



OVARIAN TUMORS: INCIDENCE AND SPECTRUM OF VARIOUS HISTOPATHOLOGICAL TYPES IN TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: To determine the incidence of ovarian tumors and to assess the spectrum of various histopathological types in tertiary care hospital.

Study Design: Retrospective study

Place and Duration of Study: Department of Histopathology, Services Institute of Medical Sciences, Lahore from 1st January 2023 to 31st December 2023.

Methodology: One hundred and five ovarian masses which were either part of abdominal-hysterectomy specimens or solitary specimens. Histopathological requisition forms were also filled out by every study participant. Different numbers of sections were taken from cysts and solid tumors. Sectioned-tissues were then processed and paraffin blocks were made from them. 5mm tissue sections were then taken and stained with eosin and hematoxylin. Morphologic features of tumors were recorded for histopathological diagnosis and classification of tumors.

Results: The mean age of the patients was 49.5 ± 5.6 years with the highest number of malignancy cases within the age of 31-45 years. The histopathological slides presented various tumors with 30.47% (n=32) as malignant, with 37.14% (n=39) cases presenting tumor metastasis. There were 27.6% (n=29) cases having benign tumor types.

Conclusion: Most of the ovarian tumors observed in this study originated primarily from the ovary with a high number of malignant tumors. The majority of the tumors were surface epithelial

Keywords: Ovarian tumor, Incidence, Tertiary-care hospital, Malignancies

INTRODUCTION

The incidence and spectrum of ovarian tumors can vary depending on factors such as geographic location, age of the population, and access to healthcare facilities. In tertiary care hospitals, where patients with complex medical conditions are often referred, the incidence of ovarian tumors may be

higher compared to primary care settings due to the concentration of specialized diagnostic and treatment services [1-4].

Histopathologically, ovarian tumors can be broadly classified into epithelial, germ cell, sex cord-stromal, and metastatic tumors. Epithelial ovarian tumors are the most common type, comprising about 90% of all ovarian malignancies. These tumors include Serous, Mucinous, Endometrioid, Clear cell, and Transitional cell carcinomas. Serous carcinoma is the most common subtype among epithelial ovarian tumors. Germ cell tumors arise from the primitive germ cells of the ovary and account for approximately 5-10% of all ovarian neoplasms. These tumors include dysgerminomas, immature teratomas, mature teratomas, yolk sac tumors and choriocarcinomas [5-8].

Metastatic ovarian tumors originate from primary tumors elsewhere in the body and metastasize to the ovaries. The most common primary sites for metastatic ovarian tumors are the gastrointestinal tract, breast, and endometrium. Ovarian cancer is known to be one of the leading causes of cancer-related deaths among women worldwide, including in Pakistan. Factors such as genetic predisposition, environmental influences, lifestyle factors, and access to healthcare services can all contribute to the incidence and frequency of ovarian tumors in any given population [9-11].

In a tertiary care hospital, patients with ovarian tumors may present with a wide range of histopathological types due to the referral of complex cases from primary and secondary care settings. The availability of specialized oncologists, pathologists, and imaging facilities in tertiary care hospitals allows for comprehensive evaluation and management of ovarian tumors, including accurate histopathological diagnosis and personalized treatment plans. Present study was designed for the evaluation and estimation of the incidence and spectrum of various histopathological types of ovarian tumors in tertiary care hospital.

MATERIAL AND METHOD

This retrospective study was performed at the Department of Histopathology, Services Institute of Medical Sciences, Lahore from 1st January 2023 to 31st December 2023. A total of 105 ovarian masses were studied which were either part of abdominal-hysterectomy specimens or solitary specimens. Inclusion criteria for tumor masses were strictly adhered to WHO classification guidelines. All biopsies and histopathological specimens were clinically as well as radiologically suspicious for ovarian tumors and were prevented from duplicity. Hemorrhagic inclusion cysts, cystic follicles, normal ovaries, endometriosis, and follicular cysts were excluded from the present study. Diagnosed cases of ovarian tumors, cases treated with pre surgical chemotherapy and radiotherapy as well as poorly preserved specimens were also excluded from the study. A well-structured questionnaire was designed for the medical record of each patient including clinical examination, history, and laboratory investigations. Histopathological requisition forms were also filled out by every study participant. The biopsies and hysterectomy specimens of clinically suspicious ovarian tumors were received in the histopathology section. A 10% formalin solution was used for the fixation of ovary specimens. The weight of the tumors was measured and three-dimensional measurements were taken. Different numbers of sections were taken from cystic and solid tumors after serial slicing. Tissue processing was done by thermo automatic tissue processor. The preparation of paraffin blocks was also done with the assistance of Leukharts mold. Three sections of 3mm were taken from the cyst and one section of 1cm was taken from solid tumor specifically from the area of papillary appearance and other heterogenous areas. One section from a non-neoplastic ovary was also taken. Sectioned-tissues were then processed and paraffin blocks were made from them. 5mm tissue sections were then taken and stained with eosin and hematoxylin. Further staining and clarification were then achieved with xylene and mounted on a glass slide for microscopic examination and histopathological diagnosis. Morphologic features of tumors were recorded for histopathological diagnosis and classification of tumors. Data was analyzed through data entry and interpretation in SPSS version 26.0 using chi square test with a p value <0.001 for significance.

