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Histomorphological Study of Ovarian Neoplasms-An Institutional Experience

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Conflict of interest: Nil

Abstract

Background: Among cancers of female genital tract, ovarian cancers rank only below carcinoma of cervix and endometrium with an age standardized incidence rate of 4.61 / 1,00,000 women. A diverse group of neoplasms is seen in the ovary with variable clinical and histological features, so assessing the nature of ovarian neoplasms further assists in the treatment of the diseases

Aim and Objective: This study was conducted to assess the different histopathological variants of ovarian neoplasms according to the latest 2020 World Health Organization (WHO) classification of ovarian tumors. To study frequency, age, clinical features and distribution of various ovarian tumors in patients

Material and methods: All hysterectomy with salpingo-oophorectomy cases and laparoscopic cystectomy cases of age group 25-80year females were selected. The materials consisted slides, paraffin embedded tissue blocks, patients' case files and histology request forms of all hysterectomy with salpingo-oophorectomy cases and laparoscopic cystectomy cases collected over a period of 3 years from June 2021 to June 2024 at pathology central lab, Viswabharathi Medical College, Kurnool.

Results: A total of 80 cases of ovarian neoplasms on histopathology were analyzed. The age range was 25-80 years. Bilaterality was seen in 20% benign and in 80% malignant surface epithelial tumors respectively. Maximum number of cases occurred in the age groups 40-50,50-60 and 60-70years. Overall benign tumors were 58%,malignant tumors were 40%, metastatic tumors were 2%.

Conclusion: Documenting the histopathological patterns of ovarian neoplasms helps detect variation among different age groups and to understand probable predisposing factors. Epithelial neoplasms were the most common malignant neoplasms. This study found that the percentage of ovarian malignancy has increased over years signifying need to increase awareness in order to achieve timely diagnosis. Efforts should be made to detect ovarian cancer at an early stage by educating population about risk factors as most of these tumors are environmental in origin.

Keywords: hysterectomy, endometrium, origin, Ovarian cancer, tumors.

Introduction

Ovarian cancer is the second most common cancer of the reproductive organs and the most common cause of death from malignancy of reproductive organs[4]. Ovarian tumors vary in terms of histology. The studies showed a large variation in prevalence and types of ovarian tumors at different ages. According to Indian Council of Medical Research (ICMR), the age adjusted incidence rate of ovarian cancer in India is estimated to be around 6.6 per 1,00,000 women[2]. Ovarian Cancer incidence is increasing due to lack of wide spread screening programs, asymptomatic nature of the disease and as a result delayed diagnosis with advanced stage of tumour at the time of presentation[7,8,12]. The risk of ovarian cancer increases with age, with the highest incidence occurring in women over age of 50 years. Most ovarian neoplasms occur among reproductive age group. Nulliparity ,a high socioeconomic status, environmental and genetic factors are all risk factors which help in understanding the underlying pathogenesis and further aids in diagnosis[6].The present study was conducted to identify the various histopathological spectrums of ovarian tumours according to the recent WHO classification (5th edition) of ovarian tumors[3].

Materials and methods: An observational (retrospective) study was conducted in the Department of Pathology at viswabharathi medical college, Kurnool, AP, India. The data of the patients from the past three years, from June2021 to June 2024, were retrieved and assessed. A total of 80 cases were analyzed after taking informed consent from the patient. Inclusion criteria included all the ovarian biopsies and ovarian lesions that were radiologically assayed as either neoplastic or non-neoplastic and received either as a single lesion or as a total hysterectomy. Insufficient tissue samples were excluded. Gross and microscopic findings, including clinical details of patients with ovarian masses, were analyzed. The ovarian specimens were fixed in 10% neutral buffered formalin. The weight of the tumor was measured. A gross examination was done, visualizing the outer surface and on-cut surface diligently looking for a cyst, its locularity, and type of cystic fluid, further looking for solid areas, papillary projections, haemorrhage, and necrosis. Standard procedures were followed during tissue processing, and paraffin-embedded blocks were made. Tissue sections of 5 μ thickness were cut using a rotary microtome and stained with hematoxylin and eosin, followed by microscopic examination.

