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# HISTOMORPHOLOGY AND CLINICOPATHOLOGICAL STUDY OF OVARIAN NEOPLASM IN TERTIARY CARE HOSPITAL.

Pathology

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## ABSTRACT

**Background:** Ovarian tumor is third leading cause of mortality in female. The spectrum of ovarian neoplasm has wild variety of lesions including benign and malignant tumors. **Aims & Objective:** To study histomorphology of various ovarian neoplasms. **Material and Method:** This is a retrospective study of 105 cases of ovarian neoplasm done at tertiary care hospital between February 2022 to January 2023. **Result:** Total 105 cases were included in this study in which majority of cases was benign (80 cases) followed by malignant (22 cases) and borderline tumors (3 cases). Most common clinical presentation was pain in abdomen and age ranged between 21 to78 year. Consistency of benign tumor was cystic (84.7%) and solid in malignant tumors (90.5% ) in majority of cases. Among the cystic lesions most common retrieved fluid was serous followed by mucinous and pulteceous. In histological variants, surface epithelial tumors seen in 81 cases, germ cell tumors seen in 20 cases, Sex-Cord stromal tumors seen in 3 cases and metastatic tumor seen in 01 case. **Conclusion:** Both neoplastic and non-neoplastic ovarian lesions generally present with similar clinical and radiological features. So, histopathological diagnosis is essential to differentiate various ovarian lesions and prediction of prognosis.

## KEYWORDS

Ovary, Neoplasm, Benign, Malignant, Variants.

## INTRODUCTION

Ovarian tumors are heterogeneous group of neoplasm with wide range of histological patterns. Ovaries are the third leading site of cancer among women trailing behind cervical and breast cancer. [1]

The pathology of ovarian tumors and tumor-like conditions is one of the most complex areas in gynaecology. This is because the ovary produces a wide range and variety of tumours in the body relative to any other organs. Ovarian tumors include a complex, wide spectrum of neoplasms involving a variety of histological patterns ranging from epithelial tissues, connective tissues, specialized hormone-secreting germinal and embryonal cells.

Risk factor of ovarian cancer, including a family history of ovarian cancer, advanced age, and nulliparity. Many factors known to be associated with decreased risk of ovarian cancer include a history of tubal ligation or hysterectomy, number of births, and the use of oral contraceptive (OC). [2]

A symptom includes pelvic/abdominal pain, increased abdominal size and difficulty eating frequently associated with ovarian neoplam. [3]In general, benign ovarian tumors are more common and account for 80% of all ovarian neoplasm. Ovary is common site of primary malignancy, but metastatic lesions also occur in ovary. Screening for ovarian neoplasm is done by measuring serum beta HCG, CA-125, alpha fetoprotein and placental alkaline phosphate (PLAP). [3]

### Aims & Objective

To study histopathological variants of various ovarian tumors.

## MATERIAL METHODS

The present retrospective study was carried out in department of pathology, Geetanjali medical college and hospital, Udaipur from February 2022 to January 2023. Total 105 case included in present study.

All the ovarian specimens received in the Pathology department in the form of resected ovarian masses/ cystectomy specimens, ovarian biopsy specimen, tubo-ovarian masses, and hysterectomy with salpingo-oophorectomy specimen. The specimen was received and kept in 10% formalin for fixation. Gross examination was done, representative tissue was taken and processed for paraffin blocking, sections of 3 mm were cut and are stained with H&E. The histomorphological features were studied and correlated with clinical findings.

### Inclusion Criteria

All histological proven cases of ovarian tumors were included in present study

### Exclusion Criteria

The normal ovaries, ovaries with non-specific findings like physiological changes and post NACT ovarian tumors.

## RESULTS

Total 105 cases were studied, age range was 20 to 78 years. Majority of cases in 31-40 years of age group. Benign neoplasm seen in relatively younger age group than malignant lesion.

In clinical presentation, majority of cases were presented with pain in abdomen (78.5%), followed by distension of abdomen (15.6%), menstrual irregularity (3.5%), infertility (2.4%).

According to morphological features, 80 case was benign tumors, 3 cases were borderline tumors and 22 cases were malignant tumors. Among all cases, majority of benign and borderline tumors were presented with unilateral mass (68 and 3 cases, respectively) while in 19 cases of malignant neoplasm presented with bilateral mass.

Most of the benign lesions were cystic in consistency (84.7%) while remaining benign case shows solid+ cystic consistency (15.23%). Malignant lesions show 90.5% of solid consistency followed by 7.2% of solid + cystic and 2.3% of cystic.

