

Original article:

The relative frequency and histopathological patterns of ovarian lesions: study of 116 cases

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Abstract:

Introduction: Ovary is an important organ because it is concerned with production of progeny. It is very common and frequent site of neoplastic and non-neoplastic lesions. They can present from childhood to postmenopausal age group and account for the major load to gynecologists because they remain unnoticed for longer duration. Their proper diagnosis and classification is important for therapy. Objectives of this study is to determine the nature, frequency and distribution of ovarian lesions & to study histopathological features.

Materials and methods: This is a study of 116 ovarian lesions at our hospital over a period of 2 years from May 2013 to April 2015. All the clinical data of patients analyzed from hospital record files.

Results: Out of total 116 cases studied, 48 were neoplastic and 68 were non-neoplastic. Among non-neoplastic lesions, follicular cysts were most common (53 cases) with endometriosis being the second (12 cases). In neoplastic lesions, benign lesions like serous cystadenoma (10 cases), mucinous cystadenoma (6 cases) and in malignant lesions surface epithelial tumors forming largest group (31 cases) followed by germ cell tumor (11 cases) and stromal tumor (5 cases).

Conclusion: Ovarian lesions occupy a wide range of histopathological varieties so diagnosis of ovarian lesions is a challenge to histopathologist. An accurate histopathological diagnosis combine with clinical evaluation and tumor marker study will help in achieving prompt and appropriate treatment to the patient.

Keywords: ovarian tumors, neoplastic lesions, non-neoplastic lesions

Introduction

Ovarian carcinoma accounts for the greatest number of deaths from malignancies of the female genital tract and is the fifth leading cause of cancer fatalities in women. Tumors of ovary represent about 30% of all cancers of the female genital tract. Age adjusted incidence rate are highest in economically advanced countries. Carcinomas of surface epithelial-stromal origin account for 90% of these cancers. High parity and use of oral contraceptives are associated with a reduced risk of developing surface epithelial-stromal tumors while long term estrogen replacement therapy appears to increase the risk in postmenopausal women.^{[1],[2]}

Various forms of inflammations are nonspecific in ovary; granulomatous infections, autoimmune oophoritis and eosinophilic oophoritis are uncommon and they are accompanying tubal inflammation. Autoimmune oophoritis lead to infertility. Causes for granulomatous inflammation are tuberculosis, dysgerminoma, crohns disease, actinomyces, keratin from cystic teratomas, rarely sarcoidosis. Cases of autoimmune oophoritis are generally associated with primary ovarian insufficiency with autoimmune features, including: Serum adrenal cortical or steroid cell antibodies (StCA) or serum antibodies to adrenal or ovarian steroidogenic enzymes identified by indirect immunofluorescence; associated with polymorph-

hisms of genes influencing the function of the immune system, i.e. HLA complex; selective mononuclear cell infiltration into the theca layer of developing follicles of the ovary; association with other autoimmune diseases such as Addison disease, autoimmune thyroiditis and type I diabetes mellitus.^[3] If no LH surge or no ovulation, follicle grows and becomes follicular cyst, which usually disappears within 2-3 menstrual cycles but may persist. Two main hypotheses for endometritis of ovary are based on the “reflux theory” (or “retrograde menstruation”): implantation of endometrial cells on peritoneum or peritoneal stimulation by substances released by shed endometrium.^[3]

Neoplastic disorders can be grouped according to their origin from each of three main ovarian cell types: 1) mullerian epithelium, 2) germ cells, 3) sex cord stromal cells. There are many types of ovarian tumors. About 80% are benign and this occur mostly in age group of 20-45 years. Ovarian cancers accounts for 3% of all cancers in females. Most ovarian tumors are non-functional and produce mild symptoms until they reach large size. At time of diagnosis, malignant tumors usually spread outside of ovary. Epithelial tumors tend to be bilateral usually. Common symptoms are abdominal mass, abdominal pain; urinary complaints because of compression by tumor or invasion; and abnormal vaginal bleeding. Benign tumors are mostly asymptomatic and occasionally found unexpectedly on abdominal or pelvic examination or during surgery.^[4]

Objectives of the study

- 1) To categorize ovarian lesions into non-neoplastic and neoplastic group.
- 2) To correlate incidence of neoplastic lesions with particular age group
- 3) To establish correlation between gross features and microscopic findings.

Material and methods

A hospital based prospective study was conducted at Pathology Department of our institute during time period of May 2013 to May 2015. Total 116 cases were obtained.

Sampling ; The study was conducted on 116 resected specimens of ovaries received. These included surgically resected ovaries, either as a part of total abdominal hysterectomy with bilateral salpingo-oophorectomy or as a clinically diagnosed ovarian lesions.

All specimens were fixed in 10% buffered formalin overnight. Gross examination of specimens was done and adequate sections were taken from all representative areas. Special emphasis was given on solid areas, papillary areas and areas adjacent to ovarian surface. All sections were routinely processed under standardized conditions for paraffin embedding and then cut into 5 micron or thinner as needed and stained with Hematoxylin and Eosin (H & E) stain using standard procedure. For classification of ovarian lesions World Health Organization (WHO) Classification was used. Statistical tools, Frequencies and percentages were calculated. The results were presented in forms of tables.

Results

Table 1 Age wise distribution of ovarian lesions

Age group in years	No. of patients
Less than 19	8
20-39	43
40-59	54
More than 60	11
Total	116

Among 116 cases, the main age at presentation was between 40-60years. Most of benign tumors presented between 20 to 40 years of age group and malignant lesions between 40 to 70 years of age group.

Table 2 Histopathological pattern of ovarian lesions

Non-neoplastic lesions-58.6%		Neoplastic lesions-41.3%		
Inflammatory lesions-12.9%		Cystic lesions-45.6%	Benign-64.5%	Malignant-35.4%
Endometriosis 10.3%	Oophoritis 2.5%	Follicular cyst 45.6%	Serous cystadenoma 8.6%	Serous cystadenocarcinoma 6.8%
			Mucinous cystadenoma 4.3%	Mucinous cystadenocarcinoma 1.7%
			Benign Brenner 1.7%	Endometrioid carcinoma 1.7%
			Fibroma 2.5%	Malignant Brenner 1.7%
			Fibrothecoma 0.8%	Dysgermina 0.8%
			Mature teratoma 8.6%	Signet ring stromal tumor 0.8%
				Metastasis 0.8%

Grossly majority of benign lesions are of cystic consistency while malignant lesions are having mixed consistency. On cut section, benign serous tumors contain serous fluid and malignant serous tumors having papillae also. Mucinous tumors, on cut section show multiloculation with presence of mucinous and viscous jelly-like fluid.

Out of 116 cases studied, 48 cases were neoplastic lesions and 68 cases were non-neoplastic lesions. 93.1% lesions were unilateral and 6.8% were bilateral. Among non-neoplastic lesions, follicular cyst is more common comprising 53 cases with endometriosis being the second common lesion comprising 12 cases. Majority of non-neoplastic

lesions were unilateral cysts less than 10 cm in diameter.

The mode of presentation of neoplastic lesions were abdominal mass followed by lower abdominal pain, abnormal vaginal bleeding, ascites and lower backache. The surface epithelial tumors formed largest group(31 cases) in this study followed by germ cell tumors(11 cases) and stromal tumors(5 cases).The commonest surface epithelial tumor was serous cystadenoma(10 cases) followed by mucinous cystadenoma(cases). Occurance of malignancy was seen more in serous tumors than mucinous tumors. In this study, serous papillary cystadenocarcinoma comprises 6 cases and

mucinous cystadenocarcinoma comprises 2 cases. Two cases of endometrioid carcinoma are also noted. Among group of germ cell tumors, mature cystic teratomas(10 cases) were the commonest histopathological finding with single case of dysgerminom. In present study, single case of secondaries to bilateral ovaries from carcinoma of sigmoid is noted.

Discussion

- 1) In present study 93.1% lesions were unilateral and 6.8% were bilateral. This is in concordance with study of Couto et al.^[5]
- 2) According to this study, 64.5% were benign and 35.4% were malignant lesions. This findings are concordance with the study of Maheshwari et al.^[6]
- 3) In this study, majority of benign lesions occurred in age group of 20 to 40 years. This is consistence with study of Ramachandra et al.^[7]
- 4) This study is in concordance with study of Kar et al where incidence of ovarian neoplastic lesions was more common in 41-60 years of age group; in this study it was in 40-70 years age group.^[8]
- 5) In present study, 64.5% are of cystic consistency and 35.4% are of mixed consistency. This result is concordant with studies by Gupta et al.^[9]
- 6) In this study, most common symptom with which the patients presented was abdominal mass followed by abdominal pain, this is concordance with study of Couto et al and Maheshwari et al.^{[5],[6]}
- 7) Among individual tumors, most common benign epithelial tumors were serous cystadenoma(32.2%), followed by mucinous cystadenoma(16.1%).

References

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Among malignant epithelial tumors, serous cystadenocarcinoma (25.8%) was most common followed by mucinous cystadenocarcinoma. These finding were consistence with study of Maheshwari et al.^[6]

8) There were 2 cases of endometrioid carcinoma(6.4%) and that is consistence with study of Maheshwari et al.^[6]

9) Mature cystic teratoma is most common germ cell tumor, accounted 20.8% of total neoplastic lesions. Study of Couto et al showed 15.4%.^[5]

10) One case of metastasis to bilateral ovaries from carcinoma of sigmoid was also found and this is concordance with study of Couto et al.^[5]

Conclusion

Benign lesions are common in younger age and malignant lesions in postmenopausal age. Non-neoplastic lesions comprises major group, followed by benign lesions and lastly malignant lesions. Majority of lesions are unilateral. Major benign lesions were cystic and malignant were mixed in consistency. In case of neoplastic lesions, mucinous epithelial lesions were of larger size as compared to others. Surface epithelial tumors are forming major group of neoplastic lesions. Patients presented mostly with abdominal mass.

Ovarian lesions posses wide range of histopathology so diagnosis of ovarian tumor is challenge to the pathologist. An accurate diagnosis combined with clinical evaluation will help in achieving prompt and appropriate treatment to the patient.

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