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A CLINICO -PATHOLOGICAL STUDY OF NEOPLASTIC AND NON-NEOPLASTIC OVARIAN LESIONS.

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Abstract

Background: Ovarian lesions constitute a complex group with varied clinical behaviour and pathology. The ovaries constitute the internal reproductive organs their lesions can present in childhood to postmenopausal age group Clinical, radiological and gross examination alone cannot distinguish benign from malignant lesions; hence, histopathological examination is needed for their diagnosis and management.

Objectives: A Clinico -pathological analysis of non-neoplastic and neoplastic ovarian lesions.

Materials and methods: This descriptive study of one year comprised of 80 ovarian lesions diagnosed in the Department of Pathology, Bhagat Phool Singh Government medical college Sonipat. After thorough gross examination, representative bits were routinely processed and stained with H & E. Tumours were classified as per WHO classification.

Results: Out of 80 ovarian lesions received, non-neoplastic lesions constituted 39% (31/80). Benign lesions constituted 45% (36/80) whereas borderline and malignant lesions constituted 5% (4/80) and 11.25% (9/80) respectively. Among non-neoplastic lesions, follicular cysts (67.7%) constituted the majority followed by corpus luteal cysts and endometriotic cysts. Among neoplastic lesions majority of the tumours were of surface epithelial type (69.38%) followed by germ cell tumours (18.36%). Bilateral lesions were seen in 17 (26.98%) patients while unilateral lesions were seen in 46 (73.01%) patients. Patients age varied from 16 to 75 years. For non-neoplastic lesions, patient age varied from 16 to 61 years. For neoplastic lesions patient age ranged from 18-75 years with age range of 18-75 years for benign tumours and 26-66 years for malignant tumours. Abnormal uterine bleeding was the commonest clinical presentation of non-neoplastic lesions. Benign and malignant tumours were most commonly associated with pain abdomen.

Conclusion: Ovarian lesions comprise of variety of non-neoplastic and neoplastic lesions. By knowing clinical data, gross features, we can narrow our differential diagnosis and reach to the final diagnosis. So, early diagnosis and treatment definitely reduce the mortality from ovarian tumours.

Keywords: Non-neoplastic, Benign, Malignant, Ovary, Lesions, Cysts, Tumours.

Introduction:

Ovary is an important organ as it is concerned with the production of progeny. The ovary consists of sex cells and mesenchymal cells which being totipotent and multipotent can give rise to a wide range of tumor types.[1]

Both ovarian neoplastic and non-neoplastic lesions possess a great challenge to gynaecological oncologist. Some non-neoplastic lesions of the ovary usually present as a pelvic mass and mimic an ovarian neoplasm. Therefore, their proper recognition and classification is important to allow appropriate therapy.[2]

Solid areas in tumour on gross examination suggest malignancy whereas wholly cystic lesions are either non neoplastic or benign. Final diagnosis is usually made on histopathological examination.[3,4,5]

MATERIALS AND METHODS:

This descriptive study of one year comprised of 80 ovarian lesions diagnosed in the Department of Pathology, Bhagat Phool Singh Government medical college Sonipat. Our targeted population was mainly comprising of women residing in this region.

The study material included 80 specimens of ovarian pathologies. All Cases of ovarian lesions found in ovarian cystectomy, ovariotomy, oophorectomy, salpingo-oophorectomy, total abdominal hysterectomy with bilateral or unilateral salpingo-oophorectomy specimens received for histopathological examination were included in the study. This analysis was done keeping in mind the objectives to know the histopathology and clinical symptoms of patients who required the surgery for adnexal mass. The clinical data was collected from archived forms and Patients. After thorough gross examination, representative bits were routinely processed and stained with H & E. Tumours were classified as per WHO classification 2014. Special stains were done wherever required. Data collected were analysed.

