

Histomorphological Pattern of Fallopian Tube Lesions in a Tertiary Care Hospital

*Jannat T,¹ Jeba R,² Nahid MS,³ Ahsan MM⁴

Abstract

Background: Fallopian tubes are a very important organ of the female reproductive system. A wide range of diseases varying from salpingitis to malignancy can affect fallopian tubes. Fallopian tube lesions are associated with infertility. Moreover, Tubal epithelium (mainly fimbria) is a potential origin of ovarian and peritoneal carcinoma.

Objective: The present study was designed to evaluate the histomorphological patterns as well as the frequency of different fallopian tube lesions.

Method: A total of 300 cases of fallopian tubes were included in this study according to inclusion and exclusion criteria. After receiving gross examination was done and relevant data were collected in preformed proforma. Tissue processing, paraffin block preparation, and hematoxylin and eosin (H&E) stain were done according to standard protocol followed by the Pathology Department of DMC. Sections were examined by light microscopy.

Results: From this study, it was stated that pathological lesions of fallopian tubes were observed in 40% of cases which was a large number. Most of the lesions of fallopian tubes were non-neoplastic and very few neoplastic lesions were found. Most of the lesions occur at 31-40 years of age. Total abdominal hysterectomy with bilateral salpingo-oophorectomy was the most common type of specimen and fibroid uterus was the most common surgical indication (60 cases 20%) followed by ovarian cyst (53 cases 17.66%). Salpingitis was the most common histopathological diagnosis, found in 47 (15.66%) cases followed by ectopic tubal pregnancy (13.33%). Primary malignancy was found in only a single patient.

Conclusion: It is necessary to do a thorough examination of fallopian tubes and give at least one block from each site. It is not only for the detection of tubal pathology but also to detect precursor lesions of the tubal epithelium (mainly fimbria) as it is the origin of ovarian or peritoneal carcinoma.

[Journal of Histopathology and Cytopathology, 2024 Jan; 8 (1):3-9]

Keywords: Fallopian tube lesions

1. *Dr. Tamanna Jannat, MBBS, MD(Pathology), Assistant Professor, Department of Pathology, Prime Medical College, Rangpur. dr.tamanna2020@gmail.com
2. Dr. Ruksana Jeba, MBBS, MD (Pathology), Professor & Head, Department of Pathology, Dhaka Medical College, Dhaka.
3. Dr. Md. Shahrior Nahid, MBBS, MD(Pathology), Resident Medical Officer, Department of Pathology, National Institute of Laboratory Medicine and Referral Centre (NILMRC), Sher-E-Bangla Nagar, Dhaka-1207.
4. Dr. Md. Moinul Ahsan, MBBS, MD (Biochemistry), Lecturer, Department of Biochemistry, Nilphamari Medical College, Nilphamari.

*For correspondence

Introduction

The fallopian tube is one of the most common specimens in the pathology laboratory and may be examined as a salpingectomy or as part of a more complex specimen from a hysterectomy and/or oophorectomy operation.¹ Although the fallopian tube is affected by a wide range of diseases, there is a lack of data to describe the various histological findings of fallopian tube lesions.² Surgical specimens removed for the lesion of fallopian tubes are much less common as compared to the specimens for the other gynecological lesions.

It is observed that tubal pathology with inflammatory lesions including tuberculosis are major group and remains responsible for a significant percentage of cases of infertility and increases the chance of ectopic pregnancies.³ Ectopic pregnancy is one of the main causes of maternal morbidity and mortality. Fallopian tubes are the site where 95% of all ectopic pregnancies occur. Other diseases such as hematosalpinx, endometriosis, and paratubal cysts are also commonly observed.⁴ Traditionally, primary carcinoma of the fallopian tube has been regarded as very rare, approximately 0.2% to 1.8% of all female genital tract malignancies.⁵ Recent studies have demonstrated tubal epithelium as the potential origin of tubal, ovarian, and peritoneal carcinoma.⁶ Metastatic tumors are more common in the fallopian tube. Metastases to the fallopian tube usually originate from the ovary, endometrium, or cervix. Tubal metastases usually indicate poor prognosis regardless of the site of the primary tumor.² In Bangladesh there are very few studies have been done regarding fallopian tube lesions.

