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Original Article

Number of fimbria of fallopian tubes –A postmortem study in relation to age

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ABSTRACT

Background: Fallopian tube is one of the vital organ for human fertility.This is where the sperm fertilizes the ovum and human life begins. Detailed morphological knowledge is essential for proper diagnosis and management of disease of fallopian tube.
Study Design: Cross Sectional descriptive type of study.
Place & period of study: Department of Anatomy, Dhaka Medical College, Dhaka from July 2008 to June 2009.
Materials: 120 postmortem human fallopian tubes were collected from 60 unclaimed dead bodies that were under examination in the morgue of Department of Forensic Medicine, Dhaka Medical College, Dhaka.
Methods: The samples were divided into three age groups: Group-A (10-13 years), Group-B (14-45 years) and Group-C (46-50 years).
Results: The mean(±SD) number of fimbriae of the right & left Fallopian tubes were 21.20(±3.63) and 21.00(±4.00) in group A, 21.71(±2.13) and 21.53(±