Original Research Paper

Volume-9 | Issue-11 | November - 2019 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Pathology

HISTOPATHOLOGICAL SPECTRUM OF LESIONS ENCOUNTERED IN FALLOPIAN TUBE: A STUDY OF 250 CASES.

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ABSTRACT

BACKGROUND: Fallopian tube is a commonly encountered specimen in histopathology laboratory but there are only occasional studies documenting the histological spectrum of lesions associated with tubal Pathology.

AIM: The present study was undertaken to know the spectrum of histological patterns encountered in various lesions of the fallopian tube.

MATERIAL AND METHODS: A sample size of 250 cases were included in the study. All the cases were processed by routine histopathological techniques and the sections were prepared using routine haematoxylin and eosin staining techniques.

RESULTS: It was a retrospective study of 250 cases. Out of 250 cases, 150(64%) were normal whereas in 100(36%) cases fallopian tubes were abnormal. Out of which majority 98.7% were non-neoplastic and only 1.3 % were neoplastic. Out of non neoplastic lesions, majority was inflammatory(18.40%) followed by ectopic tubal gestation in 12% of the cases.

KEYWORDS : fallopian tubes, ectopic pregnancy, salpingitis

INTRODUCTION:

The fallopian tubes (also known as uterine tubes) are a pair of hollow structures that are located at the superior portion of the uterine cavity. These tubes are about 10cms long , located within the mesosalpinx , a component of broad ligament of the uterus. The fallopian tube is a common specimen in the gynaecological histopathology laboratory, it may be examined alone as salpingectomy or tubal ligation specimen or as a part of complex hysterectomy specimen and/or oophorectomy operations(1).

The fallopian tubes are affected by a wide spectrum of diseases ranging from salpingitis to carcinoma. But there are only few studies documented in the literature reporting the histological spectrum of fallopian tube removed for all cases. As the fallopian tubes are commonly encountered specimen in the gynaecological histopathology, the knowledge of these variations in the general pathology practice can be of a great information to the pathologist who identifies a potentially unusual histologic finding and aids the gynaecologist in the management of these lesions. It is seen that the tubal pathology with inflammatory lesions form the major group followed by tubal ectopic pregnancy which is an important cause of maternal mortality and morbidity(2,3). The primary tumours of the fallopian tubes are very rare. Surgical specimens removed for the lesion of the fallopian tubes are much less commom as compared to the specimens for the other sites of gynaecological tract;yet , the fallopian tubes are frequently examined by the pathologists because they accompany the specimens removed for the lesions of other gynaecologic organs and also because the tubes play an important role in reproduction ; including the problems related to infertility(4).

The aims and objectives of the present study is to describe various histopathological lesions seen in surgically resected specimens of fallopian tube and to study the frequency of various pathological lesions of fallopian tube and their age distributions.

MATERIAL AND METHODS:

This was a retrospective study conducted in the Postgraduate Department of Pathology , Govt Medical College Jammu. A total of 250 consecutive samples of fallopian tubes received either as salpingectomies or a part of panhysterctomies or tubo ovarian masses in the histopathology section of the department were studied. The clinical history and grossing notes forms alongwith haematoxylin and eosin stained histopathology slides of these cases were retrieved from the department. The clinical forms were reviewed for age, clinical presentation and gross features of the specimens while the slides were re-examined for detailed analysis of the histological patterns of different fallopian tube lesions. Fresh sections were obtained from the gross specimens or from the paraffin blocks, routinely processed and stained with H&E or other special stains wherever necessary(4).

RESULTS:

In our study, 250 consecutive samples of fallopian tubes received in the histology section of the department of pathology were studied meticulously. Approximately, 70% of these were panhysterectomies with salpingectomies , 20% salpingo-oophorectomy and remaining 10% were salpingectomy specimens that were analysed. The main clinical and/or pathological diagnoses for which the surgical procedures were performed included a wide range of lesions of the female genital tract , commonest being fibroid uterus (49% cases) , followed by dysfunctional/abnormal uterine bleeding (19% cases), ectopic tubal pregnancy (13% cases), ovarian cyst/masses (10% cases), tubo-ovarian mass (2% cases), chronic cervicitis(1%), torsion of the ovary and tube(1%), utero vaginal prolapsed (1%), pelvic inflammatory diseases(1%), paratubal cysts(1%), carcinoma cervix(0.5%), carcinoma endometrium(0.5%), placenta accrete (0.5%) and hydatidiform mole (0.5%) in decreasing order of frequency. In an overwhelming majority of the gynaecologic specimens (64%), both the fallopian tubes were grossly and microscopically within normal histological limits and were removed as a part of a standard surgical protocol, while the primary pathology lies elsewhere in the female genital tract and in 36% of the cases the pathological lesion was seen primarily in the fallopian tubes.

