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Study of Non Neoplastic Lesions of the Ovary

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Abstract: *Ovaries are hormone influence organs and make a base for related diseases. Many other lesions are also seen in ovaries which are not related to hormonal disturbance. Ovarian lesions are not diagnosed in early stages as they are asymptomatic and physically difficult to examine. Though the non neoplastic lesions are very common when compared to neoplastic lesions of the ovary, there are very few studies are there of non neoplastic lesions of the ovary. This study gives focus on incidence, spectrum, bilaterality and age distribution like features of non neoplastic lesions of the ovary. In many cases of ovarian lesions, there is an increased risk for lesions in other organs like uterus and breast which are also influenced by the same hormones like Estrogen and Progesterone.*

Keywords: *ovaries, non neoplastic lesions, endometriosis, ectopic pregnancy, foreign body granulomas*.

I. Introduction

Ovary is a complex structure from an embryological, anatomic and functional stand point of view. It varies in volume at the time of ovulation, pregnancy and menopause. Ovaries have remarkable resistance to diseases. Ovary can be seat of large number of non neoplastic lesions.

Non neoplastic lesions of the ovary frequently form a pelvic mass and often are associated with abnormal hormone related manifestations, thus potentially mimicking an ovarian neoplasm on clinical examination, at the time of surgery. Many occur in the reproductive years and may interfere with fertility. In the ovary the problem is further complicated by the endocrine activities of tumour causing a variety of clinical symptoms and signs, and some feminizing ovarian tumours are associated with endometrial carcinoma. Further ovary is a target organ for a variety of hormones from menarche to menopause and repeatedly undergoes involutions there by giving rise to tumour formation.

The spectrum of ovarian lesions is wide with harmless simple cystic lesions at one end and the fatal aggressive malignant lesions at the other end. The present study is aimed to observe the incidents rates and distribution of the various non-neoplastic lesions of the ovary.

II. Materials And Methods

Study design: Prospective, Cross sectional and observational
Study period: two years
Study material: Ovarian specimens received in Pathology department, Siddhartha Medical College, Vijayawada during the study period.
Inclusion: all the ovarian specimens received in Pathology department, SMC, Vijayawada.
Exclusion: specimens other than ovaries and ovarian specimens received after study period.

III. Results

The present study comprises 600 ovarian specimens received in the department of Pathology, Siddhartha Medical College, Vijayawada. During the study period of two years, 5281 specimens were received for histopathological examination, out of which 600 were ovarian lesions – constituting of 8.8% of the total cases.

The clinical data was collected from the case sheets and requisitions and recorded as per the proforma after explaining about the study to subjects and with written consent. The details of the specimens and macroscopic findings were noted at the time of grossing and relevant tissue samples were subjected for processing. The microscopic findings were documented. Data is analysed and simple statistical tools are used in presentation of results. Common age groups, common histological types and other correlating features are discussed. Though the majority of the ovaries are apparently normal, hidden pathology can not be ruled out as the total tissue is not being processed.

IV. Discussion

The present study comprises of 600 ovarian specimens received in the department of Pathology, Siddhartha Medical College, Vijayawada. During the study period of 2 yrs, 5281 specimens were received for histopathological examination, out of which 600 were ovarian lesions – constituting of 8.8% of the total(Table 1).

In the present study, the minimum age is of 13yrs & the maximum is of 80yrs and the both lesions are happened to be follicular cysts. Peak incidence is between 31 to 50 yrs age group, covering 68% of the lesions(chart 1). In present study, out of 600 lesions studied, 538 are non-neoplastic lesions (89.67%) and the remaining 62 are neoplastic lesions (10.33%).