With this current increasing demand, the present study is designated to evaluate the histomorphological pattern of various

fallopian tube lesions in a tertiary care hospital and to detect any occult pathology.

Methods

This is a descriptive cross-sectional study that was carried out at the Department of Pathology, Dhaka Medical College (DMC), during the period of March 2017 to February 2019. 300 consecutive specimens of fallopian tubes were collected as samples. Patients who received chemotherapy for any malignancy and poorly preserved fallopian tube specimens were excluded from this study. After receiving, gross examination was done. Minimum of two cross sections from proximal portions and one longitudinal section from distal fimbriated end (Distal 2cm) of each fallopian tube were given. Relevant data were collected in preformed proforma. Tissue processing, paraffin block preparation, sectioning (3-5 microns), and hematoxylin and eosin (H&E) were done according to standard protocol followed by the Pathology Department of DMC. Sections were analyzed by light microscopy. Histomorphological features were studied and all microscopic features were noted down. Statistical analysis was done using SPSS (version 25).

Results

In this cross-sectional observational study, 300 surgical specimens were taken as samples. The age of the patient ranged from 18 to 75 years. Most of the cases (39%) were found in 31-40 years of age (Fig-1). Five types of surgical specimens were included in this study. Total abdominal hysterectomy with bilateral salpingo-oophorectomy was the most common type (31%) followed by unilateral salpingo-oophorectomy (23.7%) (Table I). The fibroid uterus was the most common. More than half of the cases (60%) were histologically unremarkable and the remainder 40% cases showed pathological changes.

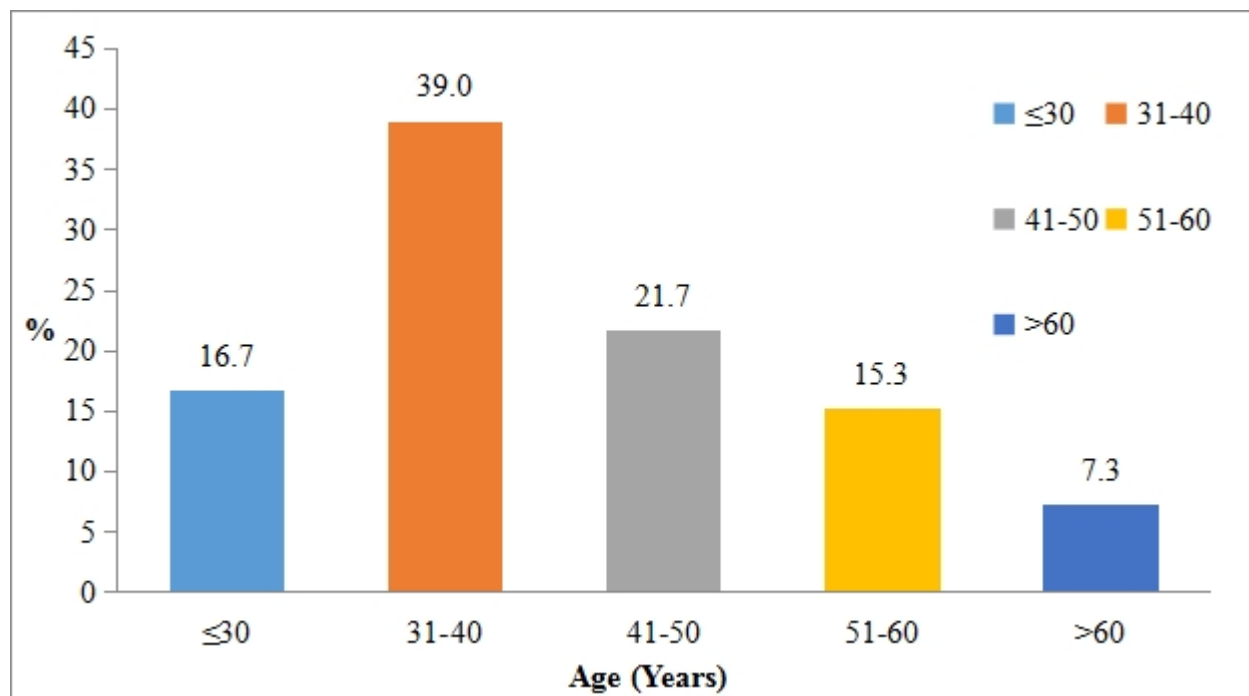


Figure 1. Age distribution (n=300)

