ORIGINAL RESEARCH PAPER

Volume-6 | Issue-10 | October-2017 | ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 78.46

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

"HISTOPATHOLOGICAL STUDY OF NEOPLASTIC AND NON- NEOPLASTIC LESIONS OF THE OVARY"

Pathology

Dr. Nesargi Aditya Milind M.D(pathology), D.N.B(pathology),M.N.A.M.S, Assistant professor, Dept. of Pathology, Shrimati Kashibai Navale Medical college, Pune, Maharashtra *Corresponding author

Dr. Ramteerthakar Nayan Anant M.D (pathology) Associate professor, Goverment Medical College, Miraj, Maharashtra

ABSTRACT

Introduction: Ovarian lesions are one of the major causes of gynecological problems in females

Aim: This study was done to analyze the frequency of ovarian lesions, their clinico-histological features in a rural set up.

Materials and Methods: This study was carried out at Department of Pathology, Government Medical college, Miraj, Maharashtra, over period of 4.5years.

Results: Out of total 87 lesions of the ovary, neoplastic lesions were more common (67 case-77.02%) than non-neoplastic lesions (20 cases-22.98%). Out of 67 neoplastic lesions, Surface epithelial stromal tumours were the most common ovarian neoplasm (43 cases-64.18%). Overall, Serous cystadenoma was the most common ovarian tumour (31.34%). Among total 20 non-neoplastic lesions, follicular cysts were most common (46.15%).

Conclusion: The morphologic diversity of ovarian masses poses many challenges. Clinical data, operative findings and gross features of the lesions may provide important, and at time decisive diagnostic clues.

KEYWORDS

Ovarian cysts, ovary, ovarian neoplasm

INTRODUCTION

A number of non-neoplastic and neoplastic lesions occur within the ovaries. They can present from the neonatal period to post-menopause. Most are functional in nature and resolve with minimal treatment.[1,2] Some of the non-neoplastic lesions can be confused with neoplasm clinically, intraoperatively, or on pathological examination.[3] Differentiation between many different cystic ovarian abnormalities with nonmalignant features is relevant since proper treatment depends on the histological abnormality. Ovarian carcinoma is the 5th most common cause of cancer related deaths in Western world and leading cause of death from gynaecologic malignancy.[4–6] The 5 year survival is only 30–40% and is due to the fact that most ovarian cancers are inoperable when first discovered. Ovarian tumours display histological heterogeneity. The histological classification of ovarian tumours by the World Health Organization (WHO) is based on the histogenesis of the normal ovary.[7] Most tumours of the ovary can be placed into one of three major categories—surface epithelial-stromal tumours, sex cord-stromal tumours, and germ cell tumours according to the anatomic structures from which the tumours presumably originate.[8] Amongst the various non-neoplastic lesions the most common cystic structures found in the ovary are Follicular cysts which develop as a result of temporary pathologic variation of a normal physiological process. Functional cysts are often asymptomatic and seen in younger patients having symptoms of dysmenorrhea, menorrhagia and abdominal pain. Corpus luteal cysts are less prevalent than follicular cysts and mainly result from intra-cystic hemorrhage. They are hormonally inactive but may tend to rupture with intraperitoneal bleeding[9].

MATERIALAND METHODS

The present retrospective and prospective study was undertaken in Department of Pathology Government Medical college ,Miraj, Maharashtra, over duration of 4.5 years from January 2009 to June 2013. The materials for this study, ovarian specimen was obtained from hysterectomy specimen with unilateral or bilateral adnexa, and oophorectomy and/or cystectomy specimens received in the department. Clinical and gross details and histopathological findings were analysed. The tissues were processed by routine paraffin techniques and sections stained with Haematoxylin and Eosin. The neoplastic lesions were classified according to World Health Organization (WHO) classification 2002

RESULTS-

Out of total 87 lesions of the ovary studied, neoplastic lesions were maximum and comprised of 67 cases (77.02%) and non- neoplastic lesions accounted for 20 cases (22.98%). In the present study lump in abdomen was the most common symptom (44.82%), followed by pain in abdomen(39.08%) few patients presented with more than one symptom.