Most of the cases are hemorrhagic luteal cysts. Epithelial cysts are virtually all cystic and are most commonly seen in women in their forties and fifties. Maternal ovarian cysts during pregnancy are fairly common. The typical age at which endometriosis is diagnosed is 25-29 years, however, teenagers can also have endometriosis. Endometriomas With the high prevalence of endometriosis observed today in women of childbearing age.[1]

4.1 Site incidence and bilateralism

In the present study, out of 600 ovarian specimens received, 255 are unilateral and 345 are bilateral. Similar predilection for right or left sided lesion was observed. Most of the non-neoplastic cystic lesions are bilateral when compared to neoplastic lesions. In the present study of 600 ovarian lesions, non-neoplastic lesions are 538 in number comprising 89.67% (Table 2). Most of the studies on ovary were concentrated on neoplastic lesions. Out of 538 non-neoplastic lesions, unilateral are 217 and 321 lesions are bilateral(Table 3).

4.2 Simple cysts

These are the commonest type of non-neoplastic lesions, found in 82 cases (15.24% of non-neoplastic lesions) with a wide range of the age from 13yrs to 80yrs (Chart 1). The peak incidence is seen in active reproductive age group of 21 to 40 yrs. Of the 82 lesions studied, 54 lesions are unilateral and the remaining 28 lesions are bilateral (Table 3). Commonly seen are the hemorrhagic corpus luteal cysts and follicular cysts which are comparable with the study of S. Maharjan et al.[2,3] Five cysts are received with clinical diagnosis as twisted ovarian cysts, operated for acute abdomen. These cysts showed on gross examination as congested with uniloculated and multiloculated cut section appearances. Microscopy showed the vascular congestion and pigment laden macrophages. Out of the two cases of post- hysterectomy cysts received one cyst was of 20cms x 15cmsx15cms in size, unilocular cyst filled with serosanguinous fluid. It was found in 45yrs aged patient.

Simple cysts varied in size from 3cms diameter to 20cms in diameter. On cut section most of the cysts are unilocular and filled with clear or straw colored fluid. Occasionally mucin like material was seen particularly in multiloculated cysts. Twisted cysts were filled with serosanguinous fluid. Fine needle aspiration is useful in preventing surgical removal of the ovaries, particularly in the women who are yet to conceive.[4]

Microscopically serous cysts had the lining epithelium of low columnar cells in a single layer. In mucinous cysts, mucin secreting cells are seen in lining epithelium and were demonstrated with Periodic Acid Stain. Twisted ovarian cysts showed pigment laden macrophages. Chronic inflammatory cell collection was observed in some of the cysts studied. Compensatory hyperplasia of the other ovary is observed in some of the cases. Polycystic ovarian syndrome is typically present with infertility and ovaries are larger in size and show multiple cysts associated with cortical hyperplasia.[5]

4.3 Simple cortical hyperplasia

Simple cortical hyperplasia appeared invariably as bilateral lesions, which is also known as stromal hyperthecosis.5 In the present study, 18 cases (3.35% of the non-neoplastic lesions) are reported as simple cortical hyperplasia. Commonly these lesions are seen in late reproductive group and post menopausal women[6]. Most of the lesions appeared in patients of 4th and 5th decade. Out of 18 lesions, 15 were observed as bilateral and 3 cases showed unilateral cortical hyperplasia (Chart 2). Macroscopically slight increase in size was noted. Cut section showed uniform solid areas of the cortex. Histologically these areas more cellular and an altered stromal follicular ratios observed. They showed nodular or diffuse densely cellular proliferation of stromal cells with scanty collagen.

4.4 Stromal edema

These types of lesions are commonly seen in the younger age group with mean age of 21yrs6. In the present study, 16 lesions (2.97%) are found as stromal edema, mainly seen in 21 to 30 yrs age group and shows correlation with the above study. In 16 lesions studied, bilateralism was observed in 10 cases and the remaining 6 lesions were unilateral. Edematous ovaries were observed as bigger in size when compared to the normal counterparts, varying from 4cms in diameter to 8cms in diameter. Most of the lesions were with smooth surface,

congested vessels and myxoid areas were observed in few lesions on cut surface. Microscopy revealed edematous hypocellular stroma with thickened blood vessels and areas of hemorrhages. There is marked diffuse stromal edema that separates follicles and their derivatives with sparring of the superficial cortex, which is thickened by fibrosis.

