

Pattern and Frequency of Fallopian Tube Lesions in Resected Hysterectomy Specimens

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DOI: <https://doi.org/10.52403/gijhsr.20230307>

ABSTRACT

Introduction: The fallopian tube or salpinx has been named after scientist Gabriellis Fallopus, who was the first to describe the fallopian tube precisely. Fallopian tubes are though very common surgical specimens but are rarely studied. Inflammatory diseases of fallopian tubes and infertility due to various tubal factors are one most common disease observed in females.

Aims and Objectives: To evaluate the spectrum of fallopian tube lesions in surgically resected hysterectomy specimens grossly and on histopathology. To study the frequency of various histopathological lesions of fallopian tubes.

Material and Methods: The prospective study was conducted over one year, and 316 Right fallopian tubes and 314 left fallopian tube specimens' histopathology were analysed.

Results: In this study, it was observed that 96.52% of right fallopian tubes and 95.86% of left fallopian tubes were normal on histology. The most common histopathological lesions observed were salpingitis and Para tubal cysts.

Conclusion: Various histopathological lesions can be observed in fallopian tubes. Although Malignancies of fallopian tubes are rare, they must be subjected to histopathological examination to evaluate various pathological lesions.

Keywords: fallopian tube, salpinx, resected hysterectomy

INTRODUCTION

The fallopian tube or salpinx is a hollow muscular tubular structure measuring 11-12cm in length that runs throughout the

apex of the broad ligament and spans the distance between the uterine cornua and the ovary. It is divided into four segments, intramural, isthmus, ampulla and infundibulum. The inner aspect of the tube is lined by mucosa arranged in the shape of longitudinal folds (plicae), which merge with the fimbriae. Microscopically, the epithelium comprises three distinct cell types: secretory, ciliated and intercalated (peg) (1). It is a conduit for oocyte transport and provides a suitable environment for fertilisation, transport and nourishment of fertilised ovum (2). The most common disorders affecting the fallopian tube are inflammations followed frequently by ectopic (tubal) pregnancy and endometriosis. The most common primary lesions of the fallopian tube (excluding endometriosis) are minute, 0.1 to 2cm translucent cysts filled with clear serous fluid called para tubal cysts (3). Benign and malignant tumours of the fallopian tube account for 0.1-1.8% of gynaecological cancers (4) Salpingitis is the most common infective pathology in women of the reproductive age group, and it occurs due to ascending infection from the vagina. It affects approximately 11% of females. Salpingitis can lead to infertility and increase the chances of ectopic pregnancies (5,6). Histopathological analysis of fallopian tube specimens is mandatory for diagnostic purposes and to assess the pattern of lesions. This study analysed the pattern and frequency of lesions of fallopian tubes grossly as well on histopathology.

MATERIALS & METHODS

The study was prospective in nature. The study material comprised hysterectomy specimens received in the Department of Pathology, Government Medical College, Jammu, for one year, i.e., from 1st November 2017 to 31st October 2018. All the specimens of salpingectomy either done for TAH with bilateral salpingo-oophorectomy, unilateral salpingectomy or salpingo-oophorectomy were included in the study. The clinical information of the patients who underwent hysterectomy during this period was obtained from the histopathological requisition forms, and any deficient relevant information was procured from the clinical case sheets and the concerned clinician. The relevant investigations were obtained from the clinical case sheets and recorded. The specimens received by the Department of Pathology were properly labelled, numbered and then subjected to gross and detailed histopathological examination. Three hundred sixteen fallopian tube specimens were evaluated grossly and histopathologically. The fallopian tubes were sampled using the SEE FIM protocol to ensure optimal histological evaluation. As per the protocol, the distal 2 cm (the fimbrial end) of the fallopian tube was amputated from the rest of the tube and sectioned longitudinally. The remaining

portion of the fallopian tube was cut in cross sections at 2-3 mm intervals. Several sections from both fallopian tubes were made. The tissue was adequately processed from them depending upon the lesion. The gross serial sections were fixed in 10% neutral buffered formalin, dehydrated with ascending grades of alcohol, cleared in xylene and embedded in paraffin. 5-micrometre thick paraffin sections were cut on a rotary microtome, dewaxed and stained routinely with Haematoxylin and Eosin stain or other special stains whenever necessary (7).

RESULT

The right fallopian tube was removed in 316 cases. Most cases, i.e., 305 (97.6%), were histopathologically within normal limits. 7 (2.24%) cases of para tubal cysts were identified on histopathology. 4 (1.28%) cases were diagnosed as salpingitis on histopathology.

The left fallopian tube was removed along with a hysterectomy in 314 hysterectomy specimens. Most cases, i.e., 301 (96.32%), showed normal histology. Para tubal cysts were identified in 6 (1.92%) cases, salpingitis in 4 (1.28%) cases, endometriosis in 1 (0.32%) case and benign simple cyst in 1 (0.32%) case. In 1(0.32%) case, Walthard cell nests were observed on histopathology.