Table 1 shows the distribution of the pathological lesions of the fallopian tube while Table 2 depicts the age-wise distribution of these lesions.

Table 1 showing pathology of fallopian tube lesions.

Tubal morphology	No of cases	percentage
Normal	**150**	**64**
Abnormal	**100**	**36**
Salpingitis	**46**	**18.40**
Acute	02	0.8
Chronic	44	17.4
Granulomatous	02	0.8
Ectopic tubal gestation	**30**	**12**
Paratubal cyst	**12**	**4.80**
Torsion	**04**	**1.6**
Hematosalpinx	**04**	**1.6**
Tumours (secondary)	**03**	**1.2**
Endometriosis	**1**	**0.4**
Total	**100**	**100**

Table 2: Age-wise distribution of fallopian tube lesions.

Tubal Pathology	11-20 years	21-30 years	31-40 years	41-50 years	51-60 years	61-70 years	Total
Salpingitis	02	12	14	15	02	01	46
Ectopic tubal gestation	01	22	07				30
Paratubal cyst		03	06	03			12
Torsion		03	01				04
Haematosalpinx		01	03				04

Tumours		01			01	01	03
Endometriosis			01				1
Total	03	50	23	17	02	03	100

Salpingitis or inflammation of the fallopian tube was the most common histological pattern of tubal pathology identified in the present study accounting for 46 cases(18.40%). Majority of the cases (n=41) belonged to 21-50 years age group, i.e. the period when females are likely to be sexually active. 44 cases (17.4%) were diagnosed as chronic non specific salpingitis, two cases (0.8%) as granulomatous salpingitis and two cases (0.8%) were labeled as acute salpingitis.. Chronic salpingitis was characterized by a variable morphology ranging from blunted plicae with a dense lymphocytic infiltrate in the wall to markedly fibrotic lesions with thick walled tubes, narrowing of the tubal lumen and almost complete flattening of the epithelial lining . In six of these cases, the inflammatory exudate had spread to the ovary with adhesion of the tubes to the ovaries resulting in formation of tubo-ovarian masses. There was one case of pyosalpinx wherein the fallopian tube was distended and filled with pus. There was accompanying carcinoma endometrium which probably had interfered with the normal drainage of the tube. Two cases of granulomatous salpingitis were observed with a presumptive diagnosis of tuberculosis and both showed the presence of caseating epitheloid granulomas and Langhans giant cells in the wall of the tube. One of these cases had presented clinically with primary infertility. There were two cases of acute salpingitis reported in the present study. Microscopic examination shows marked neutrophilic infiltrate, congestion and edema.

Ectopic tubal gestation was the second most frequently encountered tubal pathology observed in the present study; seen in 46 (12%) cases. All these cases were received as salpingectomy specimens and most of these cases were below 40 years of age. Tubal congestion and edema was seen in all these cases. Chorionic villi or trophoblastic tissue were seem either in the wall of the tube or in the accompanying blood clot microscopically in most of these cases. In a few cases, the diagnosis of ectopic tubal gestation wad made on the basis of presence of decidual tissue in the wall of the tube with associated hemorrhage and edema. Accompanying chronic salpingitis was seen in about seven cases.

Paratubal cysts were seen in 12 (4.80%) cases most commonly in the age group of 31-40 years(n=6). These are small cysts attached to the fimbrial end of the tube; size varying from 0.6 to 8cms, papery thin walls and contain clear serous fluid. Microscopically, the cysts were lined by flattened to cuboidal epithelium surrounded by thin fibrous walls.

Hematosalpinx was seen in four case and it was not associated with tubal gestation. There were four cases of torsion of the tubes and ovaries showing hemorrhagic infarction of both the cases. Tubal endometriosis characterized by the presence of endometrial glands and stroma in the wall of the bilateral fallopian tubes was seen in a single case associated with ovarian endometriosis in a 36 years old woman.

