Akter T. Clinical presentation and histological types of ovarian tumor in patients admitted in tertiary care center. Sch Int J Obstet Gynec [Internet]. 2023;6(11):450-6. https://doi.org/10.36348/sijog.2023.v06i11.004
4. Ghasemi F, Mirzaee S, Amini P. Comparison of Hormone Therapy with Expectant Management in the Clinical Management of Functional Ovarian Cysts: A Randomized Clinical Trial. Adv. nurs. midwifery. 2019 Jan 1;28(1):48-54. DOI: 10.29252/anm-28018
5. Timmerman D, Planchamp F, Bourne T, Landolfo C, du Bois A, Chiva L, et al. ESGO/ISUOG/IOTA/ESGE Consensus Statement on pre-operative diagnosis of ovarian tumors. Int J Gynecol Cancer [Internet]. 2021;31(7):961-82. https://doi.org/10.1136/ijgc-2021-002565
6. Zahra F. Pattern of benign ovarian cysts in Qatari women. Qatar Med J [Internet]. 2016;2016(2). https://doi.org/10.5339/qmj.2016.17
7. Shadab S, Tadayon T. Histopathological diagnosis of ovarian mass. J Pathol Nepal [Internet]. 2018;8(1):1261-4. https://doi.org/10.3126/jpn.v8i1.19448
8. Mukta S, Islam S, Rikta S. Prevalence and Risk Factors of Ovarian Cysts in Women Aged 18-45 Years in Bangladesh: A Prospective Study on Ovarian Cyst Development and Carcinoma Risk. ARJGO. 2023;6(1):221-6.
9. Chakrabarti PR, Chattopadhyay M, Gon S, Banik T. Role of histopathology in diagnosis of ovarian neoplasms: Our experience in a Tertiary Care Hospital of Kolkata, West Bengal, India. Niger Postgrad Med J [Internet]. 2021;28(2):108-11. https://doi.org/10.4103/npmj.npmj_491_21
10. Gupta N, Yadav M, Gupta V, Chaudhary D, Patne SCU. Distribution of various histopathological types of ovarian tumors: A study of 212 cases from a tertiary care center of Eastern Uttar Pradesh. J Lab Physicians [Internet]. 2019;11(1):75-81. https://doi.org/10.4103/JLP.JLP_117_18
11. He X, Zhao X, Wang X, Liang G, Qi H, Zhu C, et al. Distinctive pattern of left-right asymmetry of ovarian benign teratomas in Chinese population: a 12-year-long cross-sectional study. Arch Gynecol Obstet [Internet]. 2021;303(3):729-37. https://doi.org/10.1007/s00404-020-05864-0
12. Ashraf A, Shaikh AS, Ishfaq A, Akram AB, Kamal F, Ahmad NA. The relative frequency and histopathological pattern of ovarian masses. Biomedica. 2012;28(1):98-102.
13. Ranabhat S, Tiwari M, Maharjan S, Bhandari A, Subedi M, Osti BP. Histopathologic spectrum of cystic ovarian masses. J Chitwan Med Coll [Internet]. 2017;6(1):16-20. https://doi.org/10.3126/jcmc.v6i1.16574

14. Novoa M, Friedman J, Mayrink M. Ovarian torsion: can we save the ovary? Arch Gynecol Obstet [Internet]. 2021;304(1):191-5. https://doi.org/10.1007/s00404-021-06008-8

15. Chaggar P, Tellum T, Thanatsis N, De Braud LV, Setty T, Jurkovic D. Prevalence of deep and ovarian endometriosis in women attending a general gynecology clinic: prospective cohort study. Ultrasound Obstet Gynecol [Internet]. 2023;61(5):632-41. https://doi.org/10.1002/uog.26175

CONFLICT OF INTEREST
Authors declare no conflict of interest.
GRANT SUPPORT AND FINANCIAL DISCLOSURE
None declared.

AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

Conception or Design:	NH, SW
Acquisition, Analysis or Interpretation of Data:	NH, SW, FA, SA, MA, AR
Manuscript Writing & Approval:	NH, SW, FA, SA, MA, AR

All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.