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A Study of Histopathological Pattern of Ovarian Neoplasms and their Age Distribution in A Tertiary Care Hospital of South India

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Abstract

Objectives: *The aim of the study was to know the histopathological pattern of ovarian neoplasms and their distribution in various age groups in a tertiary care hospital.*

Materials and methods: *80 cases of ovarian specimens received from Department of Obstetrics and Gynecology, local nursing homes and hospitals were studied in Department of Pathology of a tertiary care hospital for a period of 1 year from May 2014 to April 2015. The ovarian tumours were classified according to WHO classification and the age distribution was noted.*

Results: *Eighty cases of ovarian tumors were studied during this period. Benign tumors comprised 91.25% and malignant tumors were 8.75%. Surface epithelial tumor was the commonest variety accounting for 83.75%, followed by germ cell tumor (13.75%) and sex cord stromal tumors were least common comprising 2.5 % of all ovarian neoplasms. No metastatic tumor or tumors with borderline malignancy were seen. Serous cystadenoma was the commonest tumor (49.31%) seen in 30-50 years age followed by Mucinous cystadenoma (32.87%) seen in 30-60 years age. Mature cystic teratoma comprised 81.8% of germ cell tumours seen in 20 -40 years age. Fibrothecomas were seen above 50 years of age. Among the malignant tumors, malignant surface epithelial tumors were the commonest seen above 40 years.*

Conclusion: *Benign ovarian tumors are seen more common than malignant tumors. The most common benign ovarian neoplasm is Serous cystadenoma and the commonest malignant neoplasm is Mucinous cystadenocarcinoma. Benign ovarian tumours are seen in 20 to 50 years of age and Malignant tumors are seen after 40 years of age.*

Keywords: *Ovarian tumors, Surface epithelial tumors, Serous cystadenoma, Germ cell tumors, Sex cord stromal tumors.*

INTRODUCTION

Ovarian tumors are one of the major health problems confronting the General practitioners in general and Gynecologists in particular. Ovarian carcinoma represents the sixth most common female cancer, the second most common cancer of female reproductive system, and the fifth leading cause of death due to cancers in women.(1) The complex anatomy of ovary and its peculiar physiology with constant cyclical changes from puberty to menopause give rise to number of cell types each of which is capable of giving rise to tumors.(2) Unlike cervical cancer, identification of high risk population for ovarian malignancy and ideal screening methods are not available. Most common risk factors for ovarian cancers are nulliparity and family history. A higher frequency of carcinoma is seen in unmarried and in women with low parity.(3) Both primary and secondary tumours of the ovary are relatively frequent showing variety of pathological patterns.(4) Despite the new techniques in imaging and genetics the diagnosis of ovarian tumours is primarily dependent upon histopathological examination. Determination of various histologic patterns of ovarian tumors is very important in diagnosis as well as prognosis of these tumors..The present study was undertaken to know the histopathological pattern of ovarian neoplasms and their distribution in various age groups in a tertiary care hospital.

MATERIALS AND METHODS

Around 80 cases of ovarian specimens received from Department of Obstetrics and Gynecology, Konaseema Institute of Medical Sciences and Research Foundation, Amalapuram in Andhra pradesh, local nursing homes and hospitals with full clinical details were studied for a period of 1 year from May 2014 to April 2015. Only the spectrums of ovarian tumors were included in this study. The normal ovaries and ovaries with other nonspecific findings like follicular cyst, cystic follicle, corpus luteal hemorrhagic cyst were excluded from the study

All received specimens of ovaries were fixed in 10% formalin. From cyst, upto 2 sections were taken from cyst wall. If wall showed papillary projections or solid areas extra sections were taken depending upon size. For solid tumors, one section for each centimeter was taken depending upon need. After sectioning, tissues were processed manually and paraffin blocks were made and tissue sections were cut and stained by H& E, cleared in xylene, mounted in DPX and slides examined under light microscope. The histopathological diagnosis was made on detailed morphological features and tumors were classified according to WHO classification. Then analysis was done to find out the histopathological patterns of ovarian tumors and their age distribution.

RESULTS

A total of 80 specimens of ovarian tumours received in Department of Pathology were studided from May 2014 to April 2015

Ovarian tumors were classified mainly into three groups- Surface epithelial tumors which comprised majority of ovarian neoplasm with 67 cases (83.75%), followed by Germ cell tumors with 11 cases (13.75%) and Sex cord stromal tumors were least common with 2 cases (2.5%). Out of the total 80 cases, 73 cases were Benign comprising 91.25% followed by 7 cases of Malignancy comprising 8.75% of all neoplasms.