Table 1. Showing frequency of presenting signs and symptoms in the present study

Symptoms	Cases	Percentage
Lump in abdomen	39	44.82%
Pain in abdomen	34	39.08%
Lump and pain in abdomen	11	12.64%
Virilization	01	1.15%
Ascites	01	1.15%
Increased frequency of mucturition	02	2.30%
Fever	04	4.60%
Vomiting	02	2.30%

In the present study Surface epithelial stromal tumours were the most common ovarian neoplasm accounted followed by germ cell tumours, Sex cord stromal tumours and a single case of secondary tumour. Overall, Serous cystadenoma was the most common ovarian tumour followed by mature teratoma and mucinous cystadenoma. [Table 2].

Table- 2 Analysis of all neoplastic lesions according to the histopathological types

Sr no	Histopathological type	No of cases	%
A	**Surface epithelial-stromal tumours- (43 cases) 64.18%**		
1	**a)Serous tumours- (23 cass, 34.33%)**		
	I) Serous cystadenoma	21	31.34%
	ii) Serous adenocarcinoma	2	2.99%
2	**b) Mucinous tumours- (16 cases, 23.88%)**		
	I) Mucinous cystadenoma	13	19.40%
	ii) Mucinous borderline tumour	1	1.49%
	iii) Mucinous adenocarcinoma	2	2.99%
3	**c) Endometrioid tumours (3 cases, 4.47%)**		
	I) Endometrioid Cystadenofibroma	1	1.49%
	ii) Endometrioid borderline tumour	1	1.49%
	iii) Endometrioid Adenocarcinoma	1	1.49%
4	**d) Benign mixed epithelial tumour (1 case, 1.49%)**	1	1.49
B	**Germ cell tumours- (17 cases-25.37%)**		
5	i) Mature cystic teratoma	16	23.88%
6	ii) Dysgerminoma	1	1.49%

C	**Sex cord-stromal tumours (6 cases-8.96%)**		
7	I) Granulosa cell tumour	2	2.99%
8	ii) Fibroma	1	1.49%
9	iii) Thecoma	1	1.49%
11	iv) Sclerosing stromal tumour	1	1.49%
11	v) Sex cord tumour with annular tubules	1	1.49%
12	**Secondary tumour (1 case-1.49%)**	1	1.49%
	Total	**67**	**100.00%**

Total five cases of malignant surface epithelial stromal tumours were noted, serous adenocarcinoma and mucinous adenocarcinoma two cases each followed by a single case of endometrioid adenocarcinoma of which 60% cases were noted in 5th decade. A single cases of benign mixed epithelial tumour having mucinous cystadenoma associated with Brenner tumour was noted . Mature cystic teratoma was found to be commonest among sex cord stromal tumour and was observed from 18 - 69 years with mean age 34.5 years. A single case of dysgerminom was noted in 2nd decade (20years) had mixed consistency and bilateral involvement. A single case of secondary tumour in 50 years patient with superficial spreading squamous cell carcinoma of cervix involving the endometrium, left fallopian tube and left ovary noted. Out of total 67 cases of ovarian tumours, unilateral involvement was commonest and was seen in 63 cases (94.03%). Bilateral involvement was seen in only 4 cases (5.97%). Grossly maximum tumours had cystic consistency (74.62%) followed by mixed (22.39%) and solid (2.99%).Among the non-neoplastic lesions of ovary, non neoplastic ovarian cyst (65%) were more common than inflammatory lesions (35%). Out of 13 cases of non neoplastic ovarian cysts, follicular cyst were commonest (46.15%), followed by simple cyst (30.76%) and corpus lutem cyst (23.07%) with mean age of presentation 28.16, 40.75, 23.66 years respectively. **(Table-3)**

Table - 3 Analysis of frequency, mean age and morphological features of non neoplastic lesions of ovary

