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Histopathology

SPECTRUM OF LESIONS IN FALLOPIAN TUBE BY HISTOPATHOLOGICAL EXAMINATION IN A TERTIARY CARE HOSPITAL IN NORTHEAST INDIA

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ABSTRACT **Background:** The fallopian tube constitutes one of the most frequently received specimens in the surgical pathology laboratory. However, only a few studies have been published in the literature describing about the various histological findings of the fallopian tube. A wide variety of pathologic conditions may affect the fallopian tubes, ranging from infection to neoplastic lesions of both primary and secondary origin. The present study aims to describe the various histopathological findings in fallopian tubes removed in various surgical procedures and to determine the distribution of these lesions in different age-groups.**Materials and Methods:** 154 cases where fallopian tubes were removed either separately or along other female genital tract organs were studied retrospectively and their histopathological findings were documented.**Results:** Ectopic pregnancy was the most common lesion (18.83%) among the tubal pathologies followed by paratubal cyst in 9 (5.84%) cases. Two secondary tumours (1.30%) from the ovary involving the fallopian tube were found in the study. Most of the cases (44.15%) belonged to age group of 40-49 years.**Conclusion:** The histopathological examination of the fallopian tube can provide information about the etiopathogenesis of ectopic pregnancy, which can help with the treatment of recurrent ectopic pregnancy and reduce the risk of maternal mortality.

KEYWORDS : fallopian tube, histopathology, ectopic pregnancy, infertility

INTRODUCTION

The fallopian tube is a tubular hollow structure of 11-12 cm in length that are attached to the upper part of the body of the uterus, and its ostia open into the uterine cavity. The tube passes laterally and superiorly and consists of four main parts: intramural, isthmus, ampulla, and fimbria. The usual site of fertilization is the ampulla of the fallopian tube.(1,2) It is named after the Italian anatomist Gabriele Fallopius who in 1561 provided a detailed description of its anatomical course (3).

The fallopian tube is a specimen commonly received in surgical pathology laboratory as a salpingectomy or tubal ligation specimen or as part of a hysterectomy and/or oophorectomy specimens. The histologic findings in fallopian tubes have been described only sporadically in the literature. Knowledge of the frequency of the varied lesions of a resected specimen of fallopian tube can be of value to the pathologist for identification of a potentially unusual histologic finding (4).

A wide variety of pathologic non-neoplastic conditions may affect the fallopian tubes, ranging from infection to rarely occurring isolated tubal torsion (5).

Fallopian tube infection leads to inflammation (salpingitis) and pelvic inflammatory disease (PID). Following PID, a woman's risk for ectopic pregnancy increases to 9% (from < 2%) whereas tubal-factor infertility increases to 16% (from < 3%) (6). Infertility occurs in approximately 15% of reproductive-aged couples worldwide and is more common in developing countries. Tubal obstruction is one of the most common causes of female infertility, accounting for approximately 14% to 45% of all female factor infertilities (7)

Primary fallopian tube carcinoma is an uncommon tumor accounting for approximately 0.14%–1.8% of female genital malignancies occurring most frequently between the fourth and sixth decades of life (8).

According to recent studies, many high grade serous ovarian cancer originate in the epithelial cells at the distal tips of the fimbriae of the fallopian tube (9). Liu F et al. reported a case of a primary mucinous borderline tumor of the fallopian tube coexisting with an ovarian mucinous borderline tumor whereby histopathological examination they found that the fimbria of the right fallopian tube was partially replaced by this mucinous borderline tumor of the ovary.(10)

AIMS AND OBJECTIVES

I) To describe various histopathological findings in the fallopian tubes excised by different operative procedures.

ii) To determine the distribution of these lesions in different age-groups.

MATERIALS AND METHODS

The study included specimens of fallopian tube received as salpingectomy, salpingo-oopherectomy and as part of hysterectomy with bilateral salpingo-oopherectomy specimens at the histopathology section, Department of Pathology, Fakhruddin Ali Ahmed Medical College, Barpeta, Assam.