RESULTS

The mean age of the patients was 49.5 ± 5.6 years with the highest number of malignancy cases within the age of 31-45 years while the highest benign cases were reported in 46-60 years. A maximum number of cases were found in the age group of 40–56 years of age. The study included cases between the age group of 15-60 years. The borderline cases towards malignancy risk increased with the age (Table 1)

Table 1: Distribution of ovarian tumor cases within various age groups

Tumor Types	Age in years (n=105)			P value
	15-30	31-45	46-60	
Benign	5 (4.76%)	10 (9.52%)	14 (13.3%)	0.052
Borderline	1(0.95%)	1(0.95%)	3 (2.85%)	0.052
Malignant	15(14.2%)	33 (31.42%)	23 (21.90%)	<0.001
Total	21 (20%)	44 (41.9%)	40 (38.09%)	

There were 29 (27.6%) cases having benign tumor types. The types of tumors observed are illustrated in fig 1. The highest incidence of surface epithelial tumors (24.76%) followed by serous cystadenoma (8.99%) and Serous carcinoma (8.57%) each.

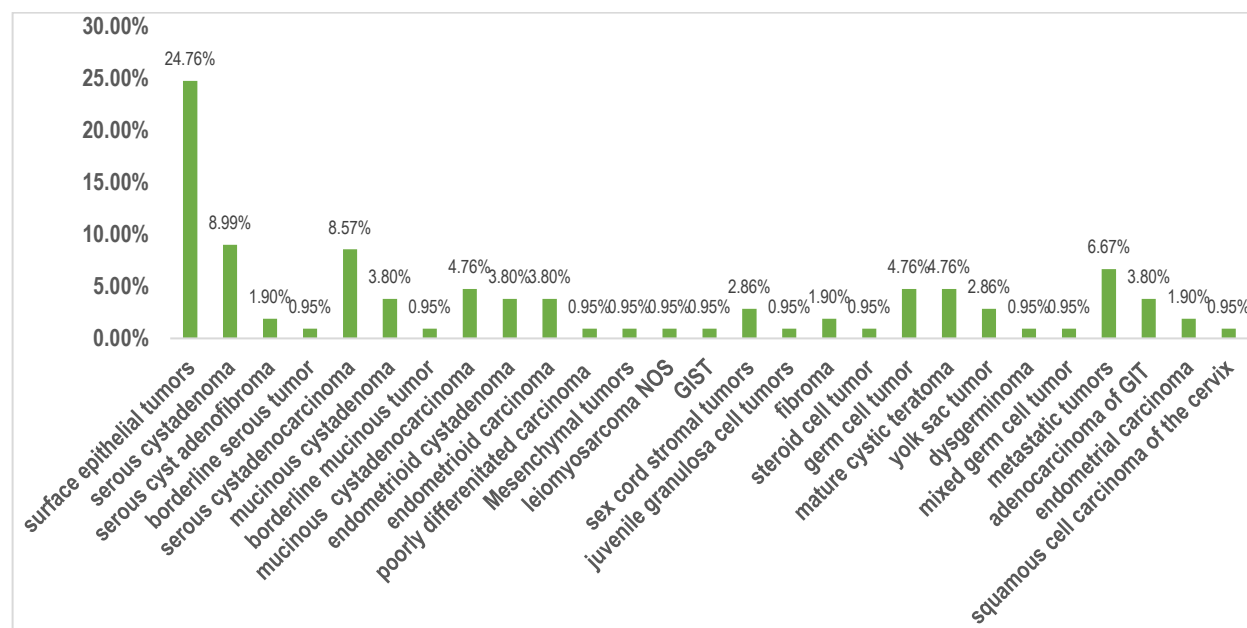


Fig. 1: various histopathological types of ovarian tumors

The histopathological slides presented various tumors with 32 (30.47%) as malignant, with 39 (37.14%) cases presenting tumor metastasis, including nodal metastasis in surrounding structures as cervix, contralateral ovary, fallopian tube, myometrium and omentum (Fig. 2)

