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CLINICAL EVALUATION AND HISTOPATHOLOGICAL ANALYSIS OF OVARIAN LESIONS: A STUDY OF 72 CASES

Pathology

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ABSTRACT

Ovaries are common site of non-neoplastic and neoplastic lesions. They can present at any age group and exhibit a wide variation in structure and biological behaviour. 72 cases of ovarian lesions were studied over a period of 1 year (Study period 2011 - 2012) Sections were stained with H&E stain. Majority of the lesions were neoplastic (83.33%) with surface epithelial tumors being the commonest followed by Germ cell and Sex-cord stromal tumors. Non neoplastic lesions constituted a small group (16.67%) Most of the benign tumors occurred between 21- 40 years of age, while the malignant lesions presented commonly between 41-60 years. The most common histological types were serous cystadenoma (35.72%), followed by mucinous cystadenoma (30.95%) and mature teratoma (19.04%) Major proportion of malignant ovarian tumors was contributed by surface epithelial tumors (78.55%) Serous cystadenocarcinoma was the predominant malignant tumor (57.15%). Borderline tumors accounted for 23.33% of the cases.

KEYWORDS

Ovarian lesions, neoplastic, non- neoplastic

INTRODUCTION

The ovary is complex and unique in its embryology, histology and steroidogenesis. Therefore ovarian enlargements exhibit a wide variation in structure and biological behavior and have the potential to develop into malignancy[1] The ovary is the third most common site for primary malignancy in the female genital tract after cervix and the endometrium[2] Most of the women, having malignancy are diagnosed at an advanced stage. This late presentation is due to vagueness of symptoms and insidious nature of disease. Frequent presenting symptoms include abdominal pain dyspepsia, urinary and gastrointestinal symptoms[3] Massive ovarian enlargement causes compression of pelvic structures, ascites, abdominal distension and vaginal bleeding[2]

In this study we reviewed various presentations of ovarian tumors with regards to the occurrence, clinical findings, gross features and histological characteristics.

MATERIALS AND METHODS

The study was based on histomorphological evaluation of 72 cases of ovarian neoplastic and non-neoplastic lesions (Aug 2011 to Oct 2012) Detailed clinical information and radiologic findings were recorded. These included presenting symptoms, examination findings, ultrasonography (USG)/computed tomography (CT) findings and biochemical investigations including serum tumor markers alpha fetoprotein(AFP) and human chorionic gonadotrophin(HCG). Oophorectomy specimens as well as hysterectomy with unilateral or bilateral salphingoophorectomy specimens were included in this study.

Thorough gross examination was carried out and salient features were noted down.

Sections were stained with conventional Haematoxylin and Eosin (H&E) stain. The lesions were classified and studied as per the W.H.O. classification of ovarian tumors.

RESULTS

The total no. of 72 cases, 12 cases (16.66%) were non-neoplastic and 60 cases (83.33%) were neoplastic lesions.

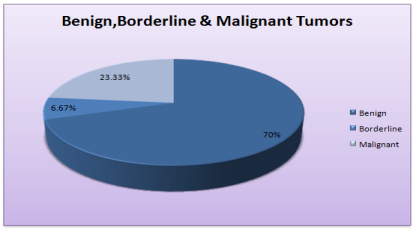

Figure 1

Table 1- Age Distribution of Benign, Borderline and Malignant Neoplastic Lesions

		Age range(years) N (%)				
S. No.	Tumors	<20	21-40	41-60	>60	Total
1	Benign	3(7.14%)	19(45.24%)	15(35.71%)	5(11.91%)	42(100%)
2	Malignant	1(7.14%)	3(21.42%)	7(50%)	3(21.42%)	14(100%)
3	Borderline	0(0%)	2(50.00%)	2(50.00%)	0(0.00%)	4(100%)
Total		4(6.67%)	24(40%)	24(40%)	8(13.33%)	60(100%)

Majority of non neoplastic lesions were seen in the age group of 20 to 40 years.

