ORIGINAL RESEARCH PAPER

Medical Science

HISTOMORPHOLOGICAL STUDY FOR PATTERNS OF OVARIAN TUMORS

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Introduction: Ovarian tumors have various histomorphological patterns. Histopathological examination plays an important role is classifying ovarian tumors for better prognosis. Ovarian tumors are classified into surface epithelial tumors, germ tumors and sex cord stromal tumors. This study was done to know various histomorphological patterns of ovarian tumors.

Materials and Methods: Both retrospective and prospective study done from March 2013 to April 2015 for 2 yrs in the department of pathology, Kakatiya Medical College Warangal and private histopathological laboratories. On microscopy histomorphological patterns of ovarian tumors were noted. Sections were given and slides were stained with H & E. Special stains like reticulin, PAS, mucicarmine were done where ever necessary.

Results: 154 ovarian tumors were studied, 78.5% (121/154) were benign and 21.4% (33/154) were malignant. Surface epithelial tumors were most common (61.6%), followed by germ cell tumors (29.8%). Sex cord stromal tumors comprised only 4.5 % (7/154) of all ovarian tumors. Metastatic tumors of ovaries were far less common than primary ovarian tumors. They comprised only 3.8 % (6/154) of all ovarian tumors.

Discussion: Age ranged from 15-65 with majority of cases were reported among 35-45yrs 81 (52.5%). The youngest patient of our series was a girl of 16 yrs with dysgerminoma and the oldest patient was a 65 yrs, a case of mucinous cystadenocarcinoma ovary.

Conclusion: Surface epithelial tumors were most common followed by germ cell tumors. Majority of tumors were reported amongage group 35-45yrs. Metastatic tumors of ovaries were less common.

INTRODUCTION

Ovarian neoplasm is the most common tumors among women, fortunately 90% are benign [1] Ovarian cancer is the most frequent cause of death from gynecological cancers and the fourth most frequent cause of death from cancer in women in Europe, United States and Eastern India [2, 3]. Main etiology behind ovarian tumors arerisk factors is increasing age, positive family history, increase age of reproduction, high socio-economic classes, nulliparity [4]. Ovarian tumors are insidious in onset and usually diagnosed at a late stage. They are rare in young age group [5]. They commonly present with abdominal pain, a lump or menstrual irregularities [6]. Depending on the type of the ovarian tissue where the neoplasm develops, ovarian tumors are classified into 3 primary classes, epithelial tumors 90%, germ cell tumors 3% and sex cord/ stromal tumors 6% [7, 8]. Diagnosis of ovarian tumor depends on signs and symptoms, abdominal and vaginal ultrasound, Doppler study of tumor vasculature, biochemical study (tumor markers) which is proteins associated with malignant tumors like CA125, B-hCG, alphafetoprotien [9-11]However, the definitive diagnosis and staging done by surgery and histopathology. Treatment includes surgery, chemotherapy, radiotherapy and hormonal. While treatment of benign ovarian tumors depends on age, presentation and fertility, treatment of malignant tumors depends on type of tumor, stage, age and fertility [12-14].

MATERIALS AND METHODS

After obtaining the Institutions ethical permission. Retrospective and prospective study carried out at Kakatiya Medical College Warangal and private histopathological laboratories, all specimens received in the department of histopathology over a period of 3 yrs. i.e., from March 2015 to April 2018 taking into account relevant clinical data and relative information were recorded from the biopsy records, statistical books and standard journals. All the ovarian samples were received from department of gynecology and Surgery for histopathological examination. Grossing done from solid and cystic areas. Sections were taken according to the guidelines given in Rosai [15]. Sections were processed and stained with H&E, histomorphological patterns were noted. Wherever necessary, special stains such as PAS and Recticulin were used. The histological characterization was done according to the WHO classification of 1995 [16].

RESULTS

Retrospective and prospective study was done From March 2015 to April 2018 at Kakatiya Medical College Warangal. Specimens from 154 cases with ovarian tumors were processed in our laboratory. Out of 154 ovarian tumors included, 75.3% (116/154) were benign, 3.2% (5/154) borderline, 21.4% (33/154) were malignant. Surface epithelial tumors were most common (61.6%) followed by germ cell tumors (29.8%). (Table 1)

TABLE 1: Histomorphological patterns of ovarian tumors

Type of tumor	NO. of cases	%
Surafce epithelial	95	61.6
Germ cell	46	29.8
Sex cord stromal	7	4.5
Metastases	6	3.8
Total	154	99.7%