4.5 Endometriosis

These are the lesions of active reproductive age group. In our study, 4 lesions are reported as endometriosis (0.74%) observed in 2nd and 3rd decades of the age. Of the 4 lesions, 3 are unilateral and 1 is bilateral. In one case the patient was aged 27yrs showed bilateral ovaries each of 6cmx5cmx4cm size were received. Cut surface of the both ovaries showed dark brown solid areas and cystic spaces filled with serosanguinous fluid. Microscopy revealed the endometrial type of glandular structures, hemorrhagic areas, pigment laden macrophages along with acute and chronic inflammatory cell collection suggesting the picture of endometriosis (fig.1). All of the other 3 lesions were unilateral ones showing macroscopic picture of cystic lesions filled with dark brown fluid and microscopy confirmed the diagnosis of endometriosis and the contra lateral ovary showed normal structures.

4.6 Foreign body granulomas

Foreign body granulomas are often due to suture material and rarely due to tuberculosis. In the present study shows 2 reports (0.37% of the non-neoplastic lesions) as foreign body granulomas. One lesion is in 37yrs woman and the other is of 45yrs and both are observed as unilateral. In both cases the ovaries were grossly not showing any abnormal findings. On microscopy, formed granulomas were seen around the foreign body material with collection of epitheloid cells and fibrotic changes. There were no evidences of tuberculosis.

4.7 Ectopic pregnancy changes

Ectopic pregnancy changes often seen in young patients. This study showed 2 ovaries found with ectopic pregnancy changes (0.37% of non-neoplastic lesions). Both were unilateral & associated with features of ruptured tubal pregnancy. In a 26 yrs old patient, ectopic tubal pregnancy (fig.2) was diagnosed clinically and the tuboovarian mass was received for histopathological examination. On gross, it was 7cmx5cmx3cm sized dark brown friable mass with congested surfaces. Microscopic picture of the tube showed the chorionic villi and the ovary showed the decidual changes (fig.3) with large cells having abundant pink granular cytoplasm and central round vesicular nucleus.

4.8 Miscellaneous changes

Certain changes are seen in ovaries due to cytotoxic drug reaction, but clinical data is not available to correlate. Radiation also have the influence on morphology of ovary[7]. Metabolic changes and storage disorders also in too small number which are not included in the statistical data.[6,8,9]

4.9 Apparently normal ovaries

In the present study of 600 ovarian lesions, 62 lesions are reported as neoplastic lesions and remaining 538 lesions are considered as non-neoplastic lesions. But in 414 ovaries, no specific pathology other than normal findings is reported in selected sections (76.95% of the non-neoplastic lesions). Out of these 414 ovaries (cases) received, 273 were single ovaries and in the remaining 141 cases both ovaries received.

On gross examination, the ovarian specimens of the younger age group were mostly of normal sized and few were slightly increased in size varying from 2x2x1cm to 4x3x2cm. Patients of the fourth or fifth decade showed the ovaries of relatively smaller in size. Cut section of the ovaries in younger patients showed more number of growing Grafian follicles of different stages along with corpus luteum, corpora albicantia or hemorrhagic corpus luteum. Ovaries of the individuals aged above 40yrs showed relatively less number of follicles or atrophic changes.

V. Figures And Tables

Table No. 1 Incidence of Ovarian lesions

Total number of specimens received during the study period	5281
Number of ovarian specimens received during the study period	600
Incidence of ovarian lesions in total specimens	7%

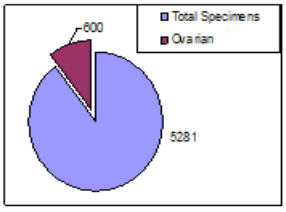


Table No. 2 Distribution of non-neoplastic & neoplastic lesions

Total number of ovarian lesions	600
Nonneoplastic lesions	538 (Incidence 89.67%)
Neoplastic lesions	62 (Incidence 10.33%)