Table I: Distribution of the patients according to type of surgical procedures

Type of surgical procedures	Frequency	Percentage
Unilateral salpingectomy	52	17.3
ULSO	71	23.7
BLSO	27	9.0
TAH with ULSO	57	19.0
TAH with BLSO	93	31.0

The most common surgical indication was fibroid uterus (60 cases 20%) followed by ovarian cyst (53 cases 17.66%) (Table II). Salpingitis was the most common histopathological diagnosis (Fig-3), found in 47 (15.66%) cases followed by ectopic tubal pregnancy (13.33%) (Fig-2). Primary malignancy (Fig- 5) was found in only a single patient (Table III).

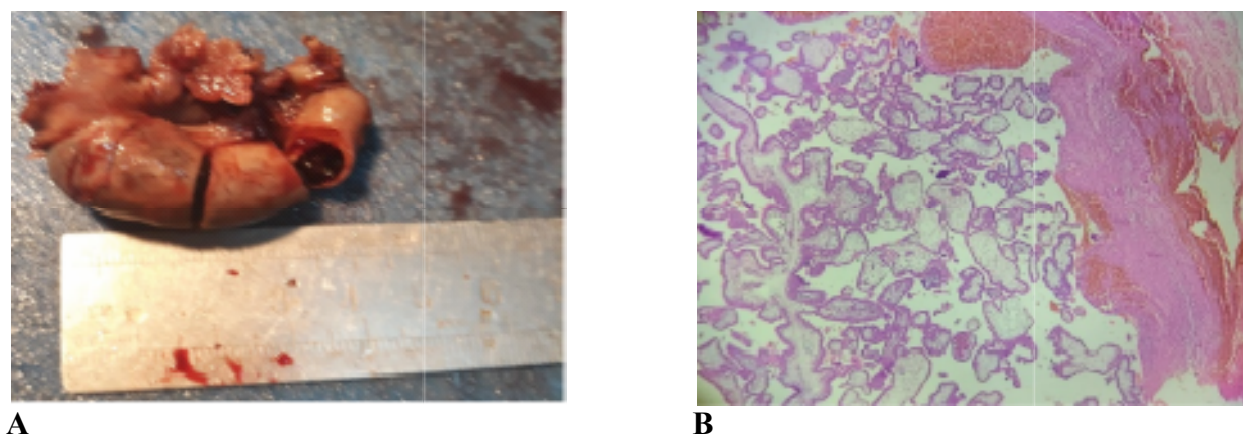


Figure 2. Ectopic (tubal) pregnancy; (A) Gross picture (B) Microscopic picture (400X)