RESULTS:

During the period of study, 80 specimens of ovarian lesions were received in the pathology department. These were obtained from 63 patients. Patients age varied from 16 to 75 years. For non-neoplastic lesions, patient age varied from 16 to 61 years. For neoplastic lesions patient age ranged from 18-75 years with age range of 18-75 years for benign tumours and 26-66 years for malignant tumours. Bilateral lesions were seen in 17 (26.98%) patients while unilateral lesions were seen in 46 (73.01%) patients. Out of 80 ovarian lesions received, non-neoplastic lesions constituted 39% (31/80). Among non-neoplastic lesions, Follicular cysts (67.7%) constituted the majority followed by corpus luteal cysts and endometriotic cysts. Benign lesions constituted 45% (36/80) whereas borderline and malignant lesions constituted 5% (4/80) and 11.25% (9/80) respectively. In present study neoplastic lesions (61.25%) are more than non-neoplastic lesions (38.75%). [Table 1]

In this study, Surface epithelial tumours were most common (69.38%) followed by mucinous cystadenoma (14.28%). Out of these majority were represented by serous cystadenoma. Germ cell tumours was the next commonest category (18.36%) with all cases being mature cystic teratoma. [Table 2]

In present study, age of the patients ranged from 16 to 75 years. most lesions were seen in the age groups of 21-50 years. Malignant tumours were seen over a wide age range of 21-70 years with majority (71.4%) seen after age of 40 years. [Table 3]

This study shows Surface epithelial tumours were seen across all age ranges with most cases seen in the age group of 21-50 years. Serous carcinomas were seen after the age of 40 years. [Bar diagram 1]

In this study, abnormal uterine bleeding was the commonest clinical presentation of non-neoplastic lesions. Benign and malignant tumours were most commonly associated with pain abdomen. [table 4]

This study shows most of the lesions were unilateral with bilateral lesions seen in 26.9% (17/63). [Table 5]

shows malignant lesions were mostly observed in multiparous patients and in case of non-neoplastic lesions, most were seen in patients of parity 1-3.

In the present study. Solid cystic or solid consistency was seen in malignant tumours predominantly. In contrast, benign and borderline tumours were cystic in almost all cases. [Table 6]

Table 1: Distribution of ovarian lesions

TYPES OF LESIONS	NUMBER	PERCENTAGE
NON- NEOPLASTIC LESIONS	**31**	**38.75%**
NEOPLASTIC LESIONS (TUMOURS)	**49**	**61.25%**
Benign tumours	36	45%
Borderline tumours	4	5%
Malignant tumours	9	11.25%
Total	**80**	**100%**

Table 2: Histomorphological types of the ovarian tumors

HISTOPATHOLOGICAL TYPE	NUMBER (PERCENTAGE)
BENIGN	**36(73.46%)**
Surface epithelial tumours	**26(53.06%)**
Serous cystadenoma	16(32.65%)
Serous cystadenofibroma	3 (6.12%)
Mucinous cystadenoma	7 (14.28%)
Germ cell tumours	
Mature cystic teratoma	9 (18.36%)
Mesenchymal tumours	
Leiomyoma	1(2.04%)
BORDERLINE EPITHELIAL TUMORS	**4 (8.16%)**
Surface epithelial tumours	4(8.16%)
Borderline serous tumour	3 (6.12%)
Borderline mucinous tumour	1 (2.04%)
MALIGNANT	**9 (18.36%)**
Surface epithelial tumours	4(8.16%)
Serous carcinoma	4 (8.16%)
Sex cord stromal tumours	
Granulosa cell tumour	3 (6.12%)
Metastatic tumours	2 (4.08%)
Total	49(100%)

Table 3: Showing age group distribution in non-neoplastic, benign, borderline and malignant ovarian tumours.

AGE RANGE	HISTOPATHOLOGIC CATEGORY OF LESIONS				
	NON-NEOPLASTIC	BENIGN	BORDERLINE	MALIGNANT	TOTAL
11-20 years	1(25%)	3(75%)	0(0%)	0(0%)	4(100%)
21-30 years	3(25%)	7(58.33%)	1(8.33%)	1(8.33%)	12(100%)
31-40 years	6(33.33%)	8(44.44%)	3(16.66%)	1(5.55%)	18(100%)
41-50 years	8(50%)	6(37.5%)	0(0%)	2(12.5%)	16(100%)
51-60 years	2(28.57%)	4(57.14%)	0(0%)	1(14.28%)	7(100%)
61-70 years	0(0%)	3(60%)	0(0%)	2(40%)	5(100%)
71-80 years	0(%)	1(100%)	0(0%)	0(0%)	1(100%)
Total	20	32	4	7	63

