**ORIGINAL ARTICLE**

# Morphological Spectrum of Malignant Ovarian Tumors in Shaikh Zayed Federal Postgraduate Medical Institute, Lahore

SAIRA BASHIR, SARAH RIAZ, NAILA ATIF, *BILQUIS A.SULEMAN, GHULAM RASUL QURESHI*

## ABSTRACT

**Aim:** To find out the morphological spectrum of malignant ovarian tumors. Study also tried to relate the age and parity with the tumor

**Study design:** Non-interventional and descriptive study.

**Material and methods:** 21 consecutive malignant ovarian tumor specimens were collected from the Department of Histopathology, Sheikh Zayed Federal Postgraduate Medical Institute, Lahore. Duration of study was 3 months. Study design was non-interventional and descriptive. Cases using cell markers were excluded from the study. The surgical specimens were fixed in 10% formalin solution. Multiple 3-5 mm sections were taken from the tumor with special emphasis on solid foci, area adjacent to ovarian surface and base of papillary formations. In addition sections were taken from the attached fallopian tube, ligaments and capsule of the tumorous ovary. Section from the uninvolved ovary was also taken.

**Results:** Both in age range of 10-20 years and 41-60 years, 38.09% malignant cases were observed. Percentages of malignancy decreased with age i.e., 9.5% in the age of above 60. However in the age range of 21-40 years, the percentage was 14.2. In nulliparous the number of malignant tumors were more as compared to women who were unmarried, primary gravida or multigravida. Most common surface epithelial tumors (57.1%) were papillary cyst adenocarcinoma and endomatrioid carcinoma. Germ cells tumors (38.09%) were immature cystic teratomas and dysgerminoma. Only 01 malignant stromal cell tumor was observed with a percentage of 4.76.

**Conclusion:** Histopathological typing of ovarian tumor is important for early detection and better prognosis of patients.

**Key words:** ovarian tumor, malignancy, age and parity

## INTRODUCTION

Ovarian carcinoma represents one fourth of the malignancies of female genital tract, and is the sixth most common carcinoma among women[1,2]. The lifetime risk for a woman to develop ovarian carcinoma is approximately 1 in 70. Amongst the Asian countries, Pakistan has the third most common malignancy rate in Pakistani women.The most common carcinoma is gynecological in origin[3,4].

The cause of ovarian carcinoma is unknown. The number of ovulatory cycles appears to have the greatest impact on development of the disease, with low parity, infertility, early menarche and late menopause increasing the risk[5]. Ovarian carcinoma also known as disease of postmenopausal women, 10- 15% have also been reported in premenopausal patients[6].

Primary ovarian carcinomas are classified according to the structure of the ovary from which they are derived. Mostly these develop from the surface epithelial cells and these account for 85% to 90% of malignant ovarian tumors. Epithelial ovarian carcinoma is characterized by intraperitoneal tumor extension in the abdomen as a whole, from the small true pelvis to the diaphragm[4,6]. Younger age at presentation and higher frequency of positive family history are two unusual features of Pakistani patients with epithelial ovarian carcinoma[7]. The vast majority of epithelial ovarian carcinomas are diagnosed in post-menopausal women with a median age of 63 years. Although etiology remains unknown ; hormonal, environmental and genetic factors play an important role in the development of ovarian carcinoma[8]. Histological grade is the most important prognostic factor for epithelial ovarian carcinoma after curative resection[9].

Germ cell malignancies constitute the next most common group and the least common tumors are derived from ovarian stromal cells. Majority of lesions, about 75%, are of the serous type, followed by the mucinous, endometrioid, clear cell, mixed, Brenner, and undifferentiated histologies[10,11].

Immature multiple tissue teratomas are rare malignant tumors in young women in their twenties. They are fast growing, with frequent capsular rupture.

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*Department of Pathology, CMH, Medical College, Lahore*
*Correspondence to Dr. Saira Shahzad Khan, Assistant Professor E-mail docsaira@yahoo.com, sairabashir@hotmail.com*

There is the mature form (dermoïd cyst) characterized by a predominantly solid component (composed of immature neuroectodermic tissue) necrotic hemorrhagic degeneration and large scattered undifferentiated calcifications[12,13] (Jung; Out water 2001). Dysgerminomas are solid multilobular tumors with fibrovascular septa which may include calcifications and necrotic elements[12].

We designed a non-interventional and descriptive study to find out the morphological spectrum of malignant ovarian tumors. Study also tried to relate the age and parity with tumor.

## MATERIAL AND METHODS

Twenty one consecutive ovarian tumor specimens were collected from Department of Histopathology, Shaikh Zayed Federal Postgraduate Medical Institute, Lahore. Duration of study was 3 months. Study design was non-interventional and descriptive. Cases using cell markers were excluded from the study. The surgical specimens were fixed in 10% formalin solution. Multiple 3-5 mm sections were taken from the tumor with special emphasis on solid foci, area adjacent to ovarian surface and base of papillary formations. In addition sections were taken from the attached fallopian tube, ligaments and capsule of the tumurous ovary. Section from uninvolved ovary was also taken. Data analysis was carried out by SPSS 14. Frequency of malignant tumors, parity have been presented as percentages.

