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Original Research Paper

Pathology

# CLINICOPATHOLOGICAL CORRELATION OF OVARIAN TUMOUR CASES AT A TERTIARY CARE CENTRE IN BIHAR

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**ABSTRACT** Ovarian cancer constitutes sixth most common cancer among women worldwide and the seventh leading cause of cancer deaths. It can give rise to complex variety of tumors, varying in structure, function and histogenesis. **Methodology:** A clinicopathological study of 80 cases of ovarian tumors was carried out over a period of 6 Months from February 2021 to July 2021 in the Department of Pathology, Narayan Medical College Jamuhar, Sasaram, Bihar. This was a prospective study. Prior approval was obtained from the institutional Ethics Committee. **Results:** There were 80 cases of ovarian tumors encountered over the study period. Out of them, 82.9% were benign, 3.8% were borderline and rest13.8% were malignant. **Conclusion:** Clinical history including signs and symptoms, gross and microscopic examination should be studied properly as clinicopathological evaluation is important in diagnosis, management and prognosis of patient.

**KEYWORDS :** Ovarian Tumour, Clinicopathological Correlation.

## INTRODUCTION

Ovarian cancer constitutes sixth most common cancer among women worldwide and the seventh leading cause of cancer deaths [1]. Ovary is one of the most important organs as it is concerned with progeny. It can give rise to complex variety of tumors, varying in structure, function and histogenesis. It is well established that neoplastic conditions of ovaries form a complicating and baffling subject in the history of oncology. The complex anatomy of ovary and its peculiar physiology with constant cyclical changes from puberty to menopause gives rise to a number of cells with various differentiations. Each of which is capable of giving rise to tumors. Hence ovarian tumors have been rightly termed as spectrum of diseases rather than single entity.

Ovarian cancer is a leading cause of death among gynecologic malignancies. Among cancers of the female genital tract, the incidence ofovarian cancer ranks after carcinoma of the cervix and the endometrium. The complex nature, unpredictable behavior and prognosis make the ovarian neoplasm a difficult problem to the Pathologist and the Gynecologist. Also, the insidious onset of the disease makes it very difficult for the patient to recognize the condition. Hence when the patient reports to the doctor with symptoms the disease has already been spread and metastasized in different sites in many of the cases. Hence ovarian carcinoma often is called the 'silent killer' because symptoms do not develop until advanced stages when chances of cure are poor. One of the reasons for this is the site of tumor which renders it inaccessible to simple methods of diagnosis such as smears, biopsy and curettage.

Ovarian cancerhas theworstprognosisamonggynaecological malignancies, 5year survival rate being 45%[2, 3].Ovarian cancer rates increase exponentially with age. About 70% of tumoursoccur in the reproductive age. Low parity, genetic and environmental factors are associated with an increased risk of ovarian cancer[4, 5].The initial treatment includes abdominal exploration, staging and resection of all grossly identifiable disease. Ovarian tumours cannot be confidently distinguished from one another on the basis of theirclinical, radiological or gross characteristicsalone. Chemotherapy and radiotherapy may be highly specific for a single type of neoplasm. Hence, accurate histological diagnosis is critical to achieve an optimum treatment response[6].

The aims and objectives of this study are to study the different histopathological types of ovarian tumors, to analyze the clinical data of the patient in regarding ovarian tumors and to establish the correlation between the clinical signs, symptoms and histological findings.

## METHODOLOGY

A clinicopathological study of 80 cases of ovarian tumors was carried out over a period of 6 Months from February 2021 to July 2021 in the Department of Pathology, Narayan Medical College Jamuhar, Sasaram, Bihar. This was a prospective study. Prior approval was obtained from the institutional Ethics Committee. Specimens were received in the form of biopsies or tumor masses resected from operation from the Department of Obstetrics and Gynecology. The clinical data of all patients were analyzed to gain as much information as possible and also from the record section of the institute. Specimens received were studied thoroughly to note the gross findings. The examination of surgical specimens resected from patients with ovarian tumors was done as per the protocol of the Cancer Committee of the College of American Pathologists. All different sections taken from mass and other tissues were put in 10% formalin.The tissues after complete processing were embedded in paraffin, blocks prepared and cut into sections of 5micron thickness. The sections then stained by routine Hematoxylin and Eosin (H&E) stain and special staining techniques like Periodic Acid Schiff (PAS) and Reticulin stains were used whenever necessary. These tumors were classified as per World Health Organization (WHO) classification of ovarian tumors depending on their most probable cell of origin and histomorphological features. The staging was done based on the International Federation of Obstetrics and Gynecology.

All the data collected were entered and analyzed using Statistical Package for Social Sciences (SPSS) version 20. Descriptive statistics was performed and results has been expressed in form of number and percentages.

## RESULTS

There were 80 cases of ovarian tumors encountered over the study period. Out of them, 82.9% were benign, 3.8% were borderline and rest13.8% were malignant. Different histological types of benign, borderline and malignant ovarian tumors have been shown in Table1.