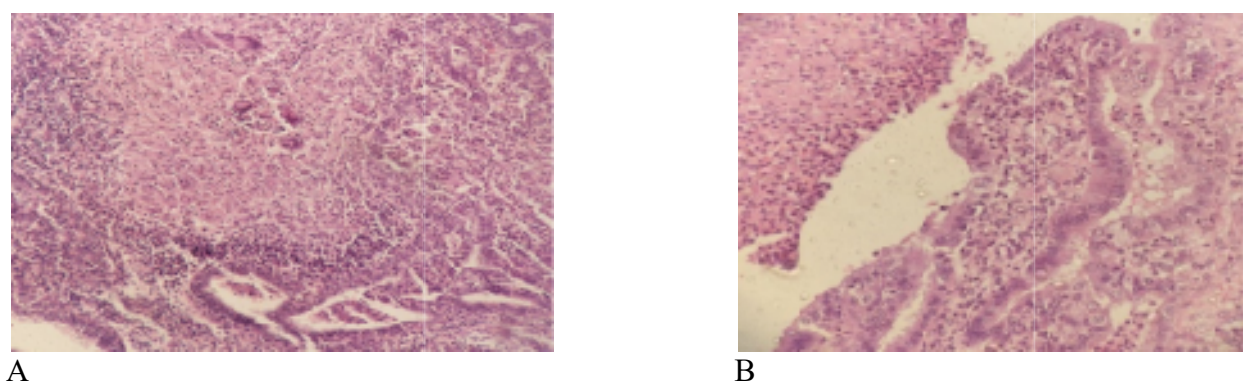


Figure 3. Photomicrograph of salpingitis (400X); A) Chronic salpingitis B) Acute salpingitis

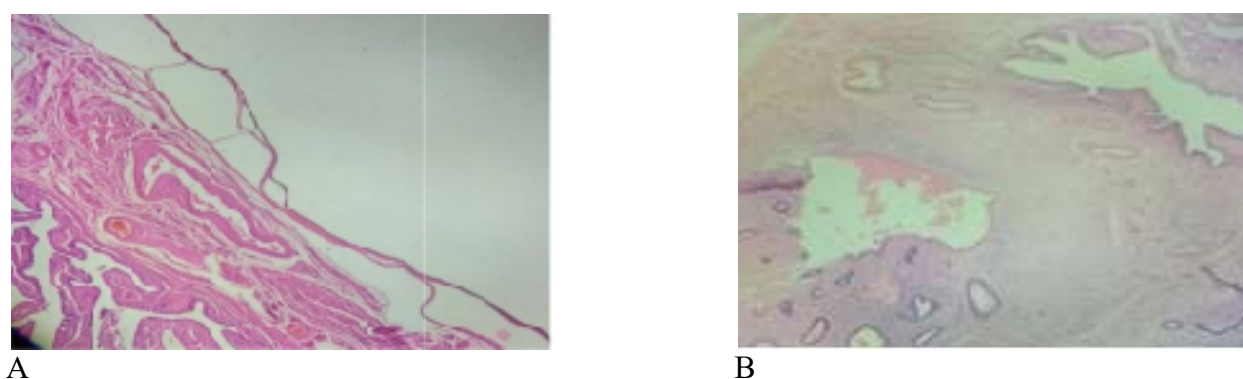


Figure 4. Photomicrograph of A) Paratubal cyst (40X) B) Endometriosis,

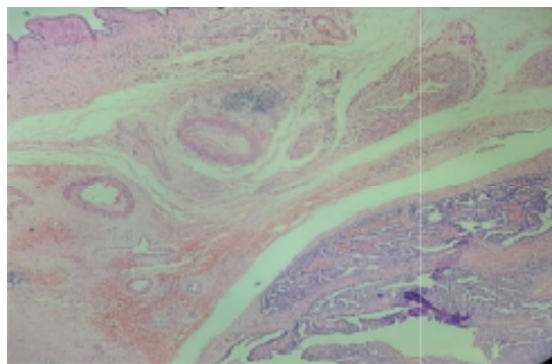
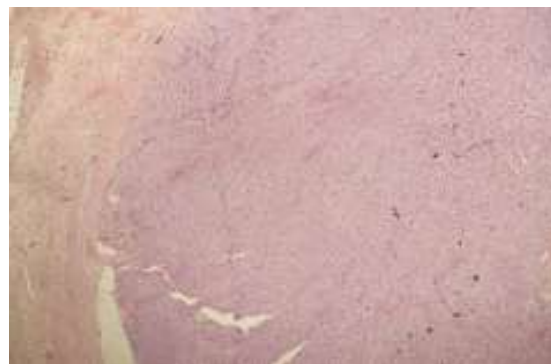
**A****B**

Figure 5. Photomicrograph of secondary (A) and primary (B) malignancies (400X)