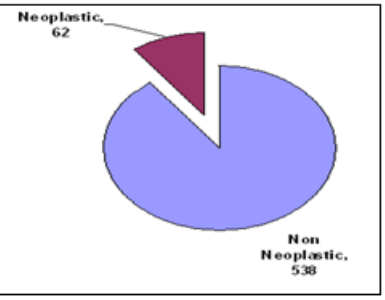


Table No. 3 Distribution of unilateral & bilateral lesions

Total number of ovarian lesions	600
unilateral lesions	255 (Incidence 42.5%)
bilateral lesions	345 (Incidence 57.5%)

Chart 1 Age distribution

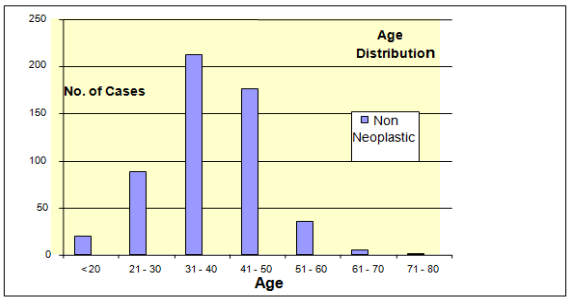
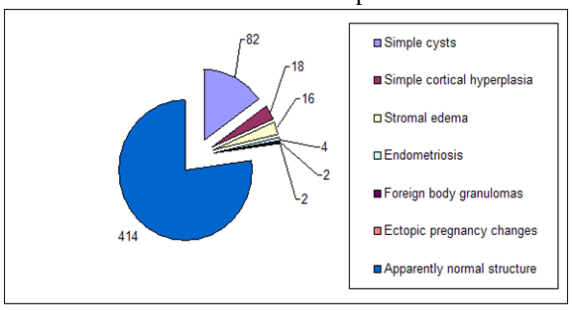


Chart 2 Distribution of Nonneoplastic lesions



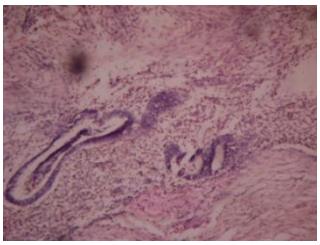


Fig.1 Endometriosis lp

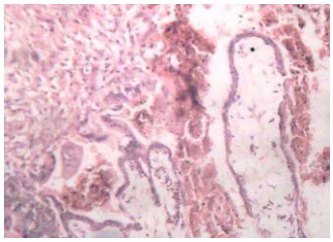


Fig.2 Ectopic Gestation

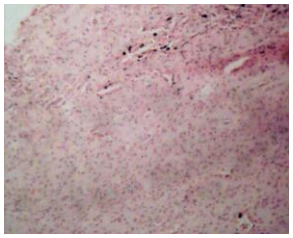


Fig.3 Decidual change in Ovary

VI. Conclusions

Ovarian lesions are one of the common types of lesions found in the women of reproductive age group. Accurate diagnosis and typing according to recent and standard classifications is helpful in the development of specific therapies, possibly including targeted therapies, for management of the various types of ovarian lesions. This is helpful in identifying the risk factors of other hormone influenced organs like uterus and breast also. An attempt was made to study the age incidence, prevalence, morphological patterns and histological variants among various lesions that occur in ovary. The results of the study are comparable with other studies and standard books substantiating the findings of the study.

About 414 ovaries showed normal histology and often no conspicuous pathological changes noted. This is due to the precautionary removal of normal ovaries at the time of hysterectomy or similar surgery. Some

of these may contain minute pathology which possible had not appeared in the sections studied though it would have been lying in the unrepresented area of the ovary. Knowledge of incidence, age preponderance and other factors like clinical findings will be useful in avoiding the surgical removal of the ovaries, especially in infertile women who are really needed to be retained. This way the present study is done on non neoplastic lesions rather than neoplastic lesions where anyway surgical removal is the line of management.

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