Out of 95 cases of surface epithelial tumors,serous cystadenomas comprised of about64.2% (61/95) borderline serous cystadenomas 5.26%(5/95), serous cystadenocarcinoma 6.31%(6/95), mucinous cystadenomas about 12.6% (12/95), mucinous cystadenocarcinoma 6.3%(6/95), endometrioid 1.05%(1/95), clear cell 2.1 % (2/95), Brenner tumor 2.1 % (2/95), Germ cell tumors comprised about 29.8 % (46/154) among them mature teratoma occupy about 69.5% (36/46), dysgerminoma19.5% (5/46), yolk sac tumor 4.3% (2/46), embryonal carcinoma 6.5%(3/46), Sex cord stromal tumors comprised only 4.5 % (7/154) of all ovarian tumors. Among Sex cord stromal tumors fibroma was commonest about 42.8% (3/7), the coma about 28.5% (2/7), granulosa cell tumor 28.5% (2/7).Metastatic tumors of ovaries were far less common than primary ovarian tumors. They comprised only 3.8 % (6/154) of all ovarian tumors. Age range from 15-65 with majority of cases included among 35- 45yrs81 (52.5%). The youngest patient of our series was a girl of 16 yrs with dysgerminoma and the oldest patient was a 65 yrs, a case of mucinous cystadenocarcinomaovary (Table 2).

TABLE2: Age wise distribution of cases

Age in yrs	No. of cases	%
15-25	2	1.2
26-35	39	25.3
36-45	81	52.5
46-55	18	11.6
56-65	14	9.09
TOTAL	154	99.6%

Serous cystadenomas (61), borderline serous cystadenomas (5), mucinous cystadenomas(12) and fibromas(3) were commonest among 36-45yrs age group. 2 cases of dysgerminoma were among 15-25yrs age group. 36 cases of Benign cystic teratoma and 3 cases of dysgerminoma were among 26-35 yrs age group 5 cases of surface epithelial tumors, 2 cases yolk sac, 3 cases embryonal, 2 each cases of thecoma and granulose cell tumor,4 cases of metastases were among age group 46-55 yrs. 6 cases each of serous cystadeno carcinoma, mucinous cystadeno carcinoma and 2 cases of metastases were among 56-65 yrs age group. On gross examination majority were cystic 55.1% (85/154), 24.6% (38/154) were solid. 20.21 % (31/154) showed both solid and cystic areas. Based on site of involvement majority of the tumors were unilateral about 64.9% (100/154) with right side predominance, malignant tumors were bilateral about 35% (54/154). The commonest presenting symptoms of ovarian neoplasm were mass per abdomen, pain abdomen followed by bleeding per vagina.

DISCUSSION

In the present study age range from 15-65 with majority of cases included among 35-45yrs - 81 (52.5%). The youngest patient of our series was a girl of 16 yrs with dysgerminoma and the oldest patient was a 65 yrs, a case of mucinous cystadenocarcinoma ovary. Surface epithelial tumors were most common (61.6%) followed by germ cell tumors (29.8%). This compared with various studies (Table3). In the present study surface epithelial tumors were most common (61.6%) followed by germ cell tumors (29.8%). This is similar to findings of R Jha et al. and Zubair Ahmad et al., Vaddatti Tejeswini et al., Nital Panchal et al. and Bhagyalakshmi A et al.(Table3)

TABLE 3:Histomorphological patterns ofovarian tumors [17-20]

Histomorphological Pattern	Zubair ahmad et al.[17]	Vaddatti tejeswini et al.[18]	Nital Panchalet al.[19]	R Jha et al.[20]	Bhagyalakshmi A et al.[18]	Present study
Surface epithelial tumors	543 (63.50%)	237((85.25%),	39(46.9%)	84 (52.2%)	214 (80.2%)	95(61.6%)
Germ cell tumors	232 (27. 13%)	27(9.72%)	38(45.7%)	68 (42.2%)	38 (14.2%)	46(29.8%)
Sex cord stromaltumors	50 (5.84%)	11(3.95%),	3(3.6%)	5 (3.1%)	11 (4.1%	7(4.5%)
Metastases	21(2.45%)	3(1.08%).	3(3.6%)	4 (2.4%)	4 (1.5%)	6(3.8%)
Others	9(1.05%)	-	-	-	-	-
Total	855	278	83	161	267	154