Table 4: Clinical features

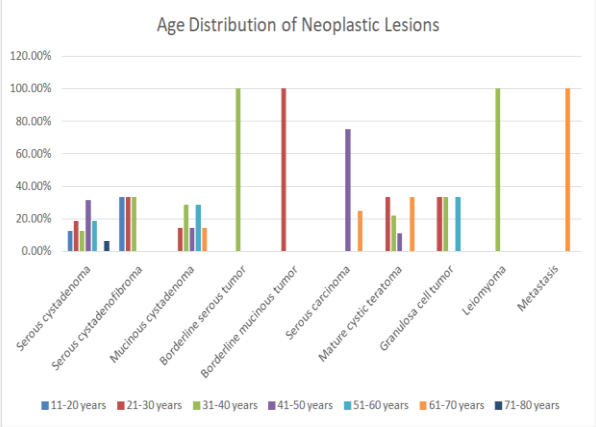
CLINICAL SYMPTOM	HISTOPATHOLOGIC CATEGORY OF LESION				
	NON-NEOPLASTIC	BENIGN	BORDERLINE	MALIGNANT	TOTAL
PAIN ABDOMEN	0(0%)	25(78.12%)	2(50.0%)	5(71.42%)	32(50.7%)
LUMP (MASS) ABDOMEN	8(40.0%)	6(18.75%)	2(50.0%)	2(28.57%)	18(28.5%)
AUB	12(60.0%)	1(3.12%)	0(0%)	0(0%)	13(20.6%)
TOTAL	20(100%)	32(100%)	4(100%)	7(100%)	63(100%)

Table 5: Laterality of the lesions (no of patients =63)

LATERALITY	HISTOPATHOLOGIC CATEGORY OF LESION				
	NON-NEOPLASTIC	BENIGN	BORDERLINE	MALIGNANT	TOTAL
UNILATERAL	12(26.08%)	25(54.34%)	4(8.69%)	5(10.86%)	46
BILATERAL	8(47.05%)	7(41.17%)	0(0%)	2(11.76%)	17
TOTAL	20	32	4	7	63

Table 6: Gross features of lesions based on benign, borderline and malignant.

HISTOPATHOLOGICAL TYPE	CYSTIC	SOLID + CYSTIC	SOLID	TOTAL (N=49)
BENIGN	35(97.22%)	0(0%)	1(2.77%)	36(100%)
BORDERLINE	4(100%)	0(0%)	0(0%)	4(100%)
MALIGNANT	1(11.11%)	5(55.55%)	3(33.33%)	9(100%)



Bar Diagram 1: Age distribution of neoplastic lesions

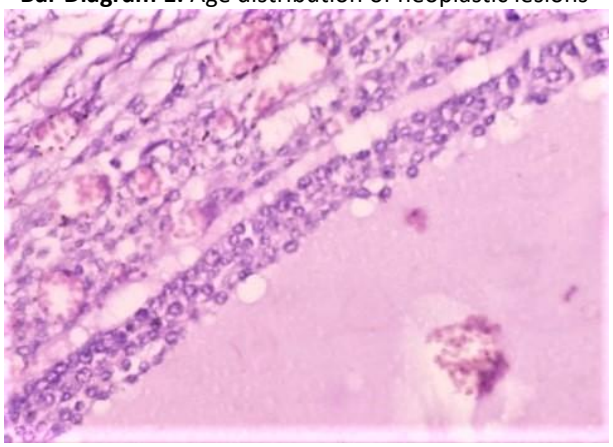


Figure 1: Tissue section of follicular cyst showing granulosa cells lining [400X H & E]

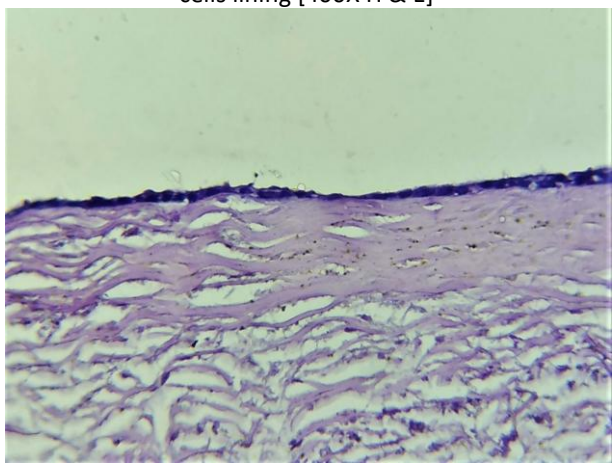


Figure 2: tissue section of serous cystadenoma showing single layer of bland-looking cuboidal epithelial cells [400X H & E]