Depending on type of material retrieved from cystic lesions, Serous fluid seen in 55.8%, mucinous fluid in 25.4% and pultaceous material seen in 18.8% cases. Tumor were broadly classified in surface epithelial tumors (81 cases), germ cell tumors (20 cases), Sex-Cord stromal tumors (3 cases) and metastatic tumor (01 case) based on WHO classification of ovarian tumors.

In present study, surface epithelial tumors include serous cystadenoma (37.14%), borderline serous cystadenoma (1.90%), serous cystadenocarcinoma (8.57%), mucinous cystadenoma (19%), borderline mucinous cystadenoma (0.95%), mucinous cystadenocarcinoma (6.66%), benign brenner tumor (2.85%). Germ cell tumor includes mature teratoma (14.28%), Immature teratoma (2.85%) and Dysgerminoma (1.90%). Sex-cord stromal tumor includes Thecoma (1.90%) and Fibroma (0.95%). After subtyping of tumors, serous cystadenoma was most commonly seen (39 cases) followed by mucinous cystadenoma (20 cases) and Mature teratoma were seen in 15 cases. (Table 1)

**Table 1. Distribution Of Ovarian Neoplasm Based On Histological Types.**

| No. | | Histological type | No | Percentage |
|---|---|---|---|---|
| 1 | | Surface epithelial tumors | 81 | 77.14% |
| | a | Serous cystadenoma | 39 | 37.14% |
| | b | Boderline Serous cystadenoma | 2 | 1.90% |
| | c | Serous cystadenocarcinoma | 9 | 8.57% |

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|---|---|---|---|---|
| | d | Mucinous cystadenoma | 20 | 19% |
| | e | Boderline Mucinous cystadenoma | 1 | 0.95% |
| | f | Mucinous cystadenocarcinoma | 7 | 6.66% |
| | g | Benign brenner tumor | 3 | 2.85% |
| 2 | | Germ cell tumor | 20 | 19.04% |
| | a | Mature teratoma | 15 | 14.28% |
| | b | Immature teratoma | 3 | 2.85% |
| | c | Dysgerminoma | 2 | 1.90% |
| 3 | | Sex-cord stromal tumor | 3 | 2.85% |
| | a | Thecoma | 2 | 1.90% |
| | b | Fibroma | 1 | 0.95% |
| 4 | | Metastatic tumor | 1 | 0.95% |
| | | Total | 105 | 100% |

## DISCUSSION

The ovary is the only organ of the body in which the tumor shows a wide histological variation, different behaviour and various histomorphological features.

Commonest age group seen in present study was 31-40 years which was similar to the observation of Rathi et al (2020) [4] and Batool et al (2022) [5], while in study by Valson et al (2017) [6] the commonest age group was seen in 41-50 years.

In clinical presentation, majority of cases were presented with pain in abdomen (78.5%) and menstrual irregularity (3.5%). Simillar study was done by Kanthikar et al (2014) [7], Bodel et al (2015) [8] and Mankar and Jain (2015) [9].

In present study, according to morphological features, 80 case was benign tumors, 3 cases were borderline tumors and 22 cases were malignant tumors that are correlated by study of Kumar et al (2015) [10], Bhagyalaxmi et al (2017) [11] and Gerg et al (2017) [12] and Batool et al.(2022) [5].

Among all cases, majority of benign (68 cases), borderline tumor (3 cases) were presented with unilateral mass while majority cases of malignant neoplasm presented with bilateral mass. Similar findings were seen in Mehta et al (2015) [13], Wills and Methew (2017) [14] and Gerg et al (2017) [12].

In present study, 84.7% benign lesions were cystic in consistency while remaining 15.23% benign case shows solid+ cystic consistency. Majority of malignant lesions (90.5%) of solid consistency followed by solid+cystic (7.2%) and cystic (2.3%). These findings were correlated with study done by Manoja et al (2017) [15] and Gerg et al (2017) [12].

Among all neoplastic ovarian tumors, most of the cases were surface epithelial tumors (77.14%) followed by germ cell tumors (19.04%), Sex-Cord stromal tumors (2.85%) and metastatic tumor (0.95%) in the present study. Similar findings were noted by Wills and Methew (2017) [14], Rathi et al (2020) [4], Batool et al (2022) [5].

Wills and Methew (2017) [14] and Batool et al (2022) [5] shows serous cystadenoma as most common neoplasm (44.6% and 38.2%, respectively) which is correlated with this study.

## CONCLUSION

The current study demonstrates a wide range of histopathological spectrum of ovarian neoplasms. Overall, benign tumors were more common than malignant tumors; the most common neoplasm was surface epithelial tumors, followed by Germ cell tumors. Serous cystadenoma was the most frequent benign neoplasm, and serous cystadenocarcinoma was common in malignant tumors. The majority of the cases were present in the 31-40 years of age group.

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