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Clinicopathological Study of Ovarian Lesions

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Abstract

Context: Ovarian lesions can present in the form of pain in abdomen, mass lesion or infertility. Any age group can be affected. Mass lesions of ovary are important, as they can be neoplastic or non-neoplastic. Appropriate treatment and prognosis is dependent upon the proper classification and diagnosis of ovarian mass lesions, which can be achieved by histopathological examination of excised ovarian tissue. *Aims*: Present study aims at classifying ovarian lesions histopathologically and finding the frequency of various ovarian tumors. *Methods and Material* : Present study is a retrospective study carried out at tertiary hospital attached to medical college in rural area of Maharashtra. All oophorectomy specimens received in central clinical laboratory from January 2012 to June 2016 were included in the study. Clinical details were obtained from requisition forms submitted by gynaecology department along with the ovarian specimen sent for histopathological examination. For detail information regarding the case, case sheets were obtained from medical record section of the hospital. Histopathological slides were retrieved from filing and studied blindly by two histopathologists independently. Results thus obtained were compared with original reports and finalized. *Results:* A total of 152 cases were included in the study. Histopathological examination was performed on 188 ovaries, of which 59 ovaries didn't show any pathology. Of the remaining 129 ovaries, non-neoplastic lesions were more common (n=85; 65.89%) than neoplastic lesions(n=44; 34.10%). Follicular cysts were commonest amongst non-neoplatic lesions. In neoplastic category benign tumors were more frequent than malignant tumors. Serous cystadenomas were commonest among benign tumors whereas serous cystadenocarcinomas were commonest among malignant tumors. *Conclusions:* Histopathological examination of excised ovarian tissue forms the mainstay of diagnosis in most of the cases.

Keywords: Ovarian Lesions; Follicular Cyst; Serous Cystadenoma; Serous Cystadenocarcinoma; Teratoma.

Introduction

The ovary is complex in its embryology, histology, steroidogenesis, and has the potential to develop malignancy. Therefore ovarian neoplasms exhibit a wide variation in structure and biological behavior. Non neoplastic lesions of ovary frequently form a pelvic mass and often are associated with abnormal hormonal manifestations,thus potentially mimicking an ovarian neoplasm on clinical examination, at operation or on pathologic examination. The ovaries are relatively inaccessible, and therefore easy screening methods for detecting ovarian neoplasms are not available.

Cancer of the ovary represents about 30% of all cancers of the female genital organs [1]. The age adjusted incidence rate varies from less than 2 new cases per 100 000 women in most of southeast Asia and Africa to over 15 cases in Northern and Eastern Europe [1]. In India, during the period of 2004-2005 proportion of ovarian cancer varied from 1.7 to 8.7% of all female cancers in various urban and rural population based registries [2].

Our knowledge about the etiopathogenesis of ovarian tumors is very limited. Thus in order to gain

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insight into the occurrence of ovarian tumors, clinical and histopathological study of excised ovarian tissue forms an important raw material.

Present study was undertaken to know the frequency of neoplastic and nonneoplastic lesions of ovary in the draining area of our hospital. The information thus obtained could form baseline data to suggest screening methods for prevention and early detection of ovarian cancers.

Materials and Methods

Present study is a retrospective analysis of all patients who underwent oophorectomy in our hospital from January 2012 to June 2016. Clinical details were obtained from requisition forms submitted by gynecology department along with the ovarian specimen sent for histopathological examination. For detail information regarding individual case, case sheets were obtained from medical record section of the hospital. Histopathological slides were retrieved from filing and studied blindly by two histopathologists independently. Results thus obtained were compared with original reports and finalized.

Results

A total of 188 ovaries from 152 patients were studied histopathologically, of which 59 ovaries showed normal histology. Out of the remaining 129 ovaries, non-neoplastic lesions were seen in 85 ovaries (65.89%) and neoplastic lesions were detected in 44 ovaries (34.10%). Among the neoplastic tumors 72.72% were benign, 4.54% borderline and 22.72% were malignant tumors.

In present study 3 patients were below 19 years of age, youngest patient being 18 years old. Benign ovarian lesions were common in 4th and 5th decade of life whereas malignant tumors were common above 60 years of age (Table 1).

Abdominal pain followed by abnormal bleeding per vaginum was the predominant presenting symptom in patients with non-neoplastic ovarian mass (Table 2)

Abdominal mass and abdominal pain were chief presenting complaints of patients with neoplastic ovarian lesions(Table 3).