Out of all, 73 cases of ovarian tumors had unilateral presentation while 7 cases had bilateral presentation. Benign, borderline and malignant tumors commonly had unilateral presentation. Out of 7 cases of bilateral presentation, 1 was benign serous cystadenomas, 5 were mucinous adenocarcinoma and 1 was metastatic tumour of ovary.

Pain in abdomen was the predominant symptom of both benign and malignant tumors followed by lump in abdomen and gastrointestinal disturbances as shown in Table 2. Benign tumors were in addition to this presented with fever, bleeding per vagina, amenorrhea, abdominal distensionandascites. Similar, presentation was found in malignant ones too.

In present study, majority 75.8% of ovarian tumors were presented with symptoms of 1-6 months duration, 27.7% of benign tumors were presented with acute symptoms due to torsion. Majority of the tumours were observed in multiparous women. Ovarian cystectomy was the treatment of choice in one-third of the cases and TAH (Total abdominal hysterectomy) with BSO (Bilateral salpingo-oopherectomy) in another one-third, followed by USO (Unilateral salpingo-oopherectomy) in 18.2% cases, TAH with USO in 15.1%. In malignant tumors, ovarian biopsy was done in 4 cases, ovarian and omental biopsy in 1 case, USO with omental biopsy in 1 case, TAH with USO with omental biopsy in 2 cases, TAH with BSO with omental biopsy in 2 cases and staging laparotomy was done in 1 case.

Size range of all the tumours has been depicted in Table 3.

Out of 66 benign tumors, majority presented as cystic tumors, borderline tumors as partly solid and partly cystic whereas malignant tumors were commonly presented as solid masses (Table 4). It was observed that contents of cystic spaces in 65 ovarian tumors were serous fluid in 19, followed by hemorrhagic material in 17, hairy / cheesy material in 15 cases and mucinous fluid 9 cases.

From the 36 hysterectomy specimens of cases underwent TAH, microscopic study of endometrium and cervix was carried out. In endometrial study, 30 cases of proliferative endometrium, 2 cases of cystic glandular hyperplasia of endometrium, 2 cases of each of secretory endometrium and hyperplasia of endometrium and 1 case of each of atrophic endometrium and endometrial polyp were observed.

**Table 1: Table showing distribution of study participants based on histological classification of tumours**

| Serial no | Type of tumour | Number |
|---|---|---|
| I. | **Surface epithelial – Stromal tumours:** | **58** |
| **A.** | **Serous tumours:** | **42** |
| 1. | Benign: | 38 |
| a. | Cystadenoma | 36 |
| b. | Papillary cystadenoma | 2 |
| 2. | Borderline malignancy (Papillary cystadenoma) | 1 |
| 3. | Malignant: | 3 |
| a. | Adenocarcinoma | 2 |
| b. | Papillary adenocarcinoma | 1 |
| **B.** | **Mucinous tumours:** | **15** |
| 1. | Benign (Cystadenoma) | 10 |
| 2. | Borderline malignancy (Mucinous cystadenoma) | 1 |
| 3. | Malignant (Adenocarcinoma) | 4 |
| **C.** | **Undifferentiated carcinoma** | **1** |
| **II.** | **Sex cord – Stromal tumour** | **4** |
| 1. | Granulosa cell tumour | 2 |
| 2. | Granulosa - Theca cell tumour | 1 |
| 3. | Fibroma | 1 |
| **III.** | **Germ cell tumour** | **17** |
| 1. | Dysgerminoma | 2 |
| 2. | Teratoma (Dermoid cyst) | 14 |
| 3. | Monodermal tumours (Struma Ovarii) | 1 |
| **IV.** | **Metastatic tumour (**Krukenberg tumor**)** | **1** |

**Table 2: Distribution of patients based on clinical manifestations**

| Clinical manifestation | Benign | Borderline | Malignant |
|---|---|---|---|
| **Pain abdomen** | 54 | 3 | 11 |
| **Abdominal lump** | 49 | 2 | 10 |
| **Gastrointestinal disturbances** | 10 | 2 | 8 |
| **Fever** | 4 | 0 | 1 |
| **Bleeding per vagina** | 3 | 0 | 4 |
| **Amenorrhea** | 3 | 0 | 0 |
| **Abdominal distension** | 1 | 0 | 2 |
| **Ascites** | 0 | 0 | 9 |
| **Hepatomegaly** | 0 | 0 | 4 |

**Table 3: Size of the tumours**

| Type of tumour | 1-5 cm | 6-10 cm | 11-15 cm | 16-20 cm | 21-25 cm | 26-30 cm |
|---|---|---|---|---|---|---|
| **Benign** | 28 | 19 | 17 | 1 | 1 | 0 |
| **Malignant** | 0 | 0 | 2 | 0 | 2 | 7 |
| **Borderline** | 3 | 1 | 2 | | | |