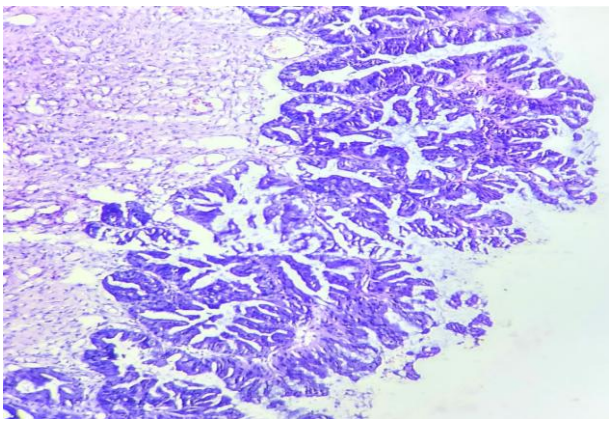


Figure 3: Tissue sections of borderline serous tumour showing hierarchical, branching pattern lined by cuboidal to columnar epithelium with nuclear atypia and absence of stromal invasion [100X H & E]

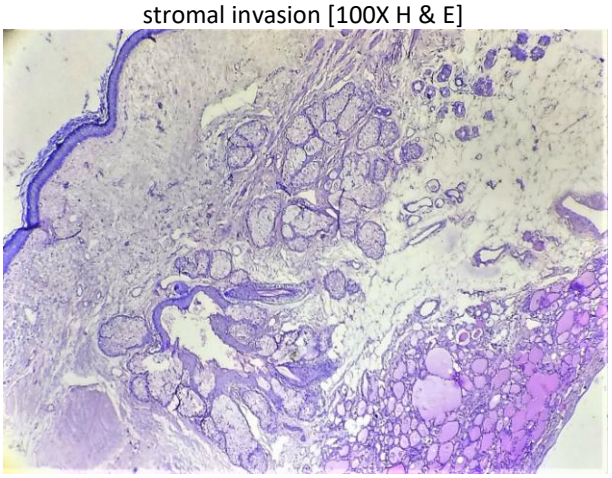


Figure 4: Tissue section of mature cystic teratoma showing stratified squamous epithelium, sebaceous glands, thyroid follicles and fibroconnective tissue [40X H & E]

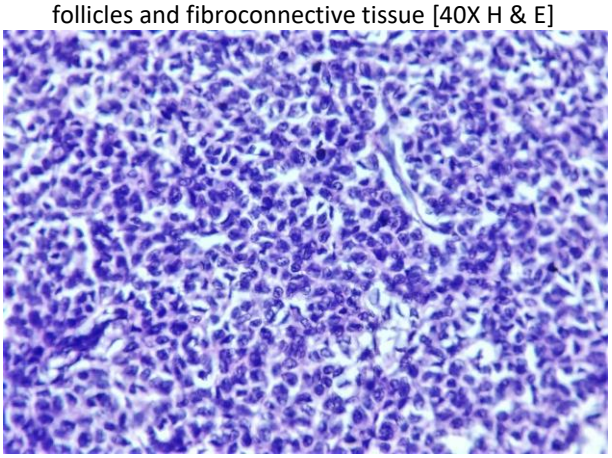


Figure 5: Tissue sections of granulosa cell tumour showing sheets of monotonous small cells with scant cytoplasm and nuclei with occasional longitudinal grooves [400X H & E]

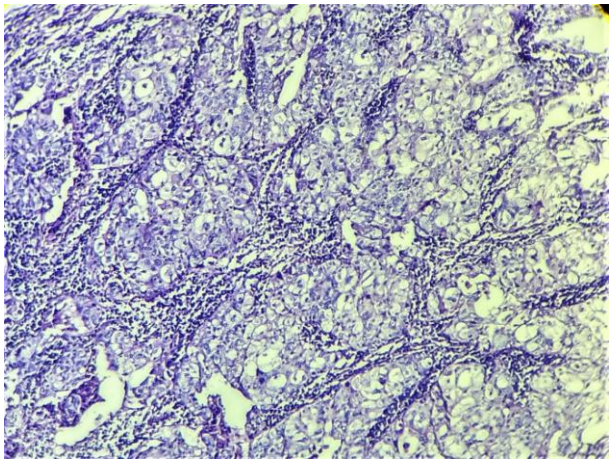


Figure 6: Tissue section of serous carcinoma showing solid masses of cells with high-grade nuclear atypia [100X H & E]

