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KEY WORDS: Surface Epithelial Tumor, Serous Cystadenoma, Serous Cystadenocarcinoma, Mucinous Cystadenoma.

CLINICOPATHOLOGICAL STUDY OF SURFACE EPITHELIAL OVARIAN TUMORS- A TERTIARY CARE CENTER STUDY.

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ABSTRACT

Background: Ovarian tumors are one of the most common tumors, which occur in female genital tract. Despite the newer techniques in imaging and molecular biology, the diagnosis of ovarian tumors primarily depends on histopathological examination. Ovarian tumors manifests a wide spectrum of clinical, morphological and histological features. The aim of the study was to find the incidence of surface epithelial ovarian tumors in a tertiary referral centre. **Materials and methods:** A retrospective data of 3 years were collected for surface epithelial ovarian tumors submitted to the pathology department of the tertiary care hospital and analysed. The correlation of these surface epithelial ovarian tumors was done with age, clinical presentation and histomorphological patterns. Non-neoplastic lesions like simple ovarian cysts, tubo-ovarian mass and polycystic ovaries were excluded. **Results:** A total number of 56 cases were studied. Out of which 44 cases were benign and 12 cases were malignant. Maximum cases were observed between 21 to 30 years. Mass per abdomen was the most common presentation(36%) followed by mass and pain in abdomen(27%).Serous cystadenoma formed maximum 28 cases(50%) followed by Mucinous cystadenoma(16 cases) 28 % , Serous cysadenocarcinoma formed 5cases (9%), followed by Mucinous cystadenocarcinoma 3 cases(5%) & 2 cases each(4%) of clear cell carcinoma and endometrioid carcinoma were noted. The most common histopathological type of benign and malignant tumor was serous cystadenoma (50.2%) and serous cystadenocarcinoma(9%) respectively. **Conclusion:** In the study majority (78.6%) of the surface epithelial ovarian tumors were benign. Malignancy was seen in (21.4)% of the cases. Surface epithelial tumours present a great challenge to the gynecologic oncologist because non-neoplastic ovarian lesions can form a pelvic mass and potentially mimic a neoplasm. Correct histopathological diagnosis of surface epithelial ovarian tumors is of prime importance in view of their behavioral predictability and clinical correlation for proper management of the patient.

INTRODUCTION:

The ovaries are paired pelvic organs located on both the sides of the uterus close to the lateral pelvic wall. Tumors of the ovary are common forms of neoplasm in women. Ovarian malignancies account for 6.6% of all malignant tumors of the female genital tract. Among the cancers of the female genital tract, the incidence of ovarian cancer ranks below carcinoma of the cervix and the endometrium. Many of these ovarian neoplasms cannot be detected early in their development and they account for almost half of the deaths from cancer of the female genital tract.[1]

Ovarian neoplasms remain asymptomatic until massive ovarian enlargement causes compression of the pelvic structures, ascites, abdominal distention or distant metastasis. Ovaries not only give rise to a wide variety of malignancies but is also a site for metastasis from many other organs. The complex anatomy of ovary, its peculiar physiology with the constant cyclical changes from puberty to menopause give rise to a number of cell types each of which is capable of giving rise to tumors.[2,3]

Surface epithelial ovarian tumors constitute majority of all the ovarian tumors. They exist in different histological patterns and exhibit varying degree of aggressiveness. Among them most are serous, followed by mucinous, endometrioid and others.

There are numerous types of ovarian tumors, both benign and malignant. About 80% are benign, and these occur mostly in young women between the age of 20 to 45years. The malignant tumors are more common in older women between the age of 40 to 65 years.[1]

The study was being undertaken to study in detail the different varieties of surface epithelial ovarian tumors in tertiary care hospital and assess their characteristics with regard to incidence, age and histopathological appearances.

MATERIALS AND METHODS:

Data of all ovarian specimen and review blocks submitted to pathology department in 3 years (January 2016–December 2019) were retrieved retrospectively, and clinical and histological features were reviewed from the pathology department. Cases diagnosed as Surface epithelial ovarian tumors were included in the study. H & E stained histopathology slides were studied in detail. Cases were studied according to laterality, consistency, size, age, and histogenesis.

