

HISTOMORPHOLOGICAL PATTERNS OF OVARIAN NEOPLASMS IN A TERTIARY CARE HOSPITAL

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Abstract

INTRODUCTION: Ovaries are a pair of organs in the female pelvis situated on both sides of the uterus, which is suspended in the pelvic cavity by the meso-ovarium and attached to the broad ligament. Ovarian neoplasms are one of the major causes of mortality and morbidity in the pelvic cavity.

MATERIALS & METHODS: This study includes retrospective and prospective data from August 2012 to July 2015. The surgical specimens of oophorectomy, cystectomy and total abdominal hysterectomy with unilateral & bilateral salpingo-oophorectomy were included.

RESULTS: 90 cases of ovarian tumours were reported during the study period. Most common were benign tumours (85.6%), followed by malignant tumours (11.11%) and borderline tumours (3.33%). The tumours arising from epithelium were the commonest (76.7%), followed by germ cell tumour (17.8%) and sex cord stromal tumours (5.6%). Benign tumours were common than malignant tumours. As the age advances the malignant tumours were common. Most of the tumours were unilateral, only minor proportion were bilateral.

CONCLUSION: The Histomorphological diagnosis of ovarian neoplasms categorises the tumours into benign, borderline and malignant. Benign variant is more common than malignant tumours especially the surface epithelial tumour are the commonest followed by germ cell tumours and sex cord stromal tumours.

Keywords: Hysterectomy, Oophorectomy, Germ cell tumor.

INTRODUCTION

The ovarian parenchyma consists of two separate zones namely an outer cortex and inner medulla and has two surfaces lateral & medial; two poles an upper pole and lower pole with two borders anterior and posterior¹. The paired ovarian nodular bodies are located on sides of the uterus attached to the uterine cornua by the utero-ovarian ligament, lateral pelvic wall by the infundopelvic ligament by the meso-ovarium. They are attached to the broad ligament of the uterus posteriorly and also behind & much below the uterine tubes^{1,2}. Ovaries ranks third major site for neoplasm in the female reproductive system³. So, the primary and secondary neoplasm of the ovary are more frequent with wide variety pathological patterns. It comprises of three percent of all carcinomas, and in female reproductive system related tumours, it accounts for 25%. And overall, it is 5th most prevalent cancer and 2nd commonest gynecological tumour⁴⁻⁸.

According to the recent statistics for ovarian neoplasm, it ranks 5th among cancer death in woman, which accounts for more death among cancer deaths due to other causes in females⁹. Many of the ovarian neoplasms are usually asymptomatic and usually diagnosed only in advanced stage of the disease. So only the term "SILENT KILLER" is used for ovarian neoplasms due to its late detection¹⁰.

Even though 90% of adnexal masses are detected by imaging nor newer techniques like genetics, but the DEFINITIVE diagnosis is made by histopathologically¹¹⁻¹³. Due to its varied composition; the ovarian neoplasm has wide variety of classification according to WHO¹⁴. So, the purpose of this study is to outline the various Histomorphological patterns of ovarian tumours in this region and giving specific subtypes which is of paramount importance in the clinical point of view.

MATERIALS & METHODS

As this study involves retrospective and prospective analysis of ovarian tumors from the department of pathology from June 2012 to August 2015 in the tertiary care hospital.

Inclusion criteria – All cases of cystectomy, oophorectomy and total abdominal & vaginal hysterectomy with unilateral or bilateral salpingo-oophorectomy specimens. Exclusion criteria – Abdominal masses from other causes are excluded. An evaluation of 90 cases of benign and malignant tumours were considered. The specimens from the operation theatre were received in formalin & fixed for 24hrs and representative sections were taken. The sections then processed and stained with hematoxylin and eosin with special stains like PAS stain was done. The cumulative data was further analyzed by descriptive statistics.