Table 1: Frequency Distribution of The Lesions of the Fallopian Tubes

S. No.	Gross examination	Right Fallopian tube		Left Fallopian tube	
		No. of cases	Percentage (%)	No. of cases	Percentage (%)
1.	Dilated	0	0.00	1	0.32
2	Thickened	3	0.96	1	0.32
3	Para tubal Cyst	7	2.24	7	2.24
4.	Unremarkable	306	97.92	305	97.6
	Total	316	100	314	100

Table 2: Spectrum of Histopathological Diagnosis of the Fallopian Tube Lesions

S. No.	Histopathological diagnosis	Right Fallopian tube		Left Fallopian tube	
		No. of cases	Percentage (%)	No. of cases	Percentage (%)
1.	Walthard cell nests	0	0.00	1	0.32
2.	Benign simple cyst	0	0.00	1	0.32
3.	Endometriosis	0	0.00	1	0.32
4.	Salpingitis	4	1.28	4	1.28
4.	Para tubal cyst	7	2.24	6	1.92
6.	Normal histology	305	97.6	301	96.32
	Total	316	100	314	100



Figure 1. Paratubal cyst showing flattened epithelial lining (H&E) 100X

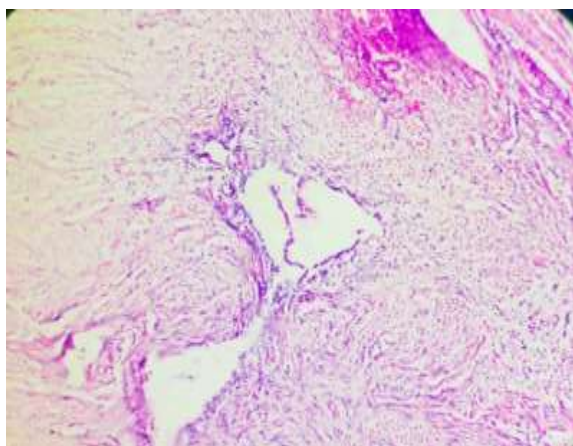


Figure 2. Endometriosis of Fallopian tube (H &E) 400X

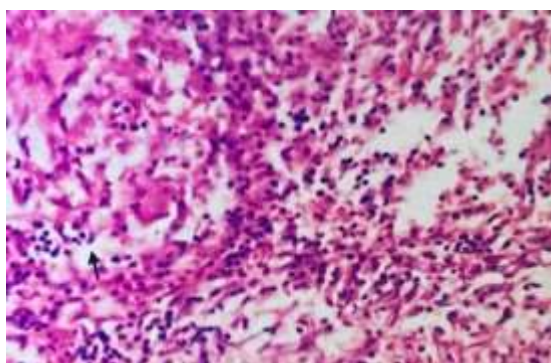


Figure 3. Tubercular Salpingitis (H&E) 400X

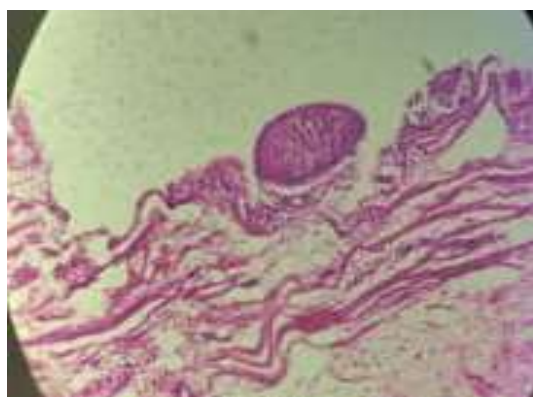


FIGURE 4. Walthard Cell Nests in Serosal Layer of Fallopian tube (H&E) 100X.

Right fallopian tube: Most cases, i.e., 305 (96.52%), were histopathologically within normal limits. 7 (2.22%) cases of para tubal cysts were identified on histopathology. 4 (1.26%) cases were diagnosed as salpingitis on histopathology. **Left fallopian tube:** The majority of the cases, i.e., 301 (95.86%), showed normal histology. Para tubal cysts were identified in 6 (1.91%) cases, salpingitis in 4 (1.27%) cases, endometriosis in 4 (1.32%) case and benign simple cyst in 1 (0.32%) case. In 1 (0.32%) case, Walthard cell nests were observed on histopathology.

DETAILED HISTOMORPHOLOGY OF FALLOPIAN TUBES SALPINGITIS:

8 cases were identified. 4 (1.26%) cases were identified in the right-sided fallopian tube. 4 (1.27%) cases were identified in the left-sided fallopian tube. Grossly, the tube was thickened on the right side in 3 cases and unremarkable in the other case. The left-sided fallopian tube was dilated in one case. On microscopic examination, 6 cases were observed as chronic salpingitis and two as tubercular salpingitis.

Chronic salpingitis: 6 cases were identified. Grossly, the wall of the fallopian tube was thickened in 3 cases and unremarkable in others. Microscopically, chronic inflammatory cell infiltrate comprising predominantly of lymphocytes and plasma cells was seen infiltrating the wall.