In the present study cases were reported in the age group of 15-65. Majority were among 35-45yrs 81 (52.5%). In Nital Panchal et al. study age ranged from 10 - 86 yrs with mean age of 39.1.[19] R Jha et al. showed majority of the ovarian tumors among 31- 40 yrs age group (43 (26.7%)[20]. Ovarian tumors were unilateral in 64.9% of cases (100/154), bilateral in 35% (54/154) coinciding with the findings of Nital Panchal et al. study which showed Unilateral tumors in 65 (78.3%) cases, bilateralism was seen in 18 cases (22%) [19]. In M.Janaki et al.study most of the tumors were unilateral with right side predominance (66.42%) [20]. The malignant tumors were bilateral (33.33%) compared to borderline (16.67 %) or benign tumors (5.17%). (Table4). Present study showed on gross examination majority were cystic 55.1% (85/154), 24.6% (38/154) were solid, 20.21 % (31/154) showed both solid and cystic areas. In Nital Panchal et al. study majority of the tumors were cystic 37(44.5%) followed by solid11 (13.2%) and mixed 35(42%) [19].

TABLE 4: Comparative studies of frequency of benign and malignant ovarian tumors[17-20]

Various studies	Benign tumors(%)	Borderline	Malignant tumors(%)	Total
R Jha et al.[20]	135(83.9%)	-	26 (16.1%)	161
Vaddattitejeswini et al.[18]	217 (78.05%)	-	61 (21.95%).	278
Nital et al.[19]	66 (79.5%),	2 (2.4%)	15 (18.1%),	83
Zubair Ahmad et al.[17]	506 (59.18%)	28 (3.27%)	321 (37.54%)	855
Present study	121(78.57%)	5(3.2%)	33(21.4%)	154

FIGURE 1 On Gross Examination : Figure 1A showing serous cystadenoma ovary showing ovarian cyst measuring 10x8x6cm, oval to round, smooth glistening surface; cut section, unilocular filled with serous fluid;

FIGURE 1

On Gross Examination : Figure 1B showing dysgerminoma ovary measuring 10x8x6cm cut section, grey white solid area, nodular, small to huge and gray-pinkareas
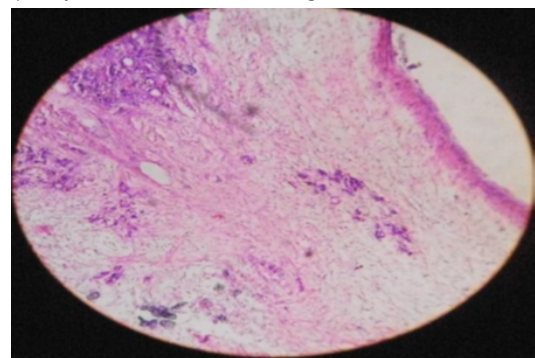
Benign Serous cystadenoma ovary: H/E stained section shows cystwalllined by a single layer of tall, columnar, ciliated, Stroma contains spindly fibroblasts, No atypia, no architectural complexity, no invasion as shown in figure in 2.
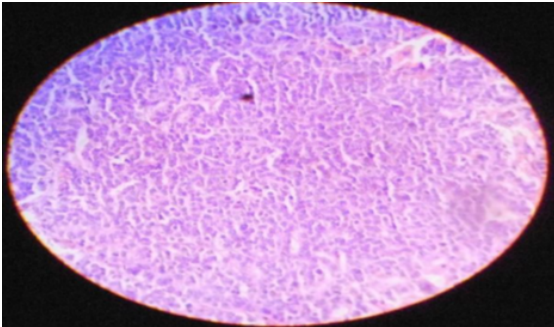

FIGURE 2

Mucinous cystadenicarcinoma ovary: H/E stained section shows complex arrangement of glands, cysts or papillae lined by atypical epithelium with minimal or no intervening as shown in figure in 3.
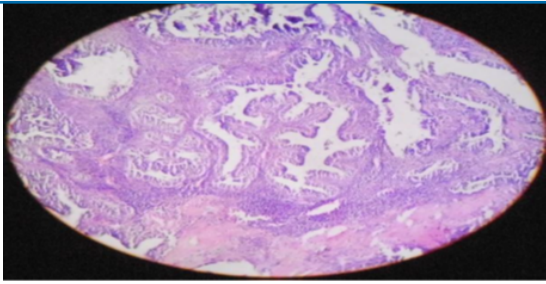
FIGURE 3

Dysgerminoma: H/E stained section shows nests of tumor cells separated by fibrous stroma with lymphocytes. Large vesicular cells with well defined cell borders, cleared cytoplasm containing glycogen and central nuclei as shown in figure 4.

FIGURE 4

CONCLUSION

Surface epithelial tumors were most common, followed by germ cell tumors. Majority of tumors were reported among age group 36-46yrs. Metastatic tumors of ovaries were less common. Categorization into exact morphological type will help the gynecologist and surgeon for proper management.

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