Most of the Benign tumors were seen in the age of 21- 40 years (Table 1) with 39 cases (53.42%) followed by 20 cases (27.39%) in 41-50 years age group. Most common benign tumor observed in surface epithelial tumours was Serous cyst adenoma with 36 cases (49.31%) seen mainly in 31-40 years age group comprising 14 cases followed by (Figure I) 11 cases in 41-50 years, 5 cases in 21-30 years, 4 cases in 51-60 years and 2 cases below 20 years of age. There were 24 cases (32.87%) of Mucinous cystadenomas (Figure II) seen mainly in 41-50 years age group comprising 9 cases followed by 6 cases in 31-40 years, 5 cases in 21-30 years, 3 cases in 51-60 years and one case below 20 years of age.

There were 11 cases (15.06%) of Germ cell tumours of which 9 cases (12.32%) were of Benign cystic teratoma (Figure III) and 2 cases of Dysgerminoma. Benign cystic teratomas were seen mainly in 21-30 years age group with 4 cases followed by 3 cases in 31-40 years and 2 cases below 20 years of age. There were 2 cases (2.74%) of Dysgerminoma seen in 21-30 years age group. There were 2 cases (2.74%) of Sex cord stromal tumours both of which were Fibrothecomas (Figure IV) seen in age group of 51-60 years.

There were 7 cases (8.75%) of malignancy all of which were Surface epithelial tumours which were seen above 50 years of age with 2 cases of Papillary serous cystadenocarcinoma and 5 cases of Mucinous cystadenocarcinoma.

Gross examination of all ovarian tumors revealed that benign surface epithelial tumors were mainly of cystic type containing serous or mucinous fliud with occasional small papillary projections. Benign cystic teratomas on cut surface showed thick sebum like material with hair in it. Dysgerminoma and fibrothecoma were solid and yellowish on cut section. Malignant tumors showed heterogeneous proportion of solid and cystic components.

Table 1: Showing age distribution of Benign tumours of the ovary

BENIGN TUMOURS	<20 YRS	21-30YRS	31-40YRS	41-50YRS	51-60YRS	>60YRS
SEROUD CYSTADENOMA	2	5	14	11	4	-
MUCINOUS CYSTADENOMA	1	5	6	9	3	-
DERMOID CYST	2	4	3	-	-	-
FIBROTHECOMA	-	-	-	-	1	1
DYSGERMINOMA	-	2	-	-	-	-
TOTAL	5	16	23	20	8	1

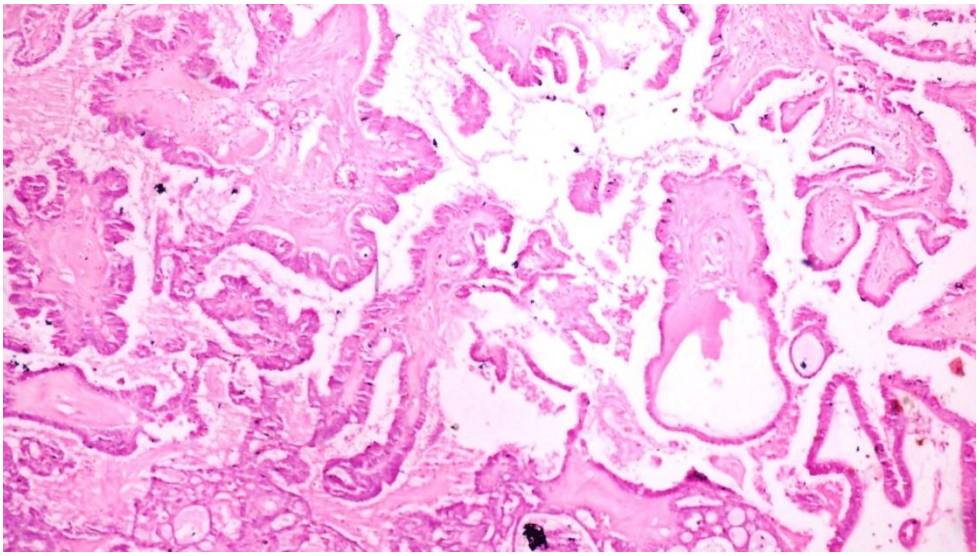

Figure I: Microphotograph of Papillary serouscystadenoma showing papillary fronds with fibrovascular cores (H&E, 100X)