Table II: Distribution of the patients according to surgical indication

Clinical diagnosis	Frequency	Percentage (%)
Fibroid	60	20
Ovarian cyst	53	17.66
Ectopic (tubal) pregnancy	39	13
Adnexal mass	30	10
Adenomyosis	24	8
Tubo-ovarian mass	19	6.33
Dysfunctional uterine bleeding	18	6
Pelvic inflammatory disease	16	5.33
Chronic cervicitis	15	5
Uterine prolapse	9	3
Ovarian carcinoma	8	2.66
Cervical carcinoma	5	1.66
Endometrial carcinoma	4	1.33

Among 120 cases with tubal pathology, salpingitis (Fig-3), and hematosalpinx were most commonly found in the age range 31-40 years. Endometriosis was found in 31-40 years of age and 41-50 years of age (Fig-4). Ectopic tubal pregnancy was commonly found in ≤ 30 years of age. Paratubal cysts were commonly found in 41-50 years of age. Primary malignancy was found in 51-60 years of age and secondary malignancy was found in >60 years of age (Table VI).

Table III: Distribution of the patients according to histomorphological diagnosis

Histomorphological diagnosis	Frequency	Percentage
Unremarkable	180	60
Salpingitis	47	15.66
○ Acute salpingitis	3	1
○ Chronic salpingitis	40	13.33
○ Granulomatous salpingitis	4	1.3
Haematosalpinx	7	2.3
Endometriosis	8	2.6
Ectopic (tubal) pregnancy	39	13
Paratubal cyst	15	5
Primary malignancy	1	0.33
Secondary malignancy	3	1

Table VI: Distribution of fallopian tube lesions of the patients according to age

Fallopian tube lesions	Age (years) (%)				
	≤30	31-40	41-50	51-60	>60
Salpingitis					
○ Acute salpingitis	0	3 (100.0)	0	0	0
○ Chronic salpingitis	7 (17.5)	21 (52.5)	11 (27.5)	1 (2.5)	0
○ Granulomatous salpingitis	1 (25.0)	3 (75.0)	0	0	0
Haematosalpinx	0	5 (71.4)	2 (28.6)	0	0
Endometriosis	0	4 (50.0)	4 (50.0)	0	0
Ectopic (tubal) pregnancy	24 (61.5)	15 (38.5)	0	0	0
Paratubal cyst	4 (26.7)	3 (20.0)	6 (40.0)	2 (13.3)	0
Primary malignancy	0	0	0	1 (100)	0
Secondary malignancy	0	0	0	0	3 (100.0)

Discussion

Fallopian tubes an important female reproductive organ, are affected by a wide spectrum of diseases varying from salpingitis to malignancy.⁶ Ectopic tubal pregnancy is not only an important cause of maternal mortality and morbidity, moreover recent studies demonstrated tubal epithelium (mainly fimbria) as the potential origin of tubal, ovarian, and peritoneal carcinoma.⁷ But In Bangladesh, fallopian tubes are examined with less importance. Very few studies are done to demonstrate the frequency of fallopian tube lesions. As Dhaka Medical College is a tertiary care hospital, fallopian tube lesions are more frequently found here. That's why the present study was designated to evaluate the histomorphological patterns of fallopian tube lesions. In the present study, among the 300 cases, 120 cases (40%) showed pathological lesions and 180 cases

(60%) were unremarkable. These findings were almost similar to some recent studies.^{8,9}

In the present study, it was observed that the age of the majority of cases (54 cases, 45%) was between 31-40 years. The mean age of patients with pathological lesions was 35 ($\pm$ 9.90) years, ranging from 18 years to 66 years, and all most similar to previous studies where ages ranged between 30 years to > 60 years where the majority of cases (46.5%) were between 31-40 years.¹⁰ Maximum number of cases belonging to the age group of 36-45 years was found in another recent study.¹¹ In this study, the majority of the lesions were comprised predominantly of salpingitis (47 cases, 15.66%) followed by ectopic tubal pregnancy (39 case, 13%), para tubal cyst (15 cases, 5%), endometriosis (8 cases, 2.6%), hematosalpinx (7cases,2.3%), secondary malignancy (3cases,1%) and primary malignancy (1case,0.33%). A recent