OBSERVATION AND RESULTS:

A total of 56 cases of surface epithelial tumors were studied , Out of 56 cases 44 were benign(78.6%) and 12 were malignant(21.4%). Hysterectomy specimens with ovarian tumors and all the Surface epithelial ovarian tumor specimens were included. Non neoplastic ovarian lesions like simple ovarian cyst and tubo ovarian mass were excluded.

Serous cystadenoma comprised of 28 cases(50.2%) was the most common benign tumor followed by mucinous cystadenoma 16 cases(28%), Serous cystadenocarcinoma was the most common malignant tumor with 5cases(9%), followed by 2 cases each of Clear cell carcinoma and endometrioid carcinoma(4%). No borderline cases were found in the study.(Table :1)

The occurrence of ovarian tumors was found maximum in the 3rd decade with increased incidence of serous surface epithelial tumors. Overall the incidence of benign surface epithelial tumors was found to be maximum in the 3rd decade followed by 4th decade. Malignant cases were maximum in the 7th decade followed by 6th decade. The youngest patient in the study was 22 year old diagnosed as serous cystadenoma and oldest at 67 year old diagnosed as

serous cystadenocarcinoma.

Of all the ovarian tumors unilateral presentation was seen in(50 cases) 89%, whereas(6cases) 11% cases showed bilateral presentation(Table: 2). Most of the benign ovarian tumors showed unilaterality, bilaterality was seen in only two cases of all the benign tumors of serous cystadenoma. Unilaterality was seen in 77% of the malignant surface epiithelial ovarian tumors and bilaterality was seen in 23% of the malignant surface epithelial ovarian tumors. The study revealed that, 46% of the total tumors studied were cystic, 38% were partly solid and partly cystic and 16% were solid in consistency. The benign tumors were mostly cystic in consistency, while the malignant tumors were mostly solid in consistency.(Table: 3)

The size analysis show that maximum number of cases 25 cases (45%) of all the ovarian tumors were in 11 to 20 cm category followed by 1-10 cm category 20 cases (35%), 10 cases (18%) in 21-30cm category and 1 case (2%) in 31-40cm category. Largest tumor was mucinous cystadenoma of 32x31x18 cm in size. Papillary projections were seen commonly in serous tumors when compared with mucinous tumors(Table-4). Mass per abdomen 20 cases (36%) was the commonest mode of presentation followed by combination of mass and pain in abdomen 15 cases (27%).(Table -5)

Table 1: Classification and distribution of surface epithelial tumors.

Nature of tumors	No of cases	Percentage
Serous Tumors	33	59%
A)Benign	28	50%
Serous Cysadenoma	28	50%
B)Malignant	5	9%
Serous cystadenocarcinoma	3	5%
Papillary serous cystadenocarcinoma	2	4%
Mucinous	19	33%
A)Benign	16	28%
cystadenoma	16	28%
B)Malignant	3	5%
Cystadenoma carcinoma	3	5%
Clear cell carcinoma	2	4%
Endometrioid Carcinoma	2	4%

Table – 2 : Unilateral/bilateral presentation of ovarian tumors

Sr.No	Unilateral/bilateral presentation	No. Of cases	Percentage
1	Unilateral	50	89
2	Bilateral	06	11
3	Total	56	100

Of all the ovarian tumors unilateral presentation was seen in 89% cases, whereas 11% cases showed bilateral presentation.

Table – 3 : Incidence of consistency in benign and malignant ovarian tumors

Types of tumors	Cystic	Solid	Partly soild partly cystic	Total
Benign	26	02	16	44
Malignant	-	07	05	12
Total	26	09	21	56
Percentage	46	16	38	100

The study revealed that, 46% of the total tumors studied were cystic, 38% were partly solid and partly cystic and 16% were solid in consistency.

