International Journal of Research in Medical Sciences
Marachapu J et al. Int J Res Med Sci. 2023 Apr;11(4):1141-1145
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012
DOI: https://dx.doi.org/10.18203/2320-6012.ijrms20230851

Original Research Article

Histomorphological spectrum of ovarian lesions from a single institute

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Received: 02 March 2023
Accepted: 23 March 2023

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ABSTRACT

Background: Ovarian tumours pose a significant and intricate issue, contributing to the wide-ranging problem of ovarian pathology. The mortality rate of this condition surpasses the combined mortality rate of endometrial and cervical neoplasms. To address this challenge, we conducted a study of the clinical spectrum, its accompanying findings, and various histomorphological patterns of ovarian lesions. Our findings provide a definite diagnosis, which is of great clinical importance and aids in enhancing the understanding of the disease and developing proper management plans for patients.
Methods: This is a retrospective study conducted in the department of pathology, ESIC hospital from January 2021 to December 2021. A total of 62 ovarian tumours, were analysed for a year, verifying their clinical, radiological, and gross features and correlating them with histopathological findings.
Results: Out of 62 cases, 53 were benign, 3 cases were borderline and 6 were malignant. Most of the patients (60%) were from the reproductive age group. Among non-neoplastic lesions, the commonest epithelial tumours were serous cystadenoma 35 cases (43.5 %), 10 mucinous (16.1%). The most common germ cell tumour was mature cystic teratoma 10 cases (16.5%) and others. Among neoplastic lesions, five cases were of surface epithelial type. Abdominal pain (70.97%) is the most common presenting symptom, followed by dysfunctional uterine bleeding (9.6%), mass per abdomen (4.8%), abdominal distention (4.2%), and loss of weight (3.4%). The right ovary is more affected than the left. Bilaterality was observed in all lesions of size more than 4.5 cm.
Conclusions: The ovary is a frequently affected site of tumours in the female reproductive system, and they often exhibit a diverse range of clinical, morphological, and histological characteristics. Among these tumours, benign tumours are the most prevalent, with surface epithelial tumours being the most commonly observed subtype. In this study, benign epithelial tumours comprised the majority of cases, accounting for 66.2% of cases. The most common types of benign tumours were serous cysts, corpus luteal cyst and mature cystic teratoma. It is important to note that although most ovarian tumours are benign, some can be malignant, requiring more aggressive treatment. Therefore, an accurate diagnosis and appropriate management are crucial to warrant the best probable outcome for the patient.

Keywords: Surface epithelial tumour, Corpus luteal cyst, Mature cystic teratoma, Germ cell tumour, WHO

INTRODUCTION

Ovarian pathology, particularly ovarian tumours, is one of the most intricate and comprehensive challenges in modern gynaecology. In spite of its relatively small size, the ovary demands the attention of several medical specialities, including endocrinology, gynaecology, and pathology. The ovary is a complex organ with a dynamic physiology that undergoes further structural changes than any other organ in the body.[1] As a result, it poses unique diagnostic and treatment challenges, making it an area of intense study and ongoing research. The development of primary ovarian tumours can originate from any of the three forms of cells that exist in the normal ovary, the multipotent surface (coelomic) epithelium, the totipotent germ cells, and the sex cord-stromal cells. Among these,