study showed that salpingitis (12%) was the predominant lesion followed by ectopic tubal pregnancy (10.5%), paratubal cyst (4%), hematosalpinx (1.5%), endometriosis (1%), and secondary malignancy (1%).¹² These findings were similar to the present study. In this study, salpingitis was predominantly found in 31-40 years of age, ectopic tubal pregnancy was predominantly found in 21-30 years of age. Salpingitis and ectopic tubal pregnancy were found mainly in reproductive age. Endometriosis, Paratubal cyst, and hematosalpinx were mainly found in 31-50 years of age. Primary malignancy was found in 51-60 years of age and secondary malignancy was mainly found in > 60 years of age. Malignancy was found mainly in postmenopausal age. The same findings were observed in several previous studies.¹³

Conclusion

Fallopian tubes show a broad spectrum of diseases ranging from salpingitis to malignancy. In this study, 60% cases were histologically unremarkable and salpingitis (15.66%) was the commonest histopathological diagnosis followed by ectopic tubal pregnancy (13.33%), endometriosis (2.6%), hematosalpinx (2.3%). Most of the cases were found in child bearing age and malignancies are found in post menopausal age.

References

1. Kujur P, Kosam S, Gupta A. Histopathological study of spectrum of lesions seen in surgically resected specimens of fallopian tube. *International Journal of Scientific Study*. 2016; 4(9):39-43.
2. Gon S, Basu A, Majumdar B, Das TK, Sengupta M, Ghosh D. Spectrum of histopathological lesions in the fallopian tubes. *Journal of pathology of Nepal*. 2013 Mar 27; 3(5):356-60.
3. Bagwan IN, Harke MR, Deshmukh SD. Histopathological study of spectrum of lesions encountered in the fallopian tube. *Infertility*. 2004;8: 1-6.
4. Patel J, Iyer RR. Spectrum of histopathological changes in fallopian tubes—a study of 350 cases. *Int J Sci Res*. 2016;5:180-1.
5. Schneider C, Wight E, Perucchini D, Haller U, Fink D. Primary carcinoma of the fallopian tube. A report of 19 cases with literature review. *European Journal of Gynaecological Oncology*. 2000 Dec 10; 21(6):578-82.
6. Borgohain M, Gogoi G, Rahman M, Roy R, Gogoi N. A Histopathological Study of Fallopian Tube Lesions-in a Tertiary Care Centre. *International Journal of Contemporary Medical Research*. 2018; 7(5):5-8.
7. Choudhary M. Roopali. Histopathological istopathological spectrum of lesions encountered in fallopian tube a study of 250 cases. *Indian Journal of Applied Research*. 2019;9(11):1-3.
8. Hunt JL, Lynn AA. Histologic features of surgically removed fallopian tubes. *Archives of pathology & laboratory medicine*. 2002 Aug 1; 126(8):951-5.
9. Arora KS, Sreenivasulu K, Janaki M, Harish V, Raja V. Study of histomorphological lesions of fallopian tubes. *Journal of Evolution of Medical and Dental Sciences*. 2015 May 18; 4(40):6938-44.
10. Agarwal J, Gupta JK. Female genital tuberculosis--a retrospective clinico-pathologic study of 501 cases. *Indian Journal of Pathology & Microbiology*. 1993 Oct 1; 36(4):389-97.
11. Ravindra S, Prasad S, Suguna BV. Histomorphology of fallopian tubes in ectopic pregnancy. *Archives of Medicine and Health Sciences*. 2016 Jul 1; 4(2):201-4.
12. Mahajan D, Suri J, Kaul KK. Histological patterns in fallopian tube pathology-A retrospective study of 200 consecutive cases. *JK Science*. 2016 Apr 1; 18(2):71.
13. Pectasides D, Pectasides E, Economopoulos T. Fallopian tube carcinoma: a review. *The Oncologist*. 2006 Sep 1; 11(8):902-12.