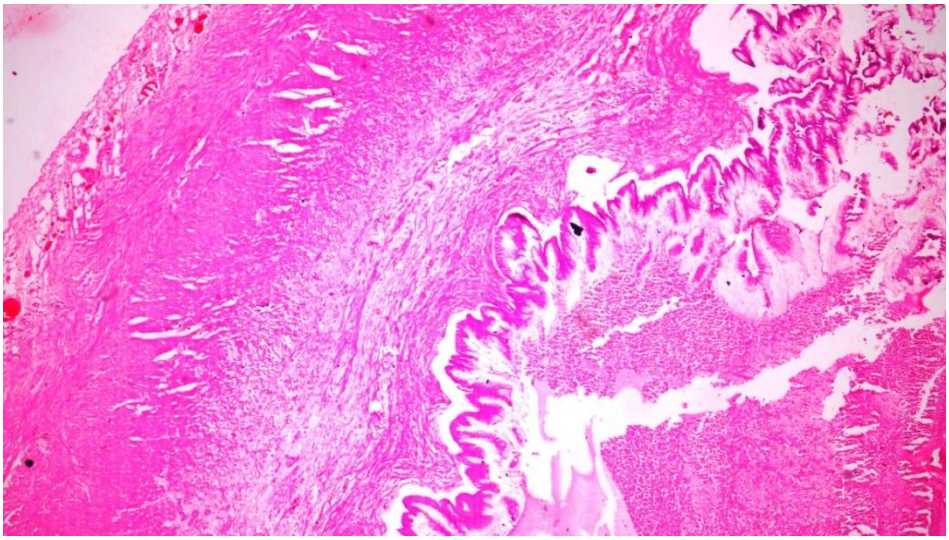

Figure II: Microphotograph of Mucinous cystadenoma of the ovary showing mucin secreting tall columnar cells of endocervical type (H&E, 100X)

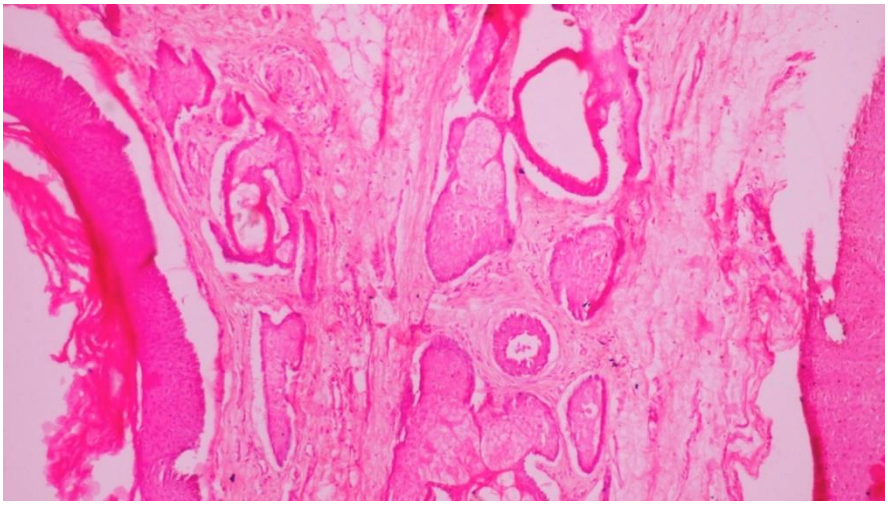

Figure III: Microphotograph of Benign cystic teratoma of the ovary showing ectodermal elements (H&E, 100X)