surface epithelial tumours are the most frequently encountered and constitute the vast majority of ovarian neoplasms. In fact, almost 90% of ovarian cancers are of the malignant form of surface epithelial tumours. Germ cell and sex cord-stromal cell tumours are comparatively less observed, accounting for 20-30% of ovarian tumours, but they are responsible for less than 10% of ovarian malignancies combined.[2] Ovarian tumours constitute 80% of all gynaecological malignancies in India.[3] After the uterus and cervix, the ovary is the second most common site for the development of gynaecological malignancy, and the prognosis for these tumours tends to be poor.[4] Ovarian tumours are not a single entity but rather a diverse range of neoplasms that involve a variety of histologic tissues, including epithelial tissues, connective tissues, specialized hormone-secreting cells, and germinal or embryonal cells.[5] Typically, ovarian tumours occur in perimenopausal and post-menopausal women, but they can also occur infrequently in children. The purpose of this study was to investigate the clinical features, accompanying findings, and different histomorphological forms of ovarian lesions, which can provide a precise diagnosis that is of critical clinical importance for both pathologists and gynaecologists. Accurate diagnosis is important for a better understanding of the disease and planning particular management of patients. The main goal of pathologists is to differentiate ovarian neoplasms from the wide range of non-neoplastic lesions that frequently present as a pelvic mass and can be linked with abnormal hormonal manifestations, potentially mimicking ovarian neoplasms. Recognizing these non-neoplastic lesions in a timely manner is therefore essential for guiding therapy.[6] Early detection and timely management are critical for improving the survival rate of ovarian cancer, particularly in younger women, especially under 45 years of age.[7] Functional ovarian cysts, on the other hand, are typically benign as well as do not require surgical management. The luteal cyst is a type of the functional cyst that may develop after ovulation and is often asymptomatic. In most cases, luteal cyst resolves on its own within a few weeks, surgical management may not be beneficial in these cases.[8,9] Simple ovarian cysts are also typically benign and do not require surgical management unless they are large or symptomatic. These cysts are often detected incidentally on imaging studies and can be achieved conservatively with observation and pain management.[10] It is crucial for healthcare providers to possess a detailed knowledge of the different types of ovarian lesions, as well as their signs and symptoms, diagnostic procedures, and available treatments, to ensure that patients receive the best possible care. This understanding will enable providers to accurately diagnose ovarian disorders, determine the appropriate course of treatment, and refer patients to specialists when necessary, resulting in optimal outcomes for patients.

METHODS

This is a retrospective study done in ESIC hospital, Delhi, department of pathology from January 2021 to December 2021. The study is based on histomorphological evaluation in 62 cases of ovarian neoplastic and non-neoplastic lesions. A thorough assessment of the gross specimens, done such as the outer and on-cut surface of the ovary, the presence of cysts unilocular or multilocular and their content, the nature of fluid inside, any solid area, and papillary projections or solid growth are evaluated. The gross specimens received were then fixed in ten per cent buffered formalin for 24 hours to ensure proper preservation. Numerous sections attained from representative site for histopathological examination. Sections were processed in paraffin, which was cut at four microns thickness. They were stained with haematoxylin and eosin (H and E) stains. Slides were examined and the lesions were then studied and classified as per the WHO classification of ovarian tumours.

Table 1: The distribution of ovarian neoplasms according to the age.

Age (Years)	Benign	Percentage (%)	Borderline	Percentage (%)	Malignant	Percentage (%)
Up to 20	4	7.55	0	0.00	0	0.00
21-30	10	18.87	1	33.33	0	0.00
31-40	23	43.40	1	33.33	1	16.67
41-50	14	26.42	1	33.33	2	33.33
51-60	2	3.77	0	0.00	2	33.33
61-70	0	0	0	0	1	17

Table 2: The distribution of ovarian lesions in parous women.

Type of tumours	Unmarried	Married	
		Nulliparous	Parous
Benign	5	14	34
Borderline	0	1	2
Malignant	0	2	4

Table 3: The clinical presentation of patients.

Clinical presentation	Benign	Borderline	Malignant
Mass per abdomen	1	1	1
pain abdomen	42	1	1
Dysfunctional uterine bleeding	4	1	1
Amenorrhea	3	0	0
Postmenopausal bleeding	0	0	1
Loss of weight	2	0	1
Ascites	1	0	1

Table 4: Laterality of the specimens.

The side of the ovary involved	N	Percentage (%)
Right	38	47
Left	20	41
Bilateral	4	12

Table 5: Consistency of the benign, borderline, and malignant tumors in this study.