Table- 4: Locularity and frequency of papillary projections

Type of tumor	Locularity(%)		Papillary projections(%)
	Unilocular	Multilocular	
Serous	66	34	4.2%
Mucinous	18	82	-

Most of the serous tumors were unilocular(66%) whereas most of the mucinous tumors were multilocular(82%)

Table – 5 : Mode of presentation of ovarian tumors

Sr No	Clinical presentation	No of cases	%
1	Mass per abdomen	20	36
2	Abdominal pain	07	12
3	Menstrual irregularities	-	-
4	Ascites	02	03
6	Mass per abdomen+ abdominal pain	15	27
7	Ascites + menstrual irregularities	01	02
8	Abdominal pain+ mass per abdomen+ ascites	04	07
9	Ascites+urinary complaints+mass per abdomen	01	02
10	Mass per abdomen+ menstrual irregularities	01	02
11	Abdominal mass+ ascites	01	02
12	Abdominal pain+ ascites	01	02
13	Abdominal pain+ urinary complaints	02	03
14	Abdominal pain+ menstrual irregularities	01	02
	Total	56	100

The frequency of mode of presentation of ovarian tumors found in the study is shown above. Mass per abdomen 20 cases (36%) was the commonest mode of presentation followed by combination of mass and pain in abdomen 15 cases (27%)

Fig.1 : Serous cystadenoma. Cut section showing cystic spaces.

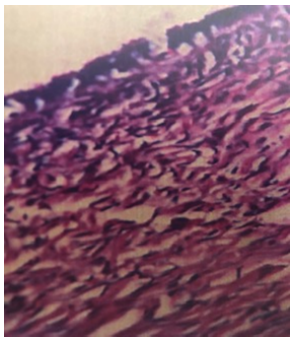

Fig.2 : Serous cystadenoma. Photomicrograph showing cyst wall lining of tall ciliated columnar epithelium. H & E, 100x

Fig.3 : Serous cystadenocarcinoma. Cut section showing solid areas and small papillary projections

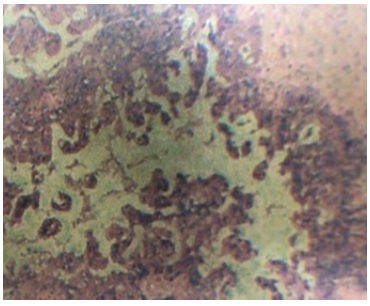

Fig.4 : Serous cystadenocarcinoma. Photomicrograph showing papillae lined by tumor cells. H & E, 40X

Fig.5: Mucinous cystadenoma. Cut section showing multiloculated cystic spaces filled with mucin

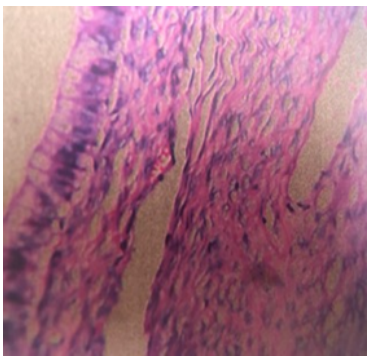

Fig.6 : Mucinous cystadenoma. Photomicrograph showing cyst wall lined by tall columnar cells with apical mucin. H & E, 400x.

DISSCUSION:

Out of 56 cases 44 cases were benign (78.6%) and 12 cases were malignant(21.4%). This was similar to findings of Ramachandran et al[7] and Mondal et al[23] which showed predominance of benign tumors followed by malignant tumors and no incidence of borderline tumors. Histologically total 56 cases who presented as surface epithelial ovarian tumors were studied. The tumors were classified according to the WHO classification. Serous tumors were the commonest variety constituting 59% followed by Mucinous tumors(33%). In our study out of total 56 cases,26cases (46%) were cystic, 9 cases (16%) were solid and 21 cases (38%) had both solid and cystic areas. All the cystic lesions were benign. Our findings were similar to the findings of Kar et al[21]. In our study, out of total 56 cases, 50 cases were unilateral and 6 cases were bilateral. Most of the benign tumors were unilateral and bilateral involvement was seen predominantly in malignant cases. Comparative analysis was done which showed our study did not correlate with Kar et al, which showed higher percentage of bilateral tumors.

The size analysis show that maximum number of cases 25 cases (45%) of all the ovarian tumors were in 11 to 20 cm category followed by 1-10 cm category 20 cases (35%), 10 cases (18%) in 21-30cm category and 1 case (2%) in 31-40cm category. Largest tumor was mucinous cystadenoma of 32x31x18 cm in size. This finding showed correlation with Pilli et al[18]study which showed similar findings.