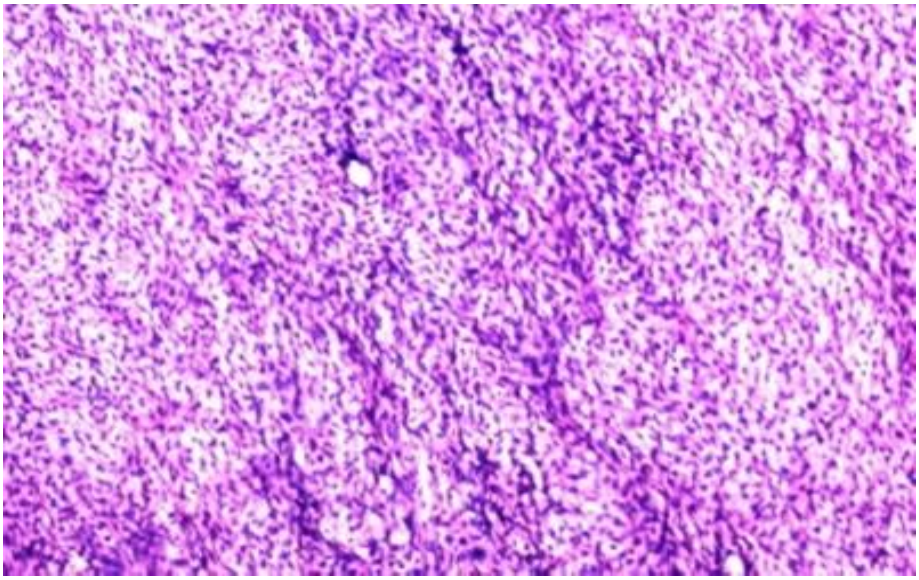

Figure IV: Microphotograph of Fibrothecoma of ovary showing thecoma cells (H&E, 100X)

DISCUSSION

A total of 80 cases of ovarian tumours were studied with ages ranging from 19 years to 65 years. Benign tumors comprised 91.25% and malignant tumors 8.75%. These results are comparable to study carried out by Sumaira Yasmin et al [5] where they found that out of total 68 tumors during study 89.7% tumors were benign and 10.29% tumors were malignant with no borderline malignancy. Similar findings were showed by R Jha et al [6] in their study in which they found that 83.9% tumors were benign and 16.7% were malignant out of total 161 ovarian tumors with no borderline malignancy.

The commonest category of ovarian tumor encountered in the present study was surface epithelial tumor (83.75%), followed by germ cell tumor (13.75%) and sex cord stromal tumor (2.5%). Similar observations were seen in a study carried out by Pilli et al[7] in which they found that surface epithelial tumors were the commonest variety constituting (70.9%) of all the ovarian tumors followed by germ cell tumors (21.2%), sex cord stromal tumors (6.7%) and metastatic tumors 0.7%).

Surface epithelial tumors constituted the commonest tumor with 67 cases of which 94.73% were benign and 5.26% malignant with no borderline cases, an observation identical to a study by Jha and Karki [8] from Nepal in which benign serous tumors accounted for 78.9% while 21.1% were malignant. Serous cystadenoma was the most common among the surface epithelial tumors with majority of them seen in 3th to 5th decade, malignant tumours were seen after 4^{th} decade comprising of Papillary serous cystadenocarcinoma, similar findings seen in studies of Maheshwari V et al[9] and Thaniskasalam et al[10]

Mucinous tumours were the next most common surface tumours with 29 cases of which 82.75% were benign and 17.27% malignant. Mucinous cystadenomas comprised 24 cases seen in 3^{rd} to 6^{th} decades, Mucinous cystadenocarcinoma comprised 5 cases seen after 5^{th} decade consistent with the study by Jha and Karki[8] in which 77.8% of tumours were benign and 22.2% malignant.

11 cases (13.75%) of Germ cell tumours were observed in the present study of which 9 (81.8%) were Benign cystic teratomas which was commonest and 2(18.1%) were Dysgerminomas. Benign cystic teratomas were seen in 2^{nd} to 4^{th} decade and Dysgerminoma in 2^{nd} to 3^{rd} decade. These findings were similar to the studies of Ahmad et al [11] where they found incidence of 27.13% of germ cell tumours and Pradhan et al[12] in which Benign cystic teratoma was the commonest with 76.4%.

Sex cord stromal tumours comprised 2 cases(2.5%) in the present study which were Fibrothecomas seen above 5^{th} decade similar to the studies of Jha and Karki (8) accounting to 3% of all ovarian neoplasms and Tyagi et al constituting 21.4%. [13]

CONCLUSION

Thus we conclude that Benign tumors (91.25%) are more common than Malignant ones(8.75%) for all age groups. Surface epithelial tumors are most common class of tumors (83.75%) in which Benign serous cystadenomas are commonest seen in 3^{rd} to 5^{th} decades followed by. Mucinous cystadenomas seen in 3^{rd} to 6^{th} decade. Malignant surface epithelial tumors are seen after 4^{th} decade. Germ cell tumours comprise 13.75% with Mature cystic teratoma being the commonest seen in reproductive age group of 20 to 40 years. Sex cord stromal tumours constitute 2.5% comprising of Fibrothecoma seen after 50 years of age.

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