Consistency	Benign	Borderline	Malignant	Total	Percentage (%)
Cystic	21	2	0	23	59.5
Solid and cystic	28	1	2	31	32.5
Solid	4	0	4	8	8

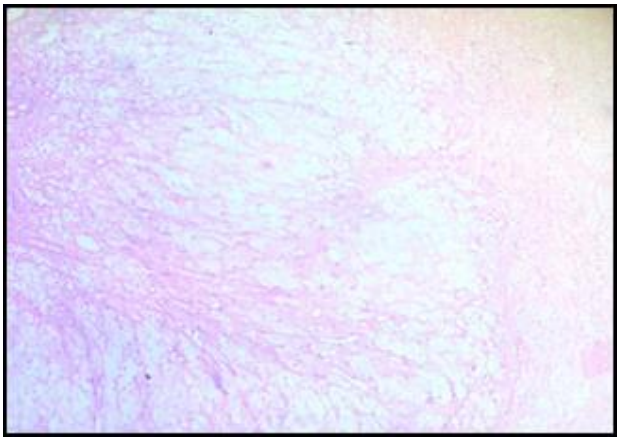

Figure 1: Corpus luteal cyst X400.

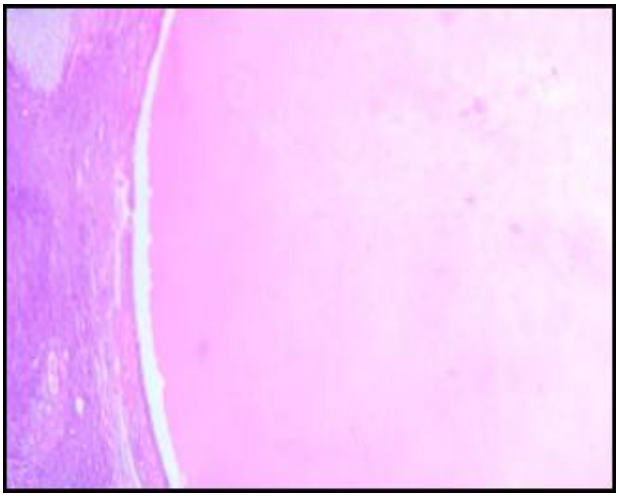

Figure 2: Haemorrhagic cyst X400.

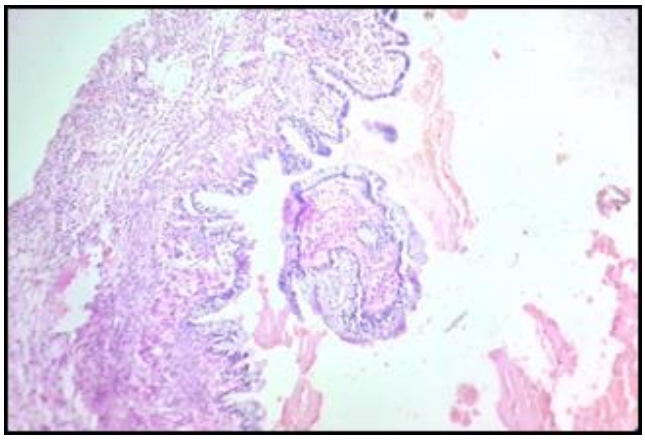

Figure 3: Mucinous cystadenoma X400.