Table 1: Distribution of lesions of fallopian tube

Diagnosis	Number of cases	Percentage of cases
Normal Histology	104	67.53%
Ectopic Pregnancy	29	18.83%
Chronic Salpingitis	3	1.95%
Paratubal Cyst	9	5.84%
Hydrosalpinx	2	1.30%
Malignancy	2	1.30%
Others	5	3.25%
Total	154	100%

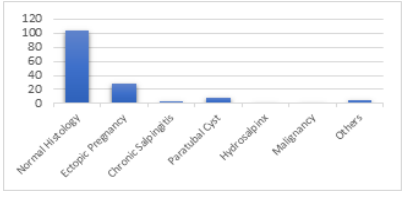


Figure 1: Graph showing the distribution of lesions of fallopian tube

The duration of study was 1 year from December 2020 to November 2021.

After proper fixation, sectioning of fallopian tube is done according to Sectioning and Extensive Examining the Fimbrial End (SEE-FIM) protocol. The fimbrial segment (distal 2cm) of the tube is sectioned longitudinally. The remaining tube is cut transversely at an interval of 2mm and fixed in 10% formalin and processed routinely. Following the standard protocol, blocks were prepared and serial sections from the blocks were obtained. The sections are mounted on a glass slide and are stained with Hematoxylin and Eosin stain and are studied under light microscope.

RESULTS

154 specimens of Fallopian tube were received for histopathological examination from patients undergoing hysterectomy with bilateral salpingo-oopherectomy, salpingo- oophorectomy and salpingectomy within a period of one year from December 2020 to November 2021 at Fakhruddin Ali Ahmed Medical College and Hospital, Barpeta.

Maximum number (67.53%) of fallopian tubes did not reveal any abnormal findings. Tubal pathologies were found in 50 cases (32.46%). Out of these, majority of the cases (18.83%) revealed tubal ectopic pregnancy followed by paratubal cyst in 9 (5.84%) cases. Chronic Salpingitis was present in 3 cases (1.95%). Hydrosalpinx was encountered only in 2 cases (1.30%). 2 cases (1.30%) showed malignancy while 5 cases (3.25%) did not reveal any definite pathology.

Most of the cases (44.15%) belonged to age group of 40-49 years. Ectopic pregnancy was most commonly found in 20–29 year age group which amounted to 15 out of 29 cases (51.7%) of ectopic pregnancy followed by 11 cases (37.9%) in the age group of 30-39 years. 7 out of 9 cases of para tubal cyst were found in 40-49 age group. 2 out of 3 cases of chronic salpingitis were found in the age group of 30-39 years. 2 cases of hydrosalpinx, each in the age group of 40-49 years and 50-59 years were found. 2 cases showed secondary involvement of fallopian tubes by tumours. The cases were metastasis from serous cystadeneocarcinoma of right ovary of a 58 year old female and mucinous cystadenocarcinoma of the right ovary of a 66 year old female.

Table 2: Age distribution in fallopian tube lesions

Age range	Number of cases	Percentage of cases
20-29	23	14.94%
30-39	49	31.82%
40-49	68	44.15%
50-59	12	7.80%
60-69	2	1.29%

Figure 2: Photomicrograph showing chorionic villi and trophoblastic tissue with haemorrhage in a case of tubal ectopic pregnancy (10x).

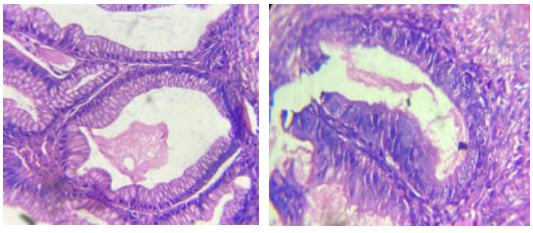


Figure 3: Photomicrograph showing secondary metastasis in the fallopian tube from mucinous cystadenoma of the right ovary (10x).

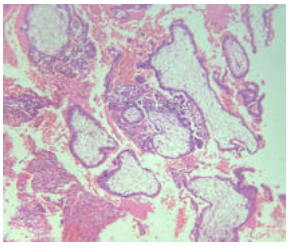


Figure 4: Photomicrograph showing secondary metastasis in the fallopian tube from mucinous cystadenoma of the right ovary (40x).