RESULTS

A total 90 cases were included in the study comprising of (Table – 1) 77 cases were benign, 10 cases were malignant and 3 borderline tumours.

Table 1 Distribution of ovarian neoplasm

S:No	Nature of tumours	Number of cases	Percentage
1.	Benign	77	85.6%
2.	Borderline	03	3.33%
3.	Malignant	10	11.11%
Total		90	100%

Among the overall ovarian tumours, there were (Table -2) 69(76.7%) Surface epithelial tumours, 16(17.8%) Germ cell tumours and 5 (5.6%) Sex cord stromal tumours. Most of the tumours were age group of 20-30, 30-40 & 40-50 accounting for 17.8%, 24.4% & 40% respectively. The minimum number of cases were reported in the age group of 0-10, 50-60 accounting for nil cases & 14.44% cases. The laterality wise 86 cases were unilateral in which right sided were 49, left sided were 37 and 4 bilateral cases.

Table 2 Distribution of types of ovarian tumours

S:No	Types of ovarian tumours	Number. Of. Cases	Percentage
1.	Surface epithelial tumours	69	76.7%
2.	Germ cell tumours	16	17.8%
3.	Sex cord stromal tumours	05	5.6%
Total		90	100%

According to WHO, the ovarian tumours are classified, based on this the tumours for the study is as follows

Table 3 Histomorphological types of Ovarian neoplasms

S:No	Nature of neoplasms	Histomorphological type	Number of cases	Percentage
1.	Benign (77)	Serous cystadenoma	46	51.11%
2.		Mucinous cystadenoma	12	13.33%
3.		Mature cystic teratoma	02	2%
4.		Struma ovarii	1	1.11%
5.		Fibrothecoma	1	1.11%
6.	Borderline (03)	Borderline mucinous tumour	2	2.22%
7.		Proliferating brenner tumour	1	1.11%
8.	Malignant (10)	Serous cystadenocarcinoma	4	4.44%

9.		Mucinous carcinoma	2	2.22%
10.		Endometrioid carcinoma	2	2.22%
11.		Granulosa cell tumour	1	1.11%
12.		Mixed Germ cell tumour	1	1.11%
Total			90	100%

Among the 90 cases majority were surface epithelial tumours, in that serous cystadenoma was commonest in benign tumours followed by mucinous cystadenoma and malignant serous cystadenocarcinoma was the commonest.

DISCUSSION

Ovarian neoplasm shows varied histological appearance. Based on the tissue of their origin, neoplasm of ovary is classified into epithelial, Sex cord stromal and germ cell tumour¹⁵. The benign ovarian tumours are the most common neoplasms accounting for 85.6% of the total neoplasms in this study. The malignant ovarian tumours constitute about 11.11%. there were only three borderline ovarian tumours; which includes two mucinous borderline and one proliferating Brenner tumor. These statistics (Table – 4) is coinciding with the Wills.V.et.al¹⁶, Batool.et.al¹⁷, H.M. Yosif.et.al¹⁸ and Fathima.et.al¹⁹. In which Wills.V.et.al¹⁶ study showed 91.1% of benign tumours followed by malignant tumours of 7.1% and borderline tumours of 1.8%. In Batool.et.al study¹⁷, 82.05% were benign, 2.82% borderline and 14.61% malignant.

Table 4 Comparison of nature of ovarian tumours with other studies

S:No	Nature of tumours	Present study	Wills.V.et.al ¹⁶	Batool.et.al ¹⁷	H.M. Yosif.et.al ¹⁸	Fathima R. et.al ¹⁹
1.	Benign	85.6%	91.1%	82.05%	63%	85%
2.	Borderline	3.33%	1.8%	2.82%	7%	2%
3.	Malignant	11.11%	7.1%	14.61%	30%	13%

Out of the major types of ovarian neoplasm, surface epithelial tumours were the commonest accounting for 76.7%, followed by germ cell tumours and sex cord stromal tumours which constitute of 17.8% and 5.6% respectively. Similar findings were observed in Wills.V.et.al¹⁶ who reported surface epithelial tumours to be the most common (71.4%); followed by germ cell tumours (23.2%) and sex cord stromal tumours (5.3%) and Batool.et.al¹⁷ showed the frequency of Surface epithelial tumours of 63.08%, germ cell tumours of 29.48% and sex cord stromal tumours of 6.92%.