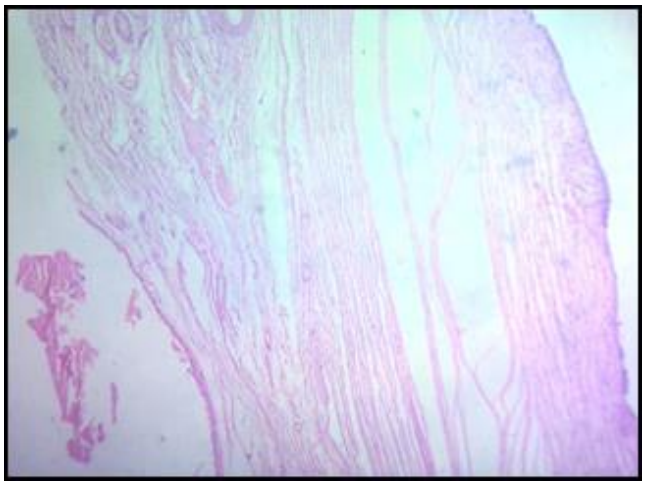

Figure 4: Serous cystadenoma X400.

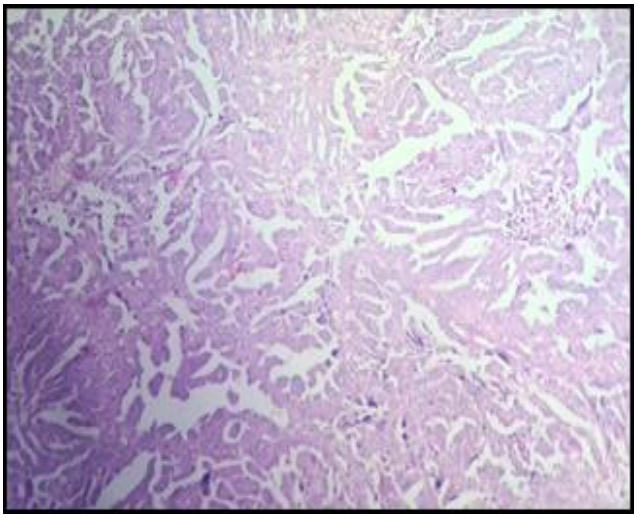

Figure 5: Serous carcinoma X100.

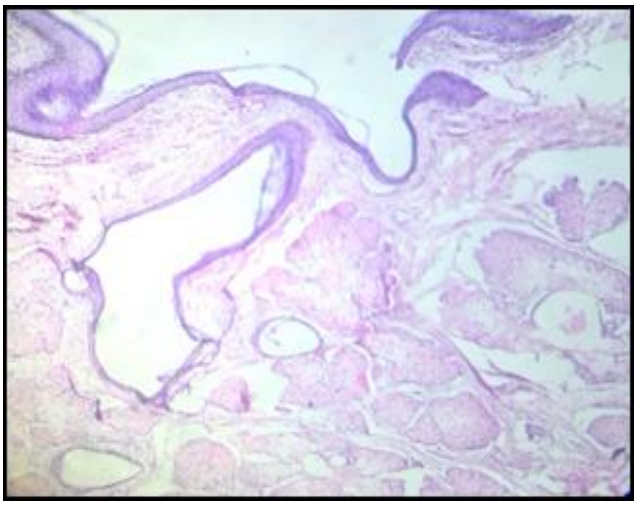

Figure 6: Mature cystic teratoma X400.