Results: An observational study was conducted, and a total of 80 cases of ovarian neoplasms were assessed for the patients who underwent ovarian biopsy or hysterectomy. The types of specimens received were those of total abdominal hysterectomy, salphingoopherectomy, and unilateral or bilateral ovarian cystectomy. The distribution of the cases was within the age range of 25-80 years. The maximum number of patients were in their fourth decade of life[2], benign tumors were 58%, malignant tumors were 40%, metastatic tumors were 2%. The most common presentation of ovarian neoplasms was pain abdomen[2] (42%) followed by mass per abdomen (34%) and distention (15%)Only 9% findings were incidental.

Discussion: Among surface epithelial tumours, Serous carcinomas(54%) were found to be more predominant compared to benign serous cystadenomas (46%)while among mucinous epithelial tumours, mucinous carcinomas are rare with only 14% cases compared to mucinous cystadenoma cases(81%) High grade serous carcinomas occupied the 1st place in our study accounting

to majority of cases among surface epithelial and overall ovarian histological types studied. Out of 27 serous carcinoma cases diagnosed 22 were of high grade. Among sex cord tumours of ovary, 2 cases of adult granulosa cell tumour were studied and one sex cord tumor nos type. Dermoid cyst was studied in 4cases of germ cell tumors. One rare case of krukenberg tumor was seen with signet ring cells on microscopy, typical of metastasis from stomach was identified. This current study was in concordance with other comparative studies of sawant et al and Bhaskar et al showing predominance of surface epithelial tumours.

Conclusion

Ovarian neoplasms usually present with a variety of clinicomorphological and histological features. The most common neoplasm observed is surface epithelial tumors, which are malignant serous ovarian neoplasms that form the majority of our present study 33.7% followed by serous cystadenoma with 21 cases Newer advancements like immunohistochemistry (IHC) and genetic studies have made the diagnosis easier and more precise. However, a histopathological study is still the gold standard in the diagnosis and prognostic evaluation of these tumors.

Figure 1: Distribution of age and number of cases of ovarian neoplasms.

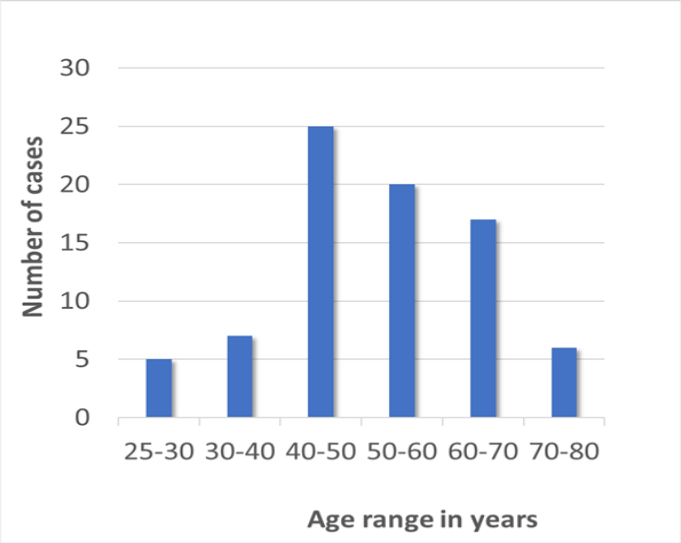

Table 1: Ovarian neoplasm distribution according to WHO Classification (2020).

s.no	Histological types studied (80)	Number of cases	Percentage
1.	Serous Carcinoma	27	33.75
2.	Mucinous Carcinoma	03	3.75
3.	Benign Serous Cystadenoma	21	26.25
4.	Benign Mucinous Cystadenoma	17	21.25
5	Granulosa Cell Tumor Adult	02	2.5
6	Dermoid Cysts	04	5.0

7	Krukenberg Tumor	01	1.25
8	Scc Metastatic Deposits	01	1.25
9.	Sex Cord Stromal Tumors	01	1.25
10.	Borderline Mucinous Cystadenoma	01	1.25
11.	Serous Cystadenofibroma	01	2.5
12.	No Residual Tumor	01	1.25

Table 2: Ovarian neoplasm distribution according to WHO Classification (2020).