**Table 4: Gross appearance of the tumours**

| Type of tumour | Cystic | Solid | Partly cystic and partly solid |
|---|---|---|---|
| **Benign** | 62 | 3 | 1 |
| **Malignant** | 0 | 10 | 1 |
| **Borderline** | 1 | 0 | 2 |

## DISCUSSION

Ovarian canceris the leading cause of death among gynecologic malignancies. It is a well-established fact that neoplastic conditions of ovary form a complicating and baffling subject in the history of oncology. The neoplasm arising from it inherits a wide spectrum of histogenetic background much more varied from any other organ. Surface epithelial tumors of the ovary are the most frequently encountered tumors. Epithelial origin of ovarian tumors is found in more than 90% of ovarian tumors [1]. Naik PS et al [1] studied 110 cases of surface epithelial tumor (SET) over a period of 4 years. They found that benign tumors occurred in younger age group while malignant SET occur in the fifth and sixth decade which is comparable with our study. Mucinous tumors of the ovary are the second most common epithelial tumors. Only 5% of mucinous tumors were bilateral as compared to serous tumors which were usually bilateral. Shimada M et al [7] conducted the study to clarify the clinicopathological characteristics of 189 cases of mucinous adenocarcinomas and found maximum cases were in FIGO I-II stages which is comparable with our study.

The sex cord stromal tumors are of low grade and present in younger age as compared to ovarian surface epithelial malignancies [8-11]. Their clinical manifestations are from precocious puberty to menorrhagia to postmenopausal bleeding. Granulosa cell tumors (GCT) are associated with simple endometrial hyperplasia and few cases showed association with endometrial carcinoma.8 In our study also, female with GCT showed endometrial hyperplasia with clinical presentation of bleeding per vagina. Pectaides D et al [12] studied 34 patients with adult GCT with median age of 51 years and median size of tumor 10 cm which is comparable

with our study. Nocito AL et al [13] studied 50 cases of thecoma and age ranged from 21 to 77 years with median age of 57.5 years. In our study, one case of thecoma was seen of age 60 years presented with bleeding per vagina. Zekioglu et al [14] and Mathur SR et al [15] studied sclerosing stromal tumors of the ovary with the age of patients ranged from 16 to 54 years and the tumor size ranged from 6-21 cm. In our study, we observed one case of sclerosing stromal tumor of age 35 years and having the largest size of about 26 cm in diameter.

In present study, patient with Granulosa cell tumor have irregular menstruation and menorrhagia, patient with Thecoma-Fibroma have postmenopausal bleeding and patient with Sclerosing stromal tumor have cessation of menses. Among germ cell tumors, we found maximum 20 cases of mature cystic teratomas. Ovarian germ cell tumors are occurring predominantly in children and young women. Dermoid cyst is more common in young women but occasionally can be encountered at the extremes of ages. Study conducted by Grigoriadis C et al [16] studied ovarian tumors occurring in pregnant females and found that the most commonly diagnosed adnexal masses during pregnancy are the mature cystic teratomas, the endometrioid cysts and the corpus luteum cysts. Development of malignancy in a benign cystic teratoma of the ovary was rare. Most of cystic teratomas of ovary were predominantly lined by squamous epithelium, so it is not surprising that the commonest malignant neoplasm to develop is squamous cell carcinoma. Rekhi B et al [17] studied 12 cases of mature teratoma with squamous cell carcinoma and found age ranged from 31-61 years and size varied from 10 to 18 cm. We found 1 case of mature teratoma with squamous cell carcinoma of age 35 year and size of 10 cm in diameter.

Kondi-Pafiti A et al [18] did a clinicopathological study of 97 cases of metastatic neoplasms of the ovary and found 62.89% of the tumors were metastasized from extragenital organs and 37.11% tumors originated from the genital tract. We found a case of metastasis of squamous cell carcinoma in ovary in 35year old female in a known case of squamous cell carcinoma of cervix. Similar study was conducted by Shimada Met al [19] showed that ovarian metastasis occurred commonly among patients with adenocarcinomas (5.31%) than those with squamous cell carcinomas (0.79%).

## CONCLUSION

Clinical history including signs and symptoms, gross and microscopic examination should be studied properly as clinicopathological evaluation is important in diagnosis, management and prognosis of patient. Out of 80 cases, 66 caseswere benign, 3 cases were borderline and 11 caseswere malignant in nature. Majority tumours weresurface epithelial-stromal tumors followed by Germ cell tumors, and sex cord-stromal tumors and 1 cases of Metastatic tumors in ovary. From the clinico-pathological correlation of ovarian tumors in Sex cord - stromal tumors, it was observed that the main clinical features depend on hormonal imbalance. So, in Granulosa cell tumor, patient had hyperplasia of endometrium and history of irregular menstruation and menorrhagia due to hyperoestrogenic effect.

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