Among the ovarian tumours maximum number of cases were observed in the age group of 20-40years. Most of the malignant tumours were seen in the 40-60yrs of age group. Similar findings were observed in Will.V.et.al¹⁶ and Fathima R. et.al¹⁹.

The gross findings of benign tumours were mostly cystic in consistency. And malignant tumours showed either cystic & solid/purely solid in consistency similar to Swarnalatha.et.al²⁰.

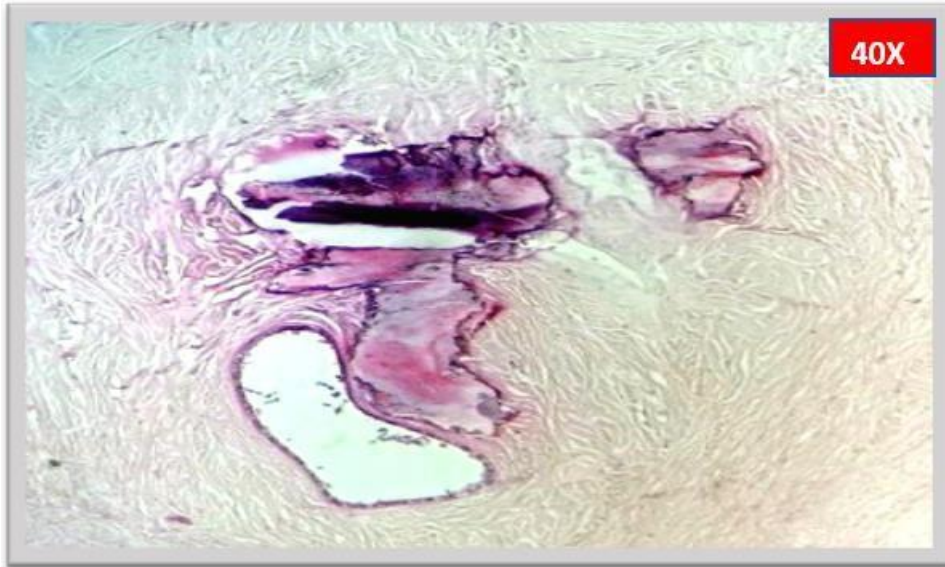
The frequency of distribution of individual ovarian tumours in the present study as similar to that of reported by Will.V.et.al¹⁶, Batool.et.al¹⁷ and Fathima R. et.al¹⁹. among the benign ovarian tumours, the commonest is serous cystadenoma (51.11%) followed by mucinous cystadenoma (13.33%) and Brenner tumours (2.22%) of total ovarian neoplasms. In benign germ cell tumor & sex cord stromal tumours, there were 16.7% mature cystic teratoma, one (1.11%) of each struma ovarii and fibrothecoma was observed.

Only three borderline ovarian tumours were reported, out of which there were 2(2.22%) borderline mucinous tumours and one (1.11%) proliferating brenner tumor.