## RESULTS

Distribution of cases on the basis of age, type and parity of ovarian tumors is tabulated (Table 1). It was observed that 08 (38.09%) cases were reported as malignant in the age of 10-20 years. In the age range of 21-40 years only 03(14.2%) cases was observed as malignant. In the age range of 41-60 years, 08(38.09%) cases were observed as malignant. While in the age range of 61-80 years the percentage of cases was decreased i.e. only two tumors with 9.5% observed as malignant. A relationship of parity with tumor was also observed. It was observed that in nulliparous the number of malignant tumors were more as compared to women who were unmarried,primary gravida or multigravida (para>2).

Distribution of cases on the basis of histopathological typing of malignant tumors was tabulated (Table 2). It was observed that among malignant tumors the most common surface epithelial tumors (57.1%) were papillary cystadenocarcinoma and endometrioid carcinoma. Both types of carcinoma were 06 in number each with a percentage of 50. Total number of germ cells tumors was 8(38.09%). These were immature cystic teratomas and dysgerminoma with a number of 04 each i.e., 50%. One malignant stromal cell tumor was also observed with a percentage of 4.76.

Table 1: Distribution of cases on the basis of age, type and parity of malignant ovarian tumors (n=21)

| **Age in years** | **=n** |
|---|---|
| 10-20 | 8(38.09%) |
| 21-40 | 3(14.2%) |
| 41-60 | 8(38.095) |
| 61-80 | 2(9.5%) |
| **Parity** | |
| Unmarried | 02 |
| Nulliparous | 16 |
| Primipara | 01 |
| Para >2 | 02 |

Table 2: Distribution of cases on the basis of histopathological typing of malignant ovarian tumors (n=21)

| **Histopathological types of tumors** | **=n** |
|---|---|
| **Surface epithelial tumors** | **12(57.1%)** |
| Papillary cyst adenocarcinoma | 06(50%) |
| Endometrioid carcinoma | 06(50%) |
| **Germ cell tumors** | **08(38.09%)** |
| Imature cystic teratomas | 04(50%) |
| Dysgerminoma | 04(50%) |
| **Malignant stromal cell tumor** | **01(4.76%)** |

## DISCUSSION

Although ovarian carcinoma is a significant cause of mortality in menopausal women, large population-based studies demonstrate that the majority of adnexal masses are benign[14].

Present study observed 36.6% malignant tumor in a period of 3 months received in the department of histopathology. Our study is in line with a study who observed alarming number of women having malignant tumor with a percentage of 25.0[15].

The highest percentage of malignant tumor were in two age ranges i.e. 10-20 years and in 41-60 years. A study found that the age range in which women develop tumor was 18 to 70 years. Their study observed that maximum number of malignant tumor occurred after 40 with a percentage of 66.7. Younger age at presentation and higher frequency of positive family history are two unusual features of Pakistani patients with epithelial ovarian carcinoma[15,7]. Another study observed that the vast majority of epithelial ovarian carcinomas are diagnosed in post-menopausal women with a median age of 63 years. Although etiology remains unknown hormonal, environmental and genetic factors play an important role in the development of ca ovarian[16].

Study also observed that malignant tumors were more common in nulliparous. It is less common in unmarried, multigravida and primipara. Our study had 76.1% nullipara cases. Low parity is an important

cofactor in ovarian malignancy also reported by a group of workers[7,17].

Our study observed that among malignant tumors the most common surface epithelial tumors (57.1%) were papillary cystadenocarcinoma and endomatrioid carcinoma having a percentage of 50 each. Number of studies reported different percentages of surface epithelial tumors like Khan et al[18] reported 24%, and Lancaster et al[19] reported 33%. The results of these were lower than our study probably due to large sample size i.e. 194 and 70 respectively as compared to lesser cases in our study. On the other hand Chinese studies[20,21] reported malignant tumors to be 55 and 60%. These high percentages may be due to regional differences, alteration in life style and expanding role of women in the work place.

Total number of germ cells tumors was 08 with a percentage of 38.09. Among these tumors 04 were immature cystic teratomas and 04 were dysgerminoma with 50%. One malignant stromal cell tumor was also observed with a percentage of 4.76. However group of workers[20,21] observed 18.2 and 19.2% malignant germ cell tumor. Their studies observe 8.7 and 7.0% of malignant stromal cell tumor. A study is inline with our study who reported that the commonest malignant tumors were granulosa cell tumor and endometrioid carcinoma[15]. Reason is given by a group of workers who reported that endogenous ovarian hormones are closely linked with cell proliferation and some prognostic factors[22]. Other study reported that continued ovarian hormonal production in menopausal status must be weighed against the risk of later development of 2% ovarian carcinoma[23].

## CONCLUSION

Histopathological typing of ovarian tumor is important for early detection and better prognosis of patients.

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