Histological Type		**Cases**	**%**	**Mean Age in Years**
Inflammatiory lesions 7 cases (35%)	Non specific inflammation	5	25	35.8
	Xanthogranulomatous- oophoritis.	2	10	30
Non neoplastic ovarian cysts. 13 cases (65%)	Follicular cyst	6	30	28.16
	Simple cyst	4	20	40.75
	Corpus luteum cyst	3	15.	23.66
	Total	20	100	-

DISCUSSION-

In the present study neoplastic lesions (77.02%) were more common than non neoplastic lesions (22.98%). Similar observation was noted by Ashraf et al(2012)[10] and Iqbal et al (2013).[11] Lump in abdomen was the most common clinical presentation (44.82%), followed by Pain in abdomen (39.08%). Similar observation was noted by Tariq s et al(2011)[12] In the present study Surface epithelial stromal tumours were the most common ovarian neoplasm (64.18%) followed by germ cell tumours (25.37%), Sex cord stromal tumours (8.96%). This observation was similar to the observations done by other authors. **(Table-4)**

Table-4 Comparison of frequency of neoplastic lesions

	Gupta et al (1986)[13]	**Prabhakar and Maingi (1989)[14]**	**Couto et al. (1994)[15]**	**Sarkar (1996)[16]**	**Zaman et al (2010)[17]**	**Swamy and Satyanarayana et al (2010)[18]**	**Ashraf et al (2012)[10]**	**Present study (2013)**
Surface epithelial stromal tumours	54.7%	60.69%	73.76%	66.8%	68.38%	61.6%	52.76%	64.18%
Germ cell tumours	31.18%	27%	20.40%	27.9%	23.87%	21.7%	43.31%	25.37%
Sex cord stromal tumours	7.06%	8.00%	4.08%	5.3%	5.8%	11.7%	3.15%	8.96%
Secondary Tumour	6.28%	3.14%	-	-	0.60%	5.0%	0.78%	1.49%

Serous cystadenoma was the most common ovarian tumour of all ovarian tumours. This finding was similar to the observation done by Prabhakar and Maingi (1989)[14] Couto et al. (1994)[15], and Zaman et al (2010)[17] and Ashraf et al (2012)[10]**.** In our study, unilateral involvement of ovary by the tumours was more common than bilateral involvement. Similar observation was reported by other authors. **(Table- 5)**

Table- 5 Comparison of frequency of unilateral and bilateral involvement of ovarian tumours

	Verma and Bhatia (1980)[19]	**Prabhakar and Maingi (1989)[14]**	**Couto et al (1994)[15]**	**Jha and Karki (2008)[20]**	**Present study (2013)**
Unilateral	88.09%	90.99%	91.25%	87.20%	94.03%
Bilateral	11.91%	9.11%	8.75%	12.80%	5.97%

In the present study, grossly maximum tumours were cystic (74.62%) Pradhan et al (2012)[21], Couto et al. (1994)[15] reported similar findings.

Table - 6 Comparison of consistency of all ovarian tumours.

Consistency	**Couto et al. (1994)[15]**	**Pradhan et al (2012)[21]**	**Present study%**
Cystic	61.23%	44.50%	74.62%
Mixed (solid and cystic)	28.57%	42.00%	22.39%
Solid	10.20%	13.20%	2.99%