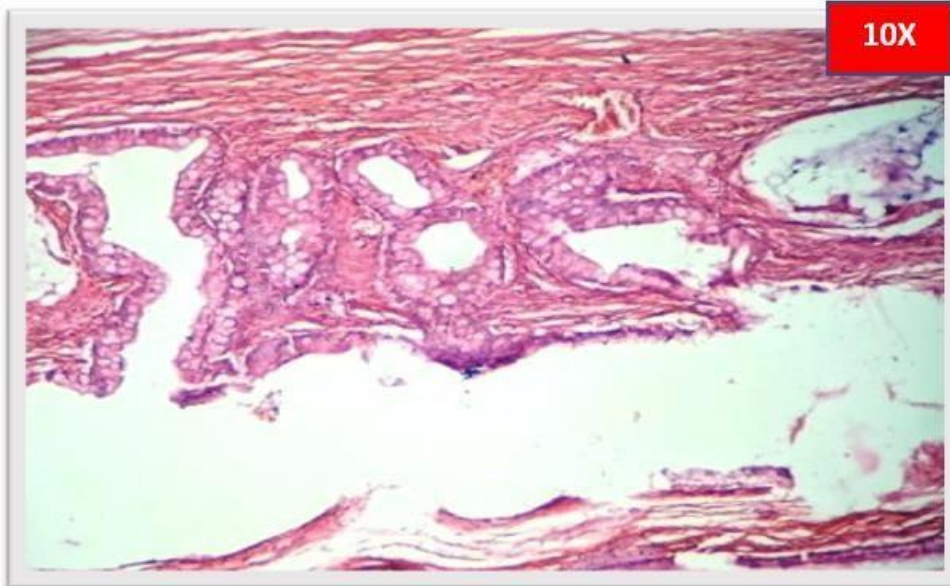
In malignant ovarian tumours, there were (4.44%) of serous cystadenocarcinoma, 2.22% of mucinous cystadenocarcinoma, 1.11% of Granulosa cell tumours and 1.11% of Mixed germ cell tumor.

CONCLUSION

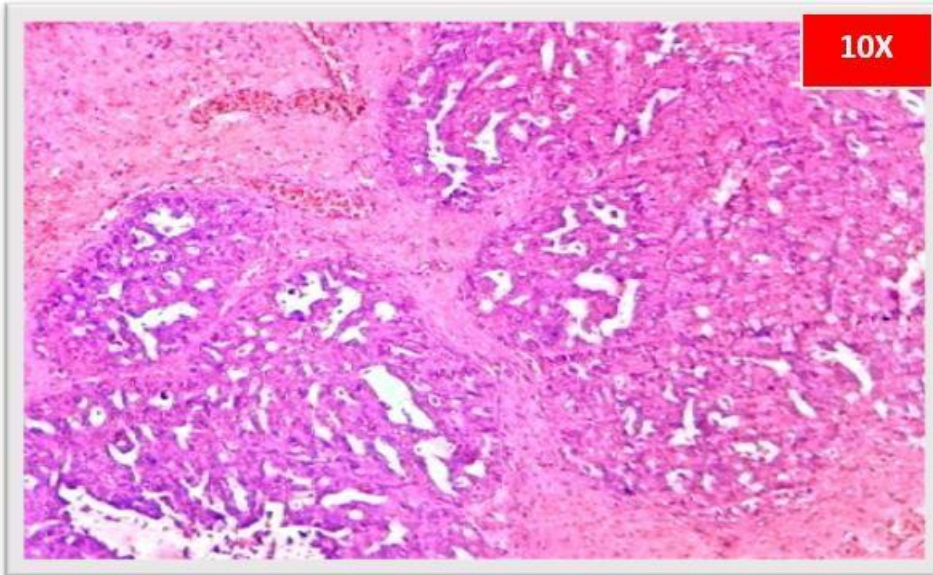
Benign ovarian tumours are more common than malignant tumours. Most of the tumours are seen in reproductive age group especially of benign lesions. The surface epithelial tumours are the commonest ovarian neoplasm, followed by germ cell tumour and sex cord stromal tumour. Among the surface epithelial tumours both in benign and malignant nature, serous tumours occupy the majority of lesions.