S.NO	Epithelial Tumors	Number Of Cases	Percentage (%)
1.	Serous Cystadenoma	21	26.25%
2.	Serous Cystadeno Fibroma	01	1.25%
3.	Low Grade Serous Carcinoma	05	6.25%
4.	High Grade Serous Carcinoma	22	27.5%
5.	Mucinous Cystadenoma	17	21.25%
6.	Borderline Mucinous Cystadenoma	01	1.25%
7.	Mucinous Carcinoma	03	3.75%

Table 3: Sex cord stromal tumors and the percentage of cases

S.NO	Sex Cord Tumors	Number Of Cases	Percentage (%)
1.	Pure Sex Cord Tumors: Adult Granulosa Cell Tumor	02	2.5%
2.	Mixed Sex Cord Stromal Tumors: Sex Cord Stromal Tumor, NOS	01	1.25%

Table 4: Germ cell tumors and percentage of cases

S. No	Germ Cell Tumors	Number Of Cases	Percentage %
1.	Dermoid Cyst	04	5.0%

Fig 2a: Serous epithelial tumours showing benign, borderline and malignant percentage of ovarian tumors

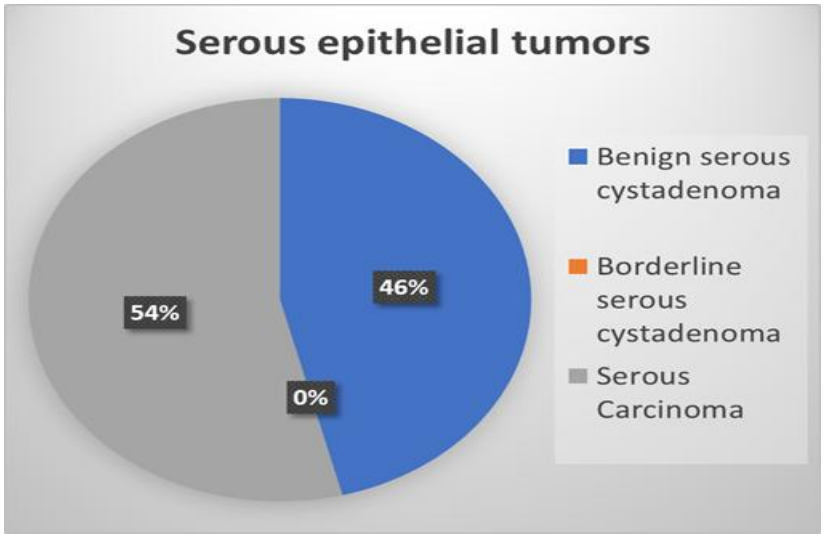

Fig 2b: Mucinous Epithelial Tumor Distribution

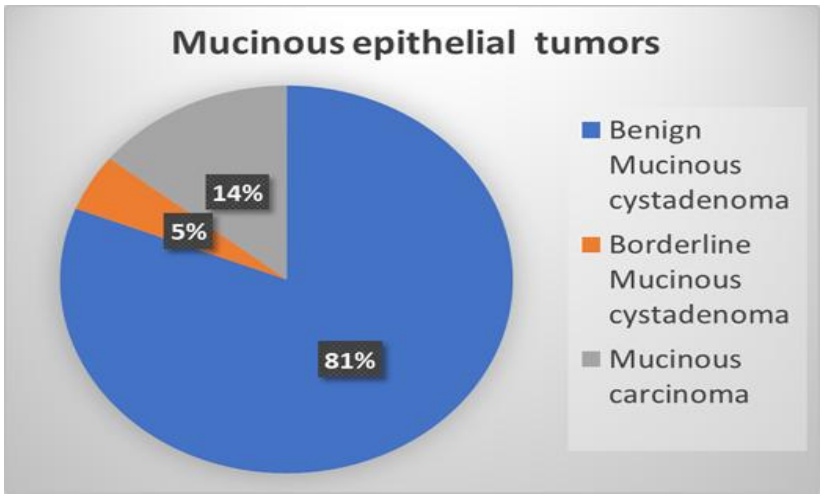

Fig 3a: Gross picture of surface epithelial tumors: cut surface of serous cystadenoma

Fig 3b: Microscopy of surface epithelial tumors serous cystadenoma

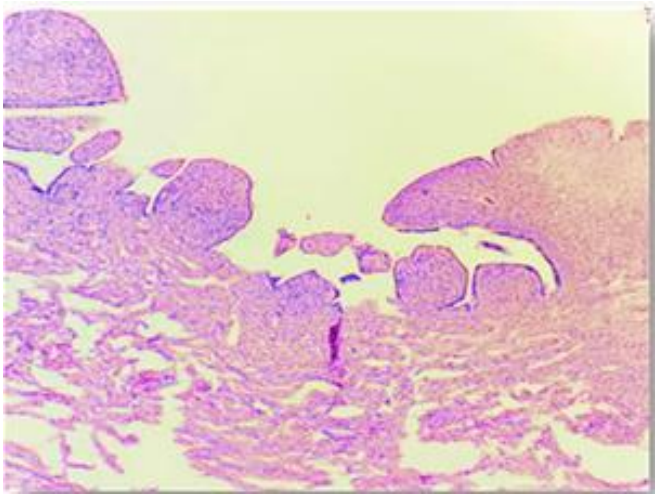

Fig 4 a: Gross Picture of Mucinous Cystadenoma

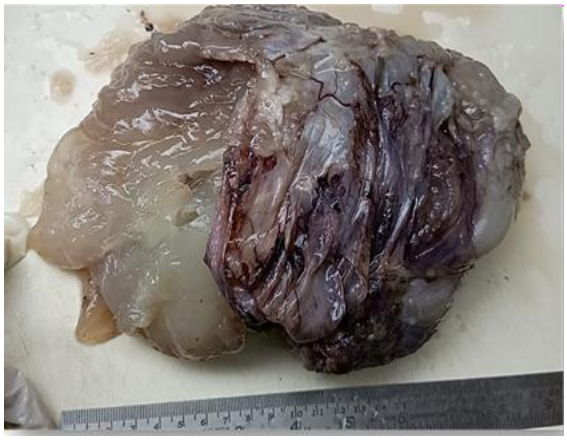

Fig 4b: Microscopy of Mucinous Cystadenoma:

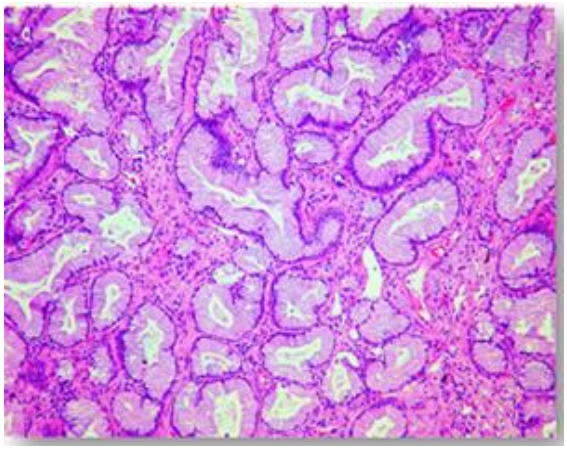

Fig 5a: Gross picture of serous cystadenocarcinoma

Fig 5b: Microscopic picture of serous cystadenocarcinoma

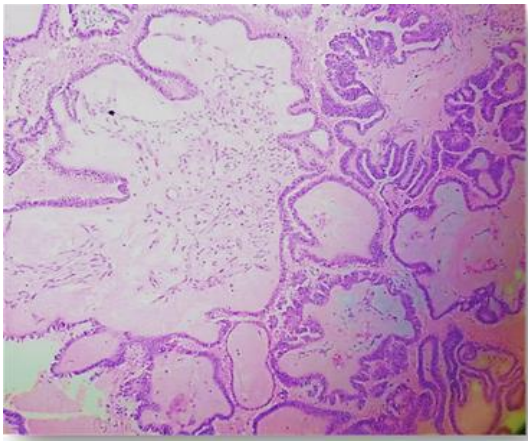

Fig 6a): Gross Picture Of Mucinous Cystadenocarcinoma

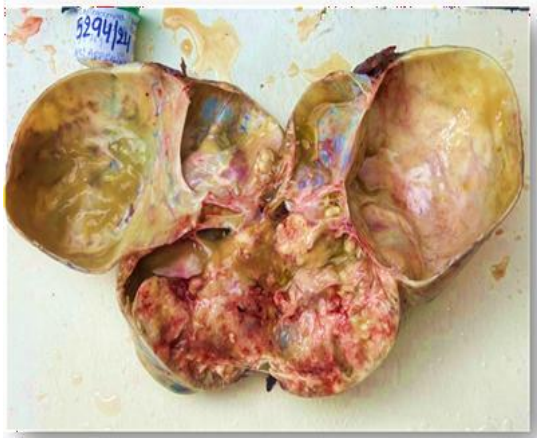

Fig 6b): Microscopy of Mucinous Cystadenocarcinoma