Maheshwari et al (1994)[22] noted Mucinous adenocarcinoma more common than serous adenocarcinoma, while, Prabhakar and Maingi(1989)[14], Pradhan et al (2012)[21] reported serous adenocarcinoma more common than Mucinous adenocarcinoma. However, in the present study, Mucinous adenocarcinoma and serous adenocarcinoma occurred in equal frequency (40% each). 60% of malignant surface epithelial stromal tumours were noted in 5th decade. Similarly, Jha and Karki (2008)[20] also noted maximum number of malignant epithelial stromal tumours in 5th decade. Mondal et al (2011)[7] also noted malignant epithelial stromal tumours predominantly in 41-60 year age group. Stratified squamous epithelium was the most common structure observed in all 16 cases of mature cystic teratoma, (100%), followed by skin with adnexa (81.25%), fat/ adipose tissue (68.75%), cartilage (18.75%) and respiratory epithelium (6.25%) This observation in the present study was comparable with Caruso et al (1971)[23]. Among non-neoplastic lesions of ovary, non neoplastic cystic lesions were most common (65.0%), followed by inflammatory lesions (35%). Similarly Alam et al (2010)[24] and Ashraf et al (2012)[10] noted similar observation. Among non-neoplastic cystic lesions, follicular cyst were most common (46.15%) followed by simple cyst (30.77%), corpus luteum cyst (23.07%). Iqbal et al (2013)[11] also noted similar findings. However according to Zaman et al (2010)[17] and Alam et al (2010)[24] corpus luteal cyst was the most common among the cystic lesions.

Conclusion

To conclude, number of various clinical parameters such as age of the patient, presenting complaints, location of lump, dimensions of lump, on one hand and histological type of ovarian neoplasm on the other hand and advanced newer diagnostic modalities can help to early diagnosis and to plan the line of treatment. Because of the geographic location, poverty and illiteracy, patients seek medical advice late in rural health facility. So, awareness among public and doctors, educating people, passive surveillance, and community screening facility will be helpful in early detection of the ovarian lesions and tumour.

Figure-1 photomicrograph of mature cystic teratoma showing stratified squamous epithelium, adnexal structures and fat. (H&E, x100.)

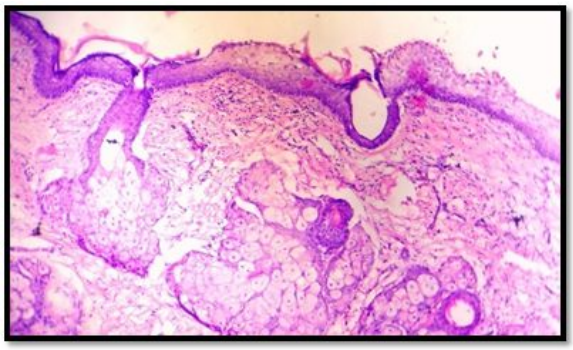
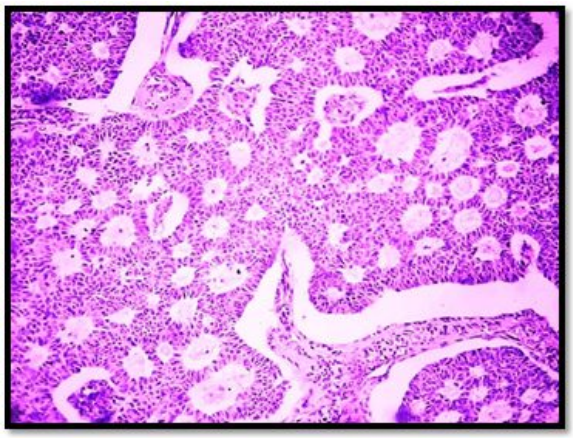


Figure 2- photomicrograph showing adult granulosa cell tumour, showing microfollicular pattern and Call Exener bodies. (H&E, x100.)