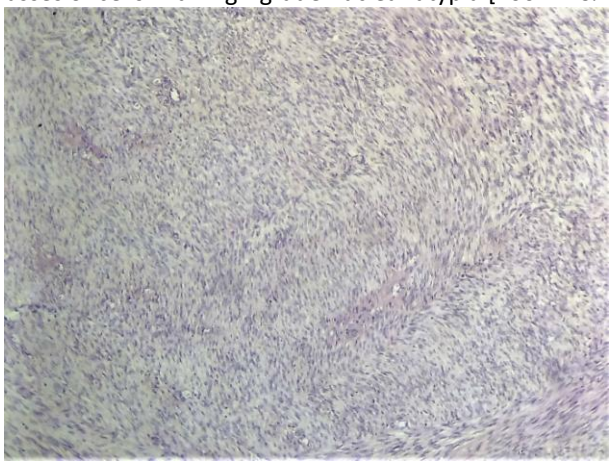


Figure 7: - Tissue section of leiomyoma showing spindle cells arranged in intersecting fascicles [100X H& E]

Discussion

Ovary gives rise to variety of neoplasms in addition to various non-neoplastic lesions. This is perhaps the result of variety of different cell types that are seen in ovary and can give rise to ovarian lesions. These occur over a wide age range. In our study, age of the patients ranged from 16 to 75 years. Majority of non-neoplastic lesions were observed in the age group of 31-50 years. In various studies, age range for non-neoplastic lesion has ranged from 31-60 yrs[6,7]

Abdominal pain was the commonest clinical presentation in our study (50.7%). Abnormal uterine bleeding was most common clinical presentation in non-neoplastic lesions while abdominal pain was most frequent among tumours followed by lump in abdomen. Variable presentation has been seen in various studies with lump abdomen to be the most common clinical presentation of tumours followed by pain abdomen in some studies.[8,9,10] In other studies, abdominal pain has been described as commonest followed by lump abdomen as has been observed in our study. [11,12,13]

Most cases showed unilateral lesions with bilateral lesions seen in 26.9% (17/63). Non neoplastic lesions were more often bilateral compared to neoplastic lesions(tumours). Incidence of bilaterality in tumours was 20.93% which compares well with other studies. [8,14,15]

Neoplastic lesions (61.25%) were more than non-neoplastic lesions (38.75%). Among non-neoplastic lesions, Follicular cysts (67.7%) constituted the majority followed by corpus luteal cysts and endometriotic cysts Similar findings have been reported in other studies with follicular cysts making up 51-74.6% of non-neoplastic lesions.[16,6,8] Second most common lesions in our study was corpus luteal cyst (22.5%) which compares well with other studies.[8,6,16] Endometriotic cysts in our study (6.4%) compare favourably with those in other studies (1.33-15.64%). [8,6,16]

Among tumours, benign tumours were most common followed by malignant tumours. Borderline tumours were least common. Majority of the tumours were of surface epithelial type (69.38%) followed by germ cell tumours. Germ cell tumours constituted 18.36% and sex cord stromal tumours (6.12%). All these compare well with other studies.[17,18,19,16,20]

Among germ cell tumours, all represented mature cystic teratoma. Sex cord stromal tumours seen in this study were granulosa cell tumours only.

Solid cystic or solid consistency was seen in malignant tumours predominantly. In contrast, benign and borderline tumours were cystic in almost all cases. A single case of benign tumour being leiomyoma showed solid consistency as would be expected. However, in the present study, there were no cases of benign sex cord stromal tumours which would be expected to be solid. These findings are similar to other studies where benign tumours were mostly cystic and malignant tumours predominantly showed solid or variegated appearance.[17, 21, 18]

Conclusion

Ovarian lesions comprise of variety of non-neoplastic and neoplastic lesions. Clinical correlation of age, symptoms and solid or solid cystic nature which can be observed by radiological examination may help clinicians in management of ovarian lesions in many cases. However, as exceptions are also observed,

histopathological examination is required in most cases where required.

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