Serous cystadenoma of ovary

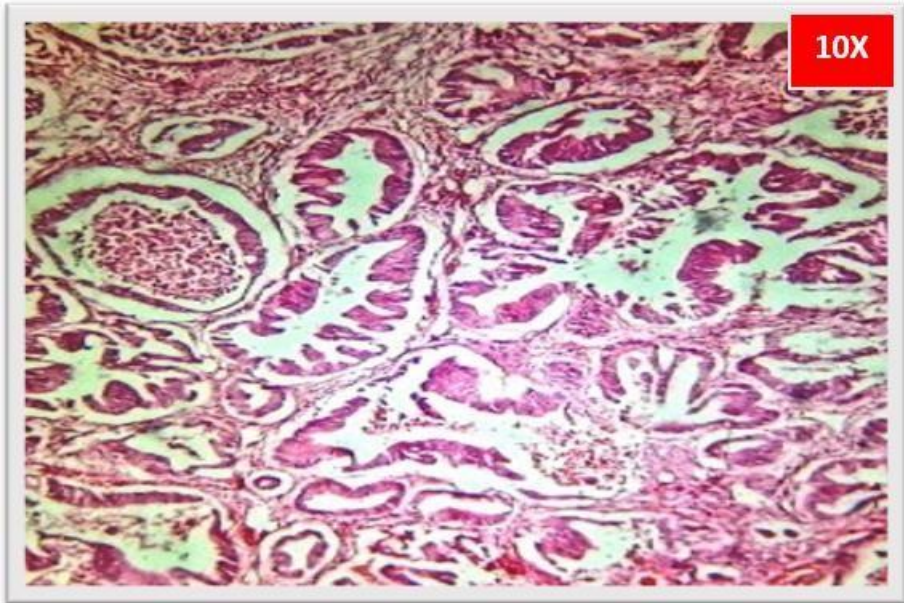


Borderline mucinous tumour



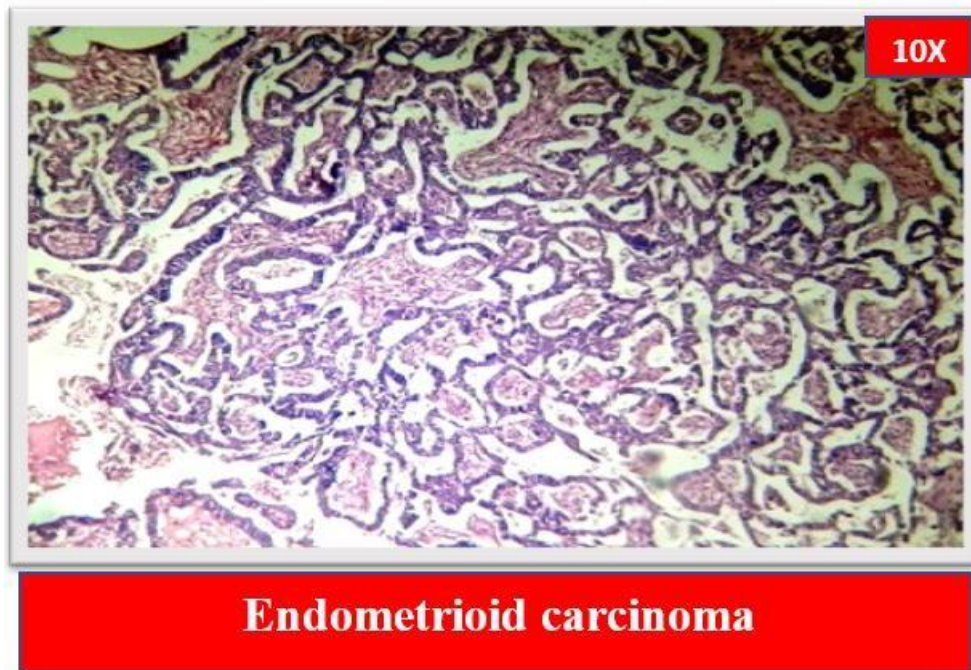
10X

Serous cystadenocarcinoma



10X

Mucinous carcinoma



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