Table II Histological types of Neoplastic Lesions

S. No.	Tumors	No. of cases	Percentage (%)
1	Serous Cystadenoma	15	25
2	Borderline Serous Tumor	3	5
3	Serous Cystadenocarcinoma	8	13.33
4	Mucinous Cystadenoma	13	21.66
5	Borderline Mucinous Tumor	1	1.67
6	Mucinous Cystadenocarcinoma	3	5
7	Serous Cystadenofibroma	2	3.33
8	Granulosa Cell Tumor	1	1.67
9	Fibroma	4	6.67
10	Mature Cystic Teratoma	8	13.33
11	Yolk sac (Endodermal Sinus) Tumor	1	1.67
13	Metastatic Tumor	1	1.67
	Total	60	100

Amongst the non neoplastic lesions, follicular cysts formed the largest group (66.67%); followed by corpus luteal cysts (25%) and endometriosis (8.33%).

78.33% of the cases had unilateral involvement, majority of them being benign whereas cases having bilateral involvement were mostly of borderline and malignant types. Non neoplastic lesions were unilateral in 83.33% of the cases.

Among neoplastic lesions, (60%) were cystic tumors, (6.67%) were solid and (33.33%) were of mixed consistency while the majority of non neoplastic lesions were cystic.

DISCUSSION

Ovarian tumors can be difficult to diagnose due to a variety of pathologic conditions that can affect the ovaries and present with similar manifestations. The diagnosis is mainly dependent upon histopathological examination with clinical data, radiological findings

and gross features providing important diagnostic clues[4]

In the present study, the median age of presentation of all ovarian tumors was 35 years while the median age of presentation of all malignant lesions was 48 years. Similar studies by other investigators have highlighted that most ovarian tumors (47.2%) are seen between 21 and 40 years, whereas most malignant tumors have been noted (73.1%) above 40 years.[5] A higher median age of 60-65 years for malignant lesions has been reported from the western countries and from southern and western part of India. [3],[6],[7] Malignant epithelial and sex cord stromal tumors have been found to be more common after 50 years, while germ cell tumors are more prevalent before the age of 20.[8]

The major fraction of ovarian neoplasm in the present study comprises benign tumors (63.1%), followed by malignant (29.6%) and borderline tumors (7.3%). In a similar study, Gupta *et al*. reported 72.9% benign, 4.1% borderline and 22.9% malignant tumors. [9] A higher proportion (nearly 20%) of borderline cases has been reported in other studies. [10]

Ovarian tumors display histological heterogeneity. [11],[12],[13] The histological classification of ovarian tumors by the World Health Organization (WHO) is based on the histogenesis of the normal ovary. [14] Histologically, surface epithelial tumors are the commonest. These tumors comprise 48.8% and 63.5% of all ovarian tumors in different studies. [9],[15]Endometrioid ovarian carcinoma comprises 10-25% of all primary ovarian carcinomas in literature.[16],[17] Most of these reports are from the western part of the world. In a study from eastern India, the endometrioid tumors were found to be only 5% of all malignant tumors.[18] Similarly, in our study; endometrioid tumors comprised 4.2% of all malignant ovarian tumors.

Germ cell tumor was the second major group of tumors in the present study (23.1%). The proportion of germ cell tumors varied in other studies from 23.9 to 42.2%. [5],[9] Significantly higher number of germ cell tumors has been reported from South Africa.[19] Mature teratoma was the commonest benign germ cell tumor in our study, comprising 15.9% of all ovarian tumors. Pregnancy has been an association of mature teratoma in 3% of patients and malignant changes are observed in 5% cases.[20] In a study of 41 patients with malignant ovarian germ cell tumors, 23 (56%) had dysgerminomas, 8 (19.5%) had mixed germ cell tumors, 3 (7.3%) had yolk sac tumors, 3 (7.3%) had immature teratomas, 2 (4.8%) had squamous cell carcinoma arising from a mature teratoma, 1 (2.4%) had embryonal carcinoma and 1 had choriocarcinoma. [21]