Non neoplastic lesions were found in 85 ovaries of which 22 ovaries were removed with hysterectomy specimens for ovarian reasons and 63 ovaries were removed with hysterectomy specimens for non ovarian indications. Follicular cyst was more common (44/85; 51.76%) followed by corpus luteal cyst (22/85; 25.88%) (Table 4).

Ovarian tumor was detected in 50 ovaries of which 06 cases had bilateral tumors. Surface epithelial tumors were the commonest (29/44) with sex cord stromal tumors and germ cell tumors having equal frequency (7/44). Amongst 29 surface epithelial tumors 18 were benign, 02 borderline and 09 were malignant tumors. Serous cystadenoma was the commonest benign tumor (11/44) whereas serous cystadenocarcinoma was the commonest malignant tumor (8/44). One case of Krukenberg tumor with occult primary was detected in our study (Table 5).

Table 1: Age distribution of neoplastic and non-neoplastic ovarian lesions

Age range	Non-neoplastic lesions	Neoplastic lesions			Total
		Benign	Borderline	Malignant	
<19	03	00	00	00	03
20 - 39	42	11	00	02	55
40 - 59	36	13	01	04	54
>60	04	06	01	06	17
Total	85	30	02	12	129

Table 2: Modes of presentation of non-neoplastic ovarian lesions

Complaints	Non-neoplastic ovarian lesions					Total
	Follicular cyst	Corpus luteal cyst	Endometriotic cyst	Hemorrhagic cyst	Granulomatous oophoritis including tuberculous etiology	
Abdominal pain	37	16	05	07	02	67
Abdominal mass	00	01	00	01	00	02
Abnormal vaginal bleeding	21	11	01	06	00	39
Haematuria	00	00	00	00	01	01
White discharge	02	02	02	02	00	07
Total	60	30	07	16	03	116

Table 3: Modes of presentation of neoplastic ovarian lesions

Complaints	Tumor category			Total
	Benign	Borderline	Malignant	
Abdominal mass	18	02	07	27
Abdominal pain	15	02	10	27
Premenopausal abnormal vaginal bleeding	05	00		05
Post menopausal bleeding	01	00		01
Ascites	01	00	01	02
Loss of appetite	00	00	01	01
Weight loss	00	00	01	01
Fever	00	00	01	01
Burning micturition	01	00	00	01
White discharge	03	00	00	03
Amenorrhoea	00	00	01	01
Total	44	04	22	70

Table 4: Histopathological diagnosis of non-neoplastic ovarian lesions

Histopathological diagnosis	Oophorectomy done for ovarian reasons	Oophorectomy done for non-ovarian reasons	Total
Simple cyst			
1. Follicular cyst	12	32	44
2. Corpus luteal cyst	05	17	22
3. Endometriotic cyst	01	05	06
4. Hemorrhagic cyst	03	07	10
Inflammatory lesions			
1.Granulomatous oophoritis	01	00	01
2. Tuberculous oophoritis	00	02	02
Total	22	63	85

Table 5: Frequency of ovarian tumors as per histopathological diagnosis in present study

Histopathological category of tumor	Number of cases	%
Surface epithelial tumors Serous	21	47.72
Benign	11	25
Borderline	02	4.54
Malignant	08	18.18
Mucinous	06	13.63
Benign	05	11.36
Borderline	00	00
Malignant	01	2.27
Endometrioid	00	00
Clear cell	00	00
Brenner tumor	00	00
Mixed	00	00
Cystadenofibroma	02	4.54
Sex cord stromal tumors	07	15.90
Granulosa cell tumor	01	2.27
Fibroma	04	9.09
Thecoma	00	00
Fibrothecoma	02	4.54
SertoliLeydig cell tumor	00	00
Steroid lipid cell tumor	00	00
Germ cell tumor Teratoma	07	15.90
Mature	05	11.36
Immature	00	
Monodermal	01	2.27
Dysgerminoma	01	2.27
Yolk sac tumor	00	00
Mixed germ cell tumors	00	00
Metastasis from non ovarian primary	01	2.27
Total	**44**	

Table 6: Comparison of incidence of neoplastic ovarian lesions in various studies

Study group	Tumor grade		
	Benign	Borderline	Malignant
Bodal et al[10]	75%	1.6%	23.34%
Yogambal et al[9]	78.6%	0.75%	20.65%
Zaman etal[12]	78.70%	-	21.29%
Sharadha et al[6]	87.8%	2.14%	10%
Amale et al[11]	86.92%	1.53%	11.43%
Jha et al[7]	83.9%	-	16.1%
Forae et al[8]	84.7%	-	15.3%
Thakkar et al[4]	84.5%	2.3%	13.2%
Present study	72.72%	4.54%	22.72%

Discussion

In present study maximum number of ovarian non-neoplastic lesions were encountered in second and third decade of life. Maximum number of ovarian neoplastic lesions were seen in 4th and 5thdecade of life. Similar findings related to age were reported by Kar et al [3] and nialli et al [4]. However Pilli et al reported maximum cases of ovarian tumors in 2nd and 3rd decade.