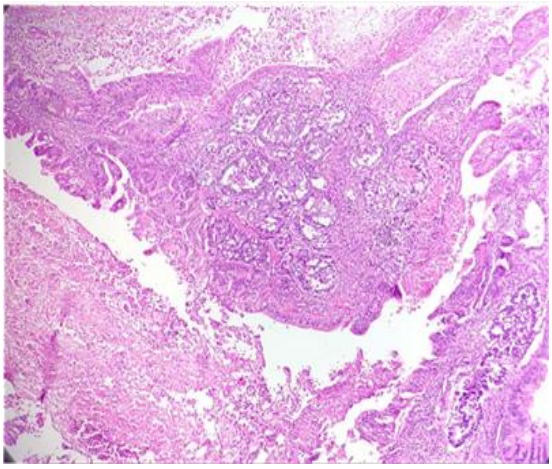

Fig 7 a & b: Gross and Microscopy of Brenner Tumour

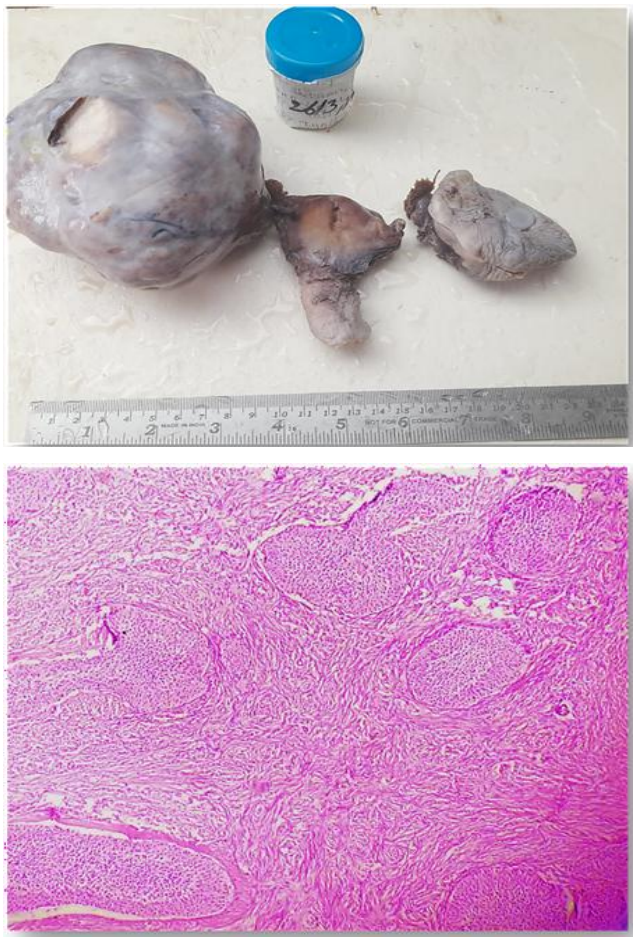

Fig 8 a & b: Gross and Microscopic Picture of Granulosa Cell Tumor

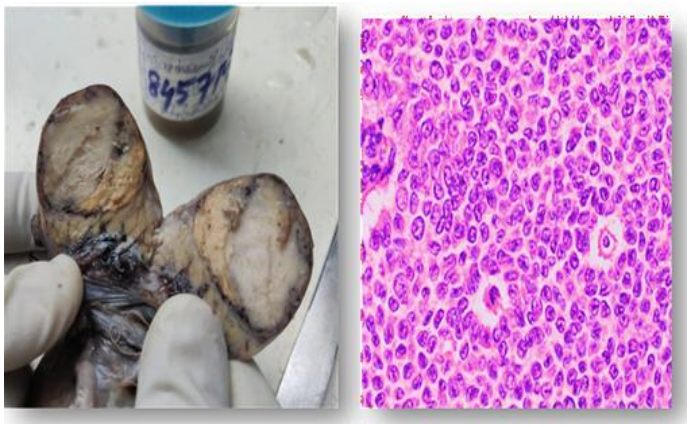

Fig 9 a & b: Gross and Microscopy of Mature Teratoma:

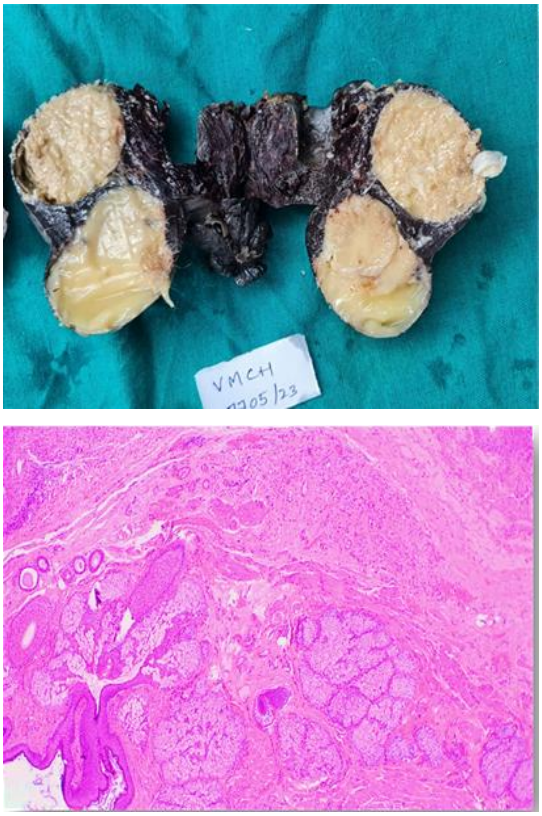

Fig 10 a: Gross picture of krukenberg tumor

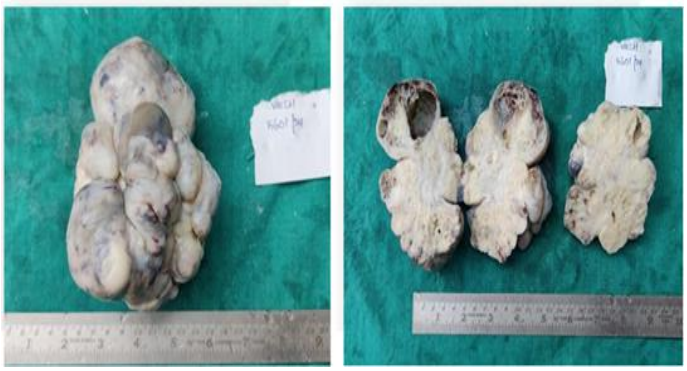

Fig 10 b: Microscopic picture of krukenberg tumor

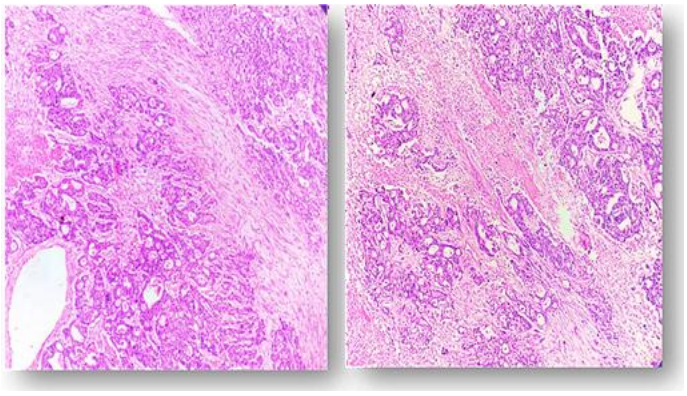

Table 5: comparative studies of surface epithelial tumors

S. No	Comparative Studies	Percentage (%) Of Surface Epithelial Tumors
1.	Neha gupta et al	71.7
2.	Sawant et el	84.8
3.	Mehra p et al	70.0
4.	Bhaskar et al	81.5
5.	Present study	87.5

References

1. Mehra P, Aditi S, Prasad KM, Bariar NK. Histomorphological Analysis of Ovarian Neoplasms According to the 2020 WHO Classification of Ovarian Tumors: A Distribution Pattern in a Tertiary Care Center. Cureus. 2023 Apr 28;15(4):e38273. doi: 10.7759/cureus.38273. PMID: 37255899; PMCID: PMC10225821.
2. Ovarian tumors-incidence and histopathological spectrum in tertiary care center, Valsad . Patel AS, Patel JM, Shah KJ. 2:84–93.
3. Key changes to the World Health Organization (WHO) classification of female genital tumours introduced in the 5th edition (2020) McCluggage WG, Singh N, Gilks CB. Histopathology. 2022; 80:762–778. –
4. PubMedHistopathological spectrum of ovarian neoplasms in a tertiary care hospital. Dutta A, Imran R, Saikia P, Borgohain M. Int J Contemp Med Res. 2018;5:0–4. 5.Histomorphological spectrum of ovarian tumors in a tertiary care hospital. Kaur A, Faujdar M, Kariya T, Gupta S.
5. Histopathological spectrum of ovarian neoplasms: a single-center study. Batool A, Rathore Z, Jahangir F, Javeed S, Nasir S, Chughtai AS. Cureus. 2022;14:0. –
6. Narang S, Singh A, Nema S, Karode R: Spectrum of ovarian tumours: a five year study . J Pathol Nepal. 2017, 7:1180-3. 10.3126/jpn.v7i2.18002
7. Spectrum of ovarian tumors ;histopathological study by NA mansoor et al
8. Singh S, Saxena V, Khatri SL, Gupta S, Garewal J, Dubey K: Histopathological evaluation of ovarian tumors . Imp J Interdiscipl Res. 2016, 2:435-9.
9. Histopathological study of ovarian lesions at a tertiary health care institute. Sawant A, Mahajan MVP J Med Sci. 2017;4:26–29. [Google Scholar]
10. Histopathologic spectrum of ovarian neoplasms in a tertiary health care institute of north india. honey bhasker sharma, nikhilesh kumar and monika gupta
11. Garg N., Anand A., Annigeri C. "Study of histomorphological spectrum of ovarian tumours". International Journal of Medical and Health Research, Volume 3, Issue 10,2017, Pages 12-20