In contrast to the above study, a higher number of yolk sac tumors were noted in our study (17.4% of malignant germ cell tumors and 1.2% of all ovarian tumors). The distribution of sex cord stromal tumors and metastatic tumors in the present study was similar to that reported in other studies.[5],[9] Ovarian tumors are well known for bilateral involvement. In one study, using data collected by the Surveillance Epidemiology and End Results (SEER) program including 22,328 women diagnosed with a borderline or malignant epithelial ovarian tumor, malignant serous tumors were found to be bilateral in 57.5% of cases. Corresponding figures for mucinous, clear cell, endometrioid and other epithelial tumors were 21.3%, 13.3%, 26.8%, and 35.6%, respectively. Borderline serous tumors were bilateral in 29.8% of the cases compared to only 7.0% of mucinous tumors. [22] Bilaterality in borderline serous tumor has been reported to be as high as 40%, whereas over 90% of the mucinous borderline tumors are unilateral. This is an important statistic because bilaterality of a mucinous tumor should always suggest the possibility of a metastatic tumor to the ovaries from the appendix or other gastrointestinal sites, the pancreas or the endocervix, rather than a primary ovarian neoplasm.[23] In the present study, the most common ovarian tumor with bilateral involvement was malignant serous tumor (49.5% bilateral) followed by 28.1% of malignant mucinous tumors. Higher number of borderline serous tumors were found to be bilateral in our study (27.4%) compared to mucinous borderline tumors (15.7%).

Prognosis is strongly associated with the stage at diagnosis, but the histologic grade also plays a prognostic role, particularly in predicting recurrence.[24] Up to 70% of patients with epithelial ovarian cancer present at stage III or IV.[25] Epithelial ovarian cancer histologically determined to be of low malignant potential in 15% of patients, is often diagnosed at stage I, and has a 95-99% 10-year survival rate. [26] Older women are more likely to be initially diagnosed with advanced disease. Therefore, they experience the worse prognoses. For the oldest women, those aged 85 years and older, there is a very high percentage of unknown stage disease (18%). This category most likely includes advanced stage disease. A mere 11% of women of 85 years and older are initially diagnosed with stage I disease, as compared to 47% of women under 45 years.[27] In the present study, we encountered 60% stage III and 10% stage IV disease.

CONCLUSION

The results of present study are comparable to other series of studies regarding occurrence with respect to age, bilaterality, gross features and microscopy.Certain non – neoplastic lesions of the ovary frequently form a pelvic mass and potentially mimic an ovarian neoplasm. Their proper recognition is therefore important to allow appropriate therapy.

Effective therapeutic management of ovarian malignant tumors continues to be a challenge to the oncologist. An accurate histopathological diagnosis combine with clinical staging will help in rendering prompt and appropriate treatment to the patient.