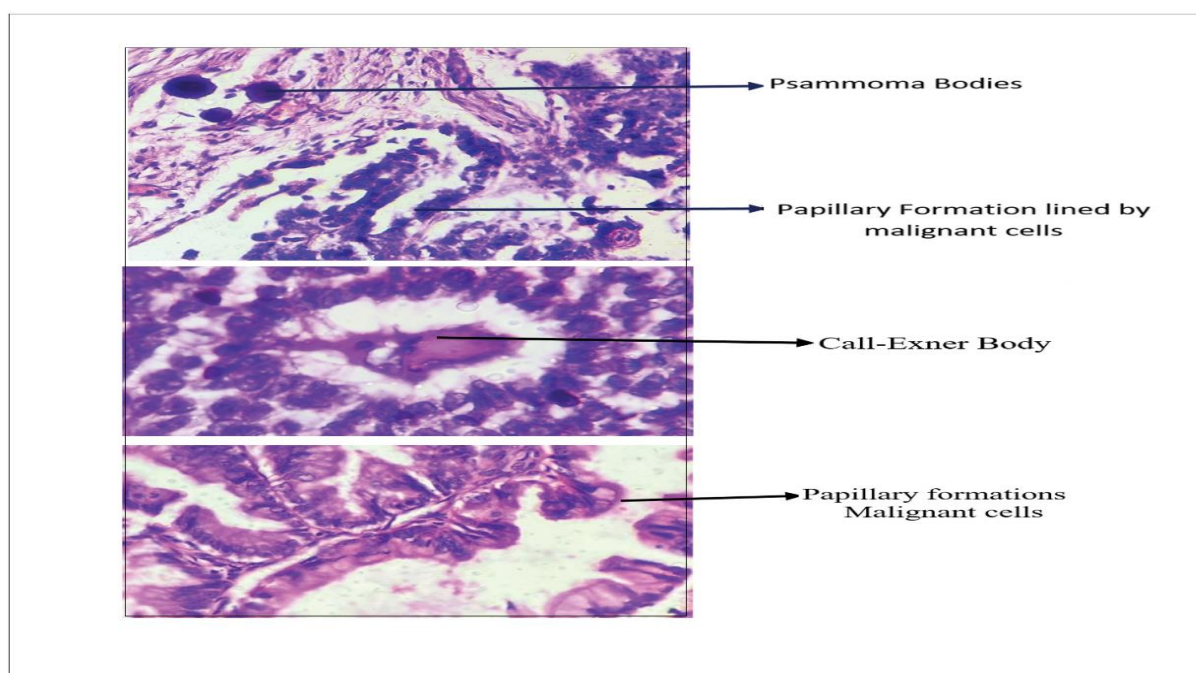


Fig. 2: Photomicrograph imaging presented various types of histopathological ovarian tumors

DISCUSSION

Ovarian neoplasm refers to abnormal growths or tumors that develop in the ovaries. These tumors can be benign or malignant. Ovarian neoplasms can arise from various cell types within the ovary, including epithelial cells (which cover the surface of the ovary), germ cells (which produce eggs), and stromal cells (which produce hormones and support the structure of the ovary). The incidence and clinical appearance of ovarian tumors are highly variable and make it extremely difficult for exact diagnosis and nature of the ovarian tumor just by clinical examination. Microscopic and histopathological examination proves substantial in accurate typing of ovarian tumor. Present study was designed for estimation of incidence and spectrum of various histopathological types of ovarian-tumors in tertiary care hospital [12-14].

In present study, a total of 105 patients was documented. Out of which 29 had benign tumors and 71 had malignant tumors. Almost similar incidence rate was reported in various studies [2,8,9, 15]. In Western and Asian countries, solid tumors account for almost 30% of all ovarian neoplasms in which majority of the tumors are benign in nature. Similarly, mucinous tumors constituted 12 to 15% in all ovarian tumor. In present study, serous tumors accounts for 18.09% in all ovarian tumors. Other studies reports in the following order: 48%, 43% and 33% [16-18].

In present study, symptom which was frequently reported by patients is vague abdominal pain followed by menorrhagia and mass in abdomen. Few patients also reported the combined symptoms such as abdominal pain, menorrhagia and abdominal mass. Other less common symptoms which were reported in present study is dysmenorrhea, post menopausal bleeding and uterine-prolapse. This result is also in concordance with other studies [19,20]

The result of the present study highlights that germ-cell tumors hold the second most common tumor in all ovarian tumor types. Among the cases of germ-cell tumors, mature teratoma was most apparent. Amongst malignant tumor, younger patients were the targeted population. This result is correlated with an already present study which also showed similar findings [21-23].

CONCLUSION

Most of the ovarian tumors observed in this study originated primarily from the ovary with a high number of malignant tumors. The majority of the tumors were surface epithelial with serous carcinoma as a prominent type according to WHO-based classification.

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