RESULTS

Out of the total 62 ovarian specimens received, benign lesions were accounting for 53 (85%) and 3 cases (4.8%) were borderline, and 6 cases (9.6%) were neoplastic lesions. 51 patients (82.2%) were of the reproductive age group (menstruating), and 10 were from the menopausal group (16.1%). Among patients with non-neoplastic lesions, most of the patients were of the late reproductive age group i.e., 31 to 45 years of age followed by the menopausal age group. Three per cent of tumours are found in nulliparous. Abdominal pain (70.97%) is the most common presenting symptom, followed by dysfunctional uterine bleeding (9.6%), mass per abdomen (4.8%), abdominal distention (4.2%), and loss of weight (3.4%) (Table 3). Out of 53 non-neoplastic lesions, right-sided cases were found in 38 (47%) and left-sided in 20 cases (41%) while 4 cases (20%) are bilateral (Table 4). Like non-neoplastic lesions, neoplastic lesions are also found more common on the right side (52%) than the left (37%), Relation of ovarian size with the lesion, all lesions of size range from 3 to 7 cm of non-neoplastic with predominantly contain cystic component. Among tumour size ranges from 5 to 10 cm with Both solid and cystic components of the specimens were diagnosed as neoplstic after histopathological examination diagnosed as neoplastic. As uterus, cervix, fallopian tube and other tissues were also received along with ovaries (depending upon the type of surgery done). Among these intramural leiomyomata (20%) is the most common finding followed by salpingitis (13.2%), chronic cervicitis (11.2%), adenomyosis (6.4%), endometrial hyperplasia (4.3%), submucosal leiomyoma (2.2%), subserosal leiomyoma (2%), carcinoma cervix (1.6%), prolapsed uterus (1.5%). The commonest epithelial tumours were serous cystadenoma 35 cases (43.5 %), 10 mucinous (16.1%). The most common germ cell tumour was mature cystic teratoma in 10 cases (16.5%). The most common sex cord-stromal tumour was fibroma 5 cases (13.4%). In the present study, Grossly, the majority of ovarian tumours were cystic (59%), followed by solid-cystic (32.5%) and the least common was solid (8.1%) In this study, the most common malignant tumour overall was serous carcinoma (Figure 5). Histopathologically, surface epithelial tumours 35 cases (56.4%) were the most common subtype followed by germ cell tumours 7 cases (13.04%) and then sex cord tumours 5 cases (10.4%). The most common neoplastic lesion was serous carcinoma and the most common benign tumour was serous cystadenoma. The most common germ cell tumour and the second most common benign tumour was mature cystic teratoma. The most common sex cord-stromal tumour was a fibroma. The most common borderline tumour was a borderline mucinous tumour.

DISCUSSION

In our study 53 cases (85%) were non-neoplastic lesions and 3 cases (4.8%) were borderline and 6 cases (9.6%) were neoplastic lesions. Among benign tumours, serous cystadenoma was the most common finding (43.5%) followed by mature teratoma (16.5%) and mucinous cystadenoma (10.5%). In the present study, the most common malignant tumour was serous carcinoma. The most common borderline tumour was a borderline mucinous tumour (4.2%). These findings are in concordance with those of a study carried out by Kanpurwala et al, Garg et al and Modepalli et al.[11-13] In the present study, 58 (84.7%) cases were unilateral, and 4 cases (12.1%) were bilateral. The findings were almost similar to the studies conducted by Kanpurwala et al and Modepalli and Venugopal. Among 62 cases of ovarian tumours, most cases belonged to the 31-40 years age group. This is consistent with studies done by Patel et al, Devi et al, Garg et al, and Pilli et al.[12,14-16] We found abdominal pain in 70.9% of cases as the most common presenting complaint followed by menorrhagia in 9.8% and abdominal distension in 4.1%. Gonsai et al found these findings in 52%, 16% and 18% of cases respectively.[17]

Limitations

Thorough Follow -up is required to know the outcome of the patients, as many of the patients don't visit the hospital after the treatment.

CONCLUSION

Ovarian tumours encompass a diverse group of tumours, which present challenges for their timely diagnosis and management. The gold standard for an accurate diagnosis is primarily reliant on histomorphological examination. Additional clinical parameters, such as age, laterality, and stage, can guide the overall management and prognosis of these tumours. Our institute's observations of ovarian neoplasms reflected a wide histomorphological spectrum, with a frequency of distribution similar to reports in the literature. Based on our study, the majority of ovarian tumours were found to be benign, with surface epithelial tumours representing the most common histological subtype. Overall, our study's observations and assessments provide valuable insights into the distribution patterns of ovarian lesions.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Marachapu J, Vij S. Histomorphological spectrum of ovarian lesions from a single institute. Int J Res Med Sci 2023;11:1141-5.