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REFERENCES

1. Tortolero-Luna G, Mitchell MF. The epidemiology of ovarian cancer. J Cell Biochem Suppl 1995;23:200-7. [PUBMED]
2. Parkin DM, Bray F, Ferlay J, Pisani P. Estimating the world cancer burden: GLOBOCAN 2000. Int J Cancer 2001;94:153-6. [PUBMED]
3. Murthy NS, Shalini S, Suman G, Pruthvish S, Mathew A. Changing trends in incidence of ovarian cancer - the Indian scenario. Asian Pac J Cancer Prev 2009;10:1025-30. [PUBMED]
4. Sutton CL, McKinney CD, Jones JE, Gay SB. Ovarian masses revisited: Radiologic and pathologic correlation. Radiographics 1992;12:953-77.
5. Jha R, Karki S. Histological pattern of ovarian tumors and their age distribution. Nepal Med Coll J 2008;10:81-5. [PUBMED]
6. Yancik R. Ovarian cancer. Age contrasts in incidence, histology, disease stage at diagnosis, and mortality. Cancer 1993;71 Suppl 2:517-23.
7. Quirk JT, Natarajan N. Ovarian cancer incidence in the United States, 1992-99. Gynecol Oncol 2005;97:519-23. [PUBMED]
8. Gilani MM, Behnamfar F, Zamani F, Zamani N. Frequency of different types ovarian cancer in Vali-e-Asr Hospital (Tehran University of Medical Sciences) 2001-2003. Pak J Biol Sci 2007;10:3026-8. [PUBMED]
9. Gupta N, Bisht D, Agarwal AK, Sharma VK. Retrospective and prospective study of ovarian tumours and tumour-like lesions. Indian J Pathol Microbiol 2007;50:525-7. [PUBMED]
10. Rettenmaier MA, Lopez K, Abaid LN, Brown JV 3rd, Micha JP, Goldstein BH. Borderline ovarian tumors and extended patient follow-up: An individual institution's experience. J Surg Oncol 2010;101:18-21. [PUBMED] [FULLTEXT]
11. Kurman RJ. Blaustein's pathology of the female genital tract. 4 th ed. New York: Springer; 1994.
12. Gompel C, Silverberg SG. Pathology in gynecology and obstetrics. 4 th ed. Philadelphia: Lippincott; 1994.
13. Sternberg SS, Mills SE. Surgical pathology of the female reproductive system and peritoneum. New York: Raven; 1991.
14. Tavassoli FA, Devilee P, editors. Pathology and genetics of tumors of the breast and female genital tracts. Lyon: IARC Press; 2003. p. 114.
15. Ahmad Z, Kayani N, Hasan SH, Muzaffar S, Gill MS. Histological pattern of ovarian neoplasma. J Pak Med Assoc 2000;50:416-9. [PUBMED]
16. Kline RC, Wharton JT, Atkinson EN, Burke TW, Gershenson DM, Edward CL. Endometrioid carcinoma of ovary. Retrospective review of 145 cases. Gynecol Oncol 1990;39:337-46.
17. Long ME, Taylor HC Jr. Endometroid carcinoma of ovary. Am J Obstet Gynecol 1964;90:936-50. [PUBMED]
18. Basu P, De P, Mandal S, Ray K, Biswas J. Study of 'patterns of care' of ovarian cancer patients in a specialized cancer institute in Kolkata, eastern India. Indian J Cancer 2009;46:28-33. [PUBMED]
19. Lancaster EJ, Muthuphei MN. Ovarian tumours in Africans: A study of 512 cases. Cent Afr J Med 1995;41:245-8. [PUBMED]
20. Papadias K, Kairi-Vassilatou E, Kontogiani-Katsaros K, Argeitis J, Kondis-Pafitis A, Greatsas G. Teratomas of the ovary: A clinico-pathological evaluation of 87 patients from one institution during a 10-year period. Eur J Gynaecol Oncol 2005;26:446-8. [PUBMED]
21. Topuz S, Iyibozkurt AC, Akhan SE, Keskin N, Yavuz E, Salihoglu Y, et al. Malignant germ cell tumors of the ovary: A review of 41 cases and risk factors for recurrence. Eur J Gynaecol Oncol 2008;29:635-7. [PUBMED]
22. Boger-Megiddo I, Weiss NS. Histologic subtypes and laterality of primary epithelial ovarian tumors. Gynecol Oncol 2005;97:80-3. [PUBMED]
23. Hart WR. Borderline epithelial tumors of the ovary. Mod Pathol 2005;18 Suppl 2:S33-50. [PUBMED]
24. Gadducci A, Sartori E, Maggino T, Zola P, Landoni F, Fanucchi A, et al. Analysis of failures after negative second-look in patients with advanced ovarian cancer: An Italian multicenter study. Gynecol Oncol 1998;68:150-5. [PUBMED]
25. Pecorrelli S, Creasman WT, Pettersson F, Benedet JL, Shaperd JH, editors. FIGO annual report on the results of treatment in gynecologic cancer. J Epidemiol Biostat 1998;3:75-102.
26. Seidman JD, Kurman RJ. Ovarian serous borderline tumors: A critical review of the literature with emphasis on prognostic indicators. Hum Pathol 2000;31:539-57. [PUBMED]
27. Roett MA, Evans P. Ovarian cancer: An overview. Am Fam Physician 2009;80:609-16. [PUBMED]