Tubercular salpingitis: 2 (0.64%) cases were identified. The patient clinically presented pain abdomen. Grossly the tube was dilated in one case and thickened in one case. Microscopically, epithelioid cell granulomas and Langhans-type giant cells admixed with lymphomononuclear cell infiltrate were seen.

Endometriosis of the tube: One (0.32%) case was observed in the left-sided fallopian tube. It was found incidentally, grossly, that the tube was thickened. Microscopic examination showed few endometrial glands surrounded by scant stroma.

Simple cyst: A simple cyst was identified incidentally in the left fallopian tube. Grossly, a small cyst measuring 0.4-0.8cm was seen. Microscopically, the cyst was lined by a layer of low cuboidal to flat cells.

Para tubal cysts: 13 cases of para tubal cysts were identified. 7 (2.22%) were identified in the right fallopian tube, and 6 (1.91%) were identified in the left fallopian tube. They ranged in size from 0.5 to 1.2cm and contained clear fluid. Microscopically cysts were lined by low cuboidal to ciliated columnar epithelium. Of these, three were histologically identified as mesothelial cysts and one as paramesonephric cyst.

DISCUSSION

Fallopian tubes are complex structures representing more than conduits from the ovary to the endometrial cavity. They are the seats of various interactions culminating in a normally implanted pregnancy (8). They are affected by a wide spectrum of diseases, but there are only occasional studies documenting histological changes in the fallopian tube removed for all reasons. In most cases in the present study, fallopian tubes were within normal histological limits (95.8%), whereas, in other studies, normal histopathology was observed in 66-72% of cases (9-12). The only remarkable lesions observed were 4 cases of salpingitis and 7 cases of para-tubal cysts in the right fallopian tube and 4 cases of salpingitis, and 5 cases of para-tubal cysts in the left fallopian tube. Salpingitis is one of the most common infections of women in reproductive age group. Commonly due to ascending infection and can vary from asymptomatic to life-threatening illnesses (11). In this study, the incidence of acute on chronic salpingitis was lower compared to other studies (13) Incidence of tubercular salpingitis in this study was 0.64%. Lakshmi et al. observed an almost equal incidence of tuberculous salpingitis (0.59%). Tuberculosis of the 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 (14). Tuberculosis, along with other inflammatory diseases of the tube, is an important cause of infertility (15). Endometriosis frequently involves the fallopian tube. An endometriosis diagnosis requires endometrial glands and or endometrial stroma within the fallopian tube wall. In this study, the frequency of endometriosis on histopathology was 0.32% and was low compared to the incidence of 1.08% observed by Kujur et al. in their study (16,17). In the present study, para tubal cysts were reported to be the commonly encountered lesions in the fallopian tube, i.e., 4.13 %, similar to observations made by Jha et al. (2006). Sucheta KL et al. (2016) encountered salpingitis as the most common lesion in the fallopian tube, the second most common lesion in the present study. (18,19). Similar observations were reported by Raza AKM (2017) and Rather G et al. (2013); the majority of cases revealed no pathological lesion in the fallopian tube in their study, which is comparable to the present study (20,21). Other lesions encountered in the fallopian tubes were 1 case of simple cyst, 1 case of endometriosis, 1 case of Walthard cell nests and 1 case of paramesonephric cyst, the least common lesions. Walthard cell nests are foci of benign epithelial collection containing elliptical nuclei with prominent nuclear grooves. Due to transitional cell metaplasia, anatomical proximity, similar immunohistochemistry profile and cilia presence, the tubal origin of the Brenner tumor is strongly suspected. Many studies have observed the association of Brenner tumor with Walthard cell nests in about 40% of cases. In this study, no such association was observed. (22,23). Benign and malignant tumors can occur in the fallopian tube but are uncommon.

CONCLUSION

In this study, the fallopian tube was unremarkable in most cases. Para tubal cysts were the most common lesions of the

fallopian tubes grossly and on histopathology, followed by salpingitis and endometriosis. Our study provides a fair insight into the histopathological spectrum of lesions in fallopian tube specimens in our Institution. The histopathological analysis correlates well with the preoperative clinical diagnosis in most cases; a few incidental diagnoses were also made. Hence, it is stressed that it should be made a routine practice to subject every specimen of the fallopian tube to gross and microscopic examination to give the final diagnosis, plan further management and ensure the best post-operative management of the patient.

Declaration by Authors

Ethical Approval: Approved

Acknowledgement: None

Source of Funding: None

Conflict of Interest: The authors declare no conflict of interest.

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- How to cite this article: Monika Pangotra, Himanshu Rana, Rashmi Aithmia. Pattern and frequency of fallopian tube lesions in resected hysterectomy specimens. *Gal Int J Health Sci Res.* 2023; 8(3): 40-45.
DOI: <https://doi.org/10.52403/gijhsr.20230307>