Reference

1. Grimes DA, Jones LB, Lopez LM, Schulz KF. Oral contraceptives for functional ovarian cysts. Cochrane Database Syst Rev 2006;4:CD006134.
2. Holt VL, Cushing-Haugen KL, Daling JR. Risk of Functional Ovarian Cyst: Effects of Smoking and Marijuana Use according to Body Mass Index. Am J Epidemiol 2005;161:520–5.
3. Clement PB. Selected miscellaneous ovarian lesions: small cell carcinomas, mesothelial lesions, mesenchymal andmixed neoplasms, and non-neoplastic lesions. Modern Pathol 2005;18:113–29.
4. Shah S, Hishikar VA. Incidence and Management of Ovarian Tumors. Bombay Hospital J 2008;50(1):30–3.
5. Stewart SL, Querec TD, Ochman AR, Gruver BN, Bao R, Babb JS, et al. Characterization of a Carcinogenesis Rat Model of Ovarian Preneoplasia and Neoplasia. Cancer Res 2004;64:8177–83
6. Auersperg N, Wong AST, Choi KC, Kang SK, Leung PCK. Ovarian Surface Epithelium: Biology, Endocrinology, and Pathology. Endocr Rev 2001;22(2):255–88.
7. Mondal SK, Banyopadhyay R, Nag DR, Roychowdhury S, Mondal PK, Sinha SK. Histologic pattern, bilaterality and clinical evaluation of 957 ovarian neoplasms: A 10-year study in a tertiary hospital of eastern India. J Can Res Ther 2011;7:433-7
8. Chen VW, Ruiz B, Killeen JL, Cote TR, Wu XC, Correa CN. Pathology and Classification of Ovarian tumors. Cancer 2003; 97 (10): p 2631-3642
9. Farah Y, Arif T, Shahida S, Faiza S, Rashida L ; Symptomatology of functional ovarian cyst Professional Med J Sep2004 11(3).
10. Ashraf A, Shaikh As, Ishfaq A, Akram A, Kamal F, Ahmad N. The relative frequency and histopathological pattern of ovarian masses: Biomedica 2012 Jan-Jun; 28: 98-102.
11. Iqbal J, Aurangzaib, Nassem A, Shahid A.Pattern of Ovarian Pathologies. Journal of Rawalpindi Medical College (JRMC); 2013;17 (1):113-115
12. Tariq S, Sohail R. Study of ovarian tumor in young girls. Professional Med J 2011;18(1): p41-45.
13. Gupta SC, Singh PA, Mehrotra TN, Agrawal R. A Clinicopathologic Study Of Ovarian Tumours. Ind J Pathol MicrobioL 1986; 29: p354 - 462.
14. Prabhakar BR, Maingi K. Ovarian Tumours— Prevalence In Punjab. Ind J Pathol Microbiol 1989; 32: p 276-81.
15. Couto F, Nadkarni NS, Jose M DA Rebello P. OVARIAN TUMOURS IN GOA. A CLINICOPATHOLOGICAL STUDY OF OVARIAN TUMOURS. J Obstet Gynecol India 1994; 43 : 408-412.
16. Sarkar R. OVARIAN NEOPLASMS - A 14 YEARS STUDY. J Obstet Gynecol India 1996 Nov; 46: p 156 – 159.
17. Zaman S, Majid S, Hussain M, Chughtai O, Mahboo J, Chughtai S. A RETROSPECTIVE STUDY OF OVARIAN TUMOURS TUMOUR-LIKE LESIONS. J Ayub Med Coll 2010; 22(1):p104-108.
18. Swamy GG , Satyanarayana N. Clinicppathological analysis of ovarian tumours- A study on five years samples. Nepal Med Coll J 2010; 12(4):221-223
19. Verma K, Bhatia A. Ovarian neoplasms- A study of 403 tumours. J Obstet Gynecol India 1981;31:106-11
20. Jha R, Karki S. Histological pattern of ovarian tumors and their age distribution. Nepal Med Coll J 2008; 10(2): 81-85
21. Pradhan A, Sinha AK, Upreti D. Histopathological patterns of ovarian tumors at BPKIHS. Nepal Journals Online; 10 (2): p 87-97.
22. Maheshwari V, Tyagi SP, Saxena K, Tyagi N, Sharma R, Aziz M, Hameed F. Surface Epithelial Tumours Of The Ovary. Ind J Pathol Microbiol 1994; 37: p75 – 85.
23. Caruso PA, Marsh MR, Minkowitz S, Karten G. An intense clinicopathologic study of 305 teratomas of the ovary. Cancer 1971 Feb;27(2): 343-348.
24. Alam S, Bhatti N. Pattern of Non Neoplastic Lesions of Ovary - A Study of 150 Cases. Ann. Pak. Inst. Med. Sci. 2010; 6(3): p159-159