The occurrence of ovarian tumors was found maximum in the 3rd decade with increased incidence of serous surface epithelial tumors. Overall the incidence of benign surface epithelial tumors was found to be maximum in the 3rd decade followed by 4th decade. Malignant cases were maximum in the 7th decade followed by 6th decade The youngest patient in the present study was 22 year old diagnosed as serous cystadenoma and oldest at 67 year old diagnosed as serous cystadenocarcinoma. Comparative analysis of age incidence is done with various other studies Pilli et al[18], Kar et al[21] which showed maximum age group percentage in 3rd to 4th decade of life which is in concordance with Pilli et al.

In our study almost half of the cases presented with combination of abdominal pain, mass per abdomen, ascites, and menstrual irregularities. Comparative analysis of the symptoms was done with Pilli et al[18] study. The most common symptom in present study was mass per abdomen, whereas in Pilli et al[18] study abdominal pain was reported as the most common symptom.

Serous cystadenoma formed maximum 28 cases(50%) followed by Mucinous cystadenoma(16 cases) 28 % , Serous cystadenocarcinoma formed 5cases (9%), followed by Mucinous cystadenocarcinoma 3 cases(5%) & 2 cases each(4%) of clear cell carcinoma and endometrioid carcinoma were noted. The most common histopathological type of benign and malignant tumor was serous cystadenoma (50.2%) and serous cystadenocarcinoma(9%) respectively.

Two rare case of serous cystadenocarcinoma coexisting with stromal sarcoma of the uterus was noted.IHC showed tumor positivity for vimentin and CD-10 and cytokeratin was focally positive.Dragoumis et al[20] studied 137 cases of synchronous primary neoplasms of the uterine corpus and the ovary, 95 out of which 5 cases showed coexistence of primary endometrial adenocarcinoma with primary ovarian tumors. They concluded that coexistence of distinct primary neoplasia in the uterus and ovaries is rare & diagnosis of primary malignancies in the uterus and ovaries should be based on histological examination.Young RH, Scully RE[25] reported 21 cases of sarcomas with metastasis to the ovary and found that eleven tumors were primary tumors in the uterus and 10 were outside the genital tract.

CONCLUSION:

Out of 56 cases 44 cases were benign (78.6%) and 12 cases were malignant(21.4%). No borderline tumors or mixed tumors were found. The tumors were classified according to WHO classification, Serous cystadenoma formed maximum 28 cases(50%) followed by Mucinous cystadenoma(16 cases) 28 % , Serous cysadenocarcinoma formed 5cases (9%), followed by Mucinous cystadenocarcinoma 3 cases(5%) & 2 cases each(4%) of clear cell carcinoma and endometrioid

carcinoma were noted. The most common histopathological type of benign and malignant tumor was serous cystadenoma (50.2%) and serous cystadenocarcinoma(9%) respectively. Serous tumors were the commonest variety constituting 59% followed by Mucinous tumors(33%).

Two cases of serous cystadenocarcinoma showed metastasis to rare sites like cervix and appendix. Another case of serous cystadenocarcinoma showed coexistence with stromal sarcoma of the uterus.

The most common symptom was mass per abdomen followed by combination of mass & pain in abdomen. Largest tumor was mucinous cystadenoma of 32x31x18 cm in size. Most of the benign tumors were unilateral. Bilateral involvement was seen mostly in malignant cases. The youngest patient in the present study was 22 year old diagnosed as serous cystadenoma and oldest at 67 year old diagnosed as serous cystadenocarcinoma. Most of the serous tumors were unilocular(66%) whereas most of the mucinous tumors were multilocular(82%). Of all the surface epithelial ovarian tumors unilateral presentation was seen in 89% cases, whereas 11% cases showed bilateral presentation.

The study revealed that benign tumors are more common than malignant ovarian tumors. Surface epithelial tumors were the most common of all the ovarian tumors, affecting mainly the reproductive age group & clinical features were usually late manifestations. The Histopathological study of different Surface Epithelial ovarian tumors is necessary to know the course of the disease. Ancillary techniques like immunohistochemical stains are required at times to confirm the histopathological diagnosis.

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