There was no case of primary neoplasm , either benign or malignant of the fallopian tubes in the present study. However , three cases show secondary involvement of the fallopian tubes by the tumour. One case was of a 28 years og female with dysgerminoma of the ovary involving ipsilateral tube alongwith omental and nodal metastasis. The second case was of endometroid carcinoma of the uterus with widespread dissemination to bilateral ovaries and fallopian tubes. There was one case from metastatic deposits of squamous cell carcinoma of the cervix in a 68 years old female.

DISCUSSION:

Fallopian tubes are the rare site of primary disease and their most common afflictions are inflammation, almost always as part of pelvic inflammatory disease(5). Fallopian tube pathologies account for about 30-40% cases of female infertility(6). 250 cases were studied thoroughly; out of which tubal pathology was noted in only 100 (36%) cases. Out of these 100 abnormal fallopian tube specimens, 97 were non neoplastic lesions and only 3 cases were neoplastic. The most common histopathological finding observed in non neoplastic lesions were inflammatory conditions seen in 46 cases. Chronic salpingitis was seen in 42 cases and there were two cases each of acute salpingitis and granulomatous salpingitis. The incidence of chronic salpingitis was the highest among other inflammatory conditions in the present study. This was comparable to other studies(7,8 and 10). Majority of the cases of salpingitis in the present study belong to reproductive age group. Infertility has been found to be associated with acute , chronic and tubercular salpingitis; there by highlighting the role of inflammatory tubal pathology in causing tubal block and hence, infertility. A similar experience was shared by Urman et al(9) and Bagwan IN et al(10).

In the present study, granulomatous (tuberculous) salpingitis is seen in 2 (0.8%) cases. Lakshmi *et al*.(11) observed incidence of tuberculous salpingitis in 0.59% cases . Tuberculosis of fallopian tube develops commonly by hematogenous spread of the organism, usually from a primary pulmonary infection and rarely by direct extension from adjacent organs or lymphatic spread from intestinal tuberculosis. Agarwal and Gupta(12) in their study of female genital tract tuberculosis, found the incidence declining from 1.8% in 1974 to 0.8% in 1989 and onward. They noted the involvement of endometrium in 99.5%, fallopian tubes in 94.7%, cervix in 81.5%, ovaries in 62.5%, and vagina in 0.2% cases.

In the present study, the ectopic pregnancy accounted for 12%(cases) and seven out of these 20 cases show associated chronic salpingitis. The incidence of ectopic tubal pregnancy has increased markedly in the recent years and it is often the consequence of chronic salpingitis which is found in nearly half of the patients with a reported range of 29-88%(13,14). There were 10 cases of paratubal cysts reported in the present study and all of them were discovered incidentally during surgery. Paratubal cysts; though a common finding; donot have much clinical significance(10).

No primary fallopian tube malignancy was reported in the present study. There were only three cases showing secondary involvement of the fallopian tubes by the tumour. One case was of a 28 years old female with dysgerminoma of the ovary involving ipsilateral tube alongwith omental and nodal metastasis. The second case was of endometroid carcinoma of the uterus with widespread dissemination to bilateral ovaries and fallopian tubes. There was one case from metastatic deposits of squamous cell carcinoma of the cervix in a 68 years old female. Traditionally, primary carcinomas of the fallopian tube has been regarded as very rare, accounting for approximately 1% of the genital tract malignancies (15). However, several recent studies following a standardized grossing protocol and including a larger number of early stages have shown that it reaches approximately 15% of all adnexal tumours(16). Moreover, the interesting possibility that a high percentage of ovarian and 'primary peritoneal' serous carcinomas actually originate in the epithelium of tubal fimbriae is a topic of hot discussion (17,18,19). This is a relatively recent and novel concept with histologic, immuno-histochemical and molecular biologic evidence that supports the tubal fimbriae as the site of serous tubular intra-epithelial carcinoma and possibly the immediate precursor to high-grade ovarian and peritoneal serous carcinoma (20). In fact, the fimbriae are the most common site of early serous carcinoma in women with BRCA mutations (21).

CONCLUSION:

As fallopian tube is a commonly received specimen in histopathology, it should be examined thoroughly because it has a direct bearing on female infertility and also is a common site for origin of many high grade cancers of the ovaries and peritoneum. Thus we conclude our discussion by the epilogue that histo pathological examinations of fallopian tubes is necessary for documentation and diagnosis of many lesions that are missed clinically and have a direct bearing on patient's further management and follow up.

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