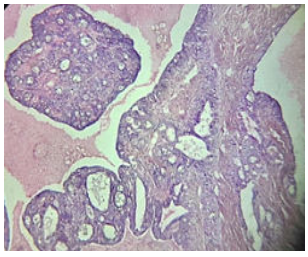
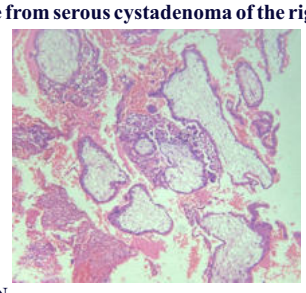


Figure 5: Photomicrograph showing secondary metastasis in the fallopian tube from serous cystadenoma of the right ovary (10x).



DISCUSSION

The study conducted comprised of 154 specimens of Fallopian tube. Majority of the cases of fallopian tube (67.53%) did not reveal any specific pathology which tallies with the study of Bagwan et al where normal uterine tubes were found in 66.52% cases [11]. Gon S et al found normal uterine tubes in 69% of cases while Ahmad N et al. in 61.28% cases [12].

According National Health Portal India in 2017, 97% of extra uterine pregnancy are implanted in the fallopian tube [13]. Tubal pregnancy is often the consequence of chronic salpingitis, leading to inflammatory destruction of the lining folds and retention of the ovum [1] . In the present study, there were a greater number of cases of tubal pregnancy which constituted about 18.83% cases compared to other studies by Mahajan D et al., Bagwan et al., Gon S et al., which contributed about 10.5%, 11.79%, 13.5%, cases of ectopic pregnancy respectively [11,12,14]. Study done by Ahmad N et al. showed similar findings with the present study comprising of 17.54% of tubal pregnancy [15].

In the present study, ectopic pregnancy was most commonly found in the age group of 20-29 years which was similar with the study done by Verma ML et al. where the maximum patients of ectopic pregnancy were between 21-30 years [16]. Diagnosis of ectopic pregnancy was done by histological findings of the presence of trophoblasts, edematous villi and hemorrhage.

Chronic salpingitis mostly occurs due to an ascending infection which is often sexually transmitted leading to the obstruction of the fimbriated end which results in tubal infertility [1]. There were few cases (1.95%) of chronic salpingitis in the present study. No acute or granulomatous salpingitis were noted in our study. Gon S et al and Ahmad N et al. found quite a higher incidence of chronic salpingitis which accounted for 17.3% and 12.53% of cases respectively [12,15]. OG Jones et al. found the median age of chronic salpingitis to be 29 years but it is 35 years in the present study [17].

Paratubal cysts, also known as Hydatids of Morgagni, are seen as small round cysts attached by a pedicle to the fimbriated end of the tube. The wall of the cyst is paper-thin with clear content. Most of them are lined by columnar epithelium containing both ciliated and secretory cells. Paratubal cysts constituted 5.84% of cases in our study which was in concordance with other studies. Bhagwan et el found paratubal cysts in 4.90%, Ahmad N et al. in 5.01%, Mahajan D et al. in 4% of cases [11,14,15].

Hydrosalpinx is regarded as the end stage of a purulent salpingitis. The wall of the fallopian tube is thin and fibrotic with atrophy of the smooth muscle wall with flat epithelium (1). There were 2 (1.3%) cases of hydrosalpinx in our study. Ahmad N et al. found such cases of hydrosalpinx in 0.68% of cases [15].

In the present study, secondary metastasis of fallopian tube comprised of 1.30% of cases. Similar result was shown by study by Jennifer L. Hunt et al. where metastatic lesions were seen in 1.4% of the cases[4]. Bagwan et al. and Gon S et al. found secondary malignancies in 0.29% and 0.2% of the fallopian tube specimens respectively [11,12].

CONCLUSION

In the present study, ectopic pregnancy was the most common finding among tubal lesions by histopathological examination. A detailed and proper fallopian tube examination can provide accurate information about the etiopathogenesis of ectopic pregnancy which can help in the treatment of recurrent ectopic pregnancy. Detailed pre-operative clinical examination of the patient along with thorough blood and radiological investigations should be stressed upon so that a pre-

operative ectopic pregnancy diagnosis will be helpful in reducing the risk of maternal mortality rate.

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