In present study maximum number of benign tumor were found in 4th and 5th decade and all malignant tumors were found above 60 years of age. However Sharadha et al [6], Jha et al [7] and Forae et al [8] have reported benign tumors common in 3rd decade and malignant tumors common in 4th decade of life. This difference in age incidence of benign and malignant tumors could be attributed to regional differences and the difference in time period during which the study was carried out.

The commonest presenting complaint in our study was pain in abdomen followed by abnormal bleeding per vaginum for non-neoplastic lesions. Neoplastic lesions of ovary commonly presented with abdominal mass, or pain or mass and pain both in combination. Similar presenting complaints were reported by other authors as well [4,5,9, 10].

Sharadha et al reported pain in abdomen as the commonest presenting symptom for non-neoplastic and benign tumors of ovary. However for malignant ovarian tumors the commonest presenting symptoms were vague abdominal discomfort and constitutional symptoms [6].

In our study, non-neoplastic lesions were more (85/129;65.89%) than neoplastic lesions (44/129; 34.10%). The finding is comparable with that of Zaman et al [12] and Bodal et al [10]. However in their study luteal cysts were more common followed by follicular cysts, whereas in our study follicular cyst were slightly more common than corpus luteal cyst. Sharadha et al reported 68% neoplastic lesions and 32% non neoplastic lesions with endometriotic cyst contributing to majority of non neoplastic lesions.

In present study majority of the ovarian tumors were benign tumors accounting for 72.72%, 22.72% were malignant tumors and 4.54% were borderline tumors. Findings are comparable with few Indian and few International studies (Table 6).

Serous cystadenoma was the commonest benign tumor (34.37%) encountered in our study, followed in frequency by mature teratoma (18.75%), mucinous cystadenomas (15.62%) and fibromas (12.5%). Findings are comparable with that of Zaman et al [12]. Other researchers also reported serous cystadenoma as commonest benign ovarian tumor [6,9,11]. However, Forae et al reported germ cell tumor as the commonest benign tumor of ovary [8].

Commonest malignant ovarian tumor encountered in our study was serous cystadenocarcinoma (8/12; 66.66%). One case each of mucinous cystadenocarcinoma, dysgerminoma, granulosa cell tumor and metastatic Krukenberg tumor was detected in our study. Most of the study series reported serous cystadenocarcinoma as commonest ovarian malignancy [6,7,10,12,11].

Thakkar et al reported clear cell carcinoma as the commonest ovarian malignancy [4] and Forae et al reported malignant germ cell tumor as the commonest ovarian malignancy [8].

Exact etiology of ovarian malignancy is not yet known. Postmenopausal status with high dose estrogen therapy for 10 year or more and obesity are shown to have increased risk of ovarian cancer [1].

Our study being a retrospective study, we could not comment on the relationship between age at menarche/menopause, parity, hormonal treatment, use of ovulation induction agents and obesity with occurrence of ovarian tumors.

Conclusion

Follicular cysts, serous cystadenomas and serous cystadenocarcinomas are the commonest non neoplastic lesions, benign tumors and malignant ovarian tumors respectively in our study. Histopathological examination of excised ovarian tissue still remains the mainstay in diagnosing ovarian tumors. Health awareness amongst the people, their literacy level, lifestyle and easy availability of healthcare facilities could be some of the factors directly or indirectly responsible for changing trends in the epidemiology of ovarian tumors.

A population based, well planned larger prospective study is suggested to reveal the etiologic basis of ovarian tumors.

Conflict of Interest:NIL

Key Messages

Changing clinicopathological trends related to ovarian lesions are reported in few studies. However results of present study does not report any change in clinicopathoogical trends and are comparable with that of few other studies. This disparity in between different studies may be due to regional differences and in part might be attributed to health awareness amongst the people, their literacy level, life style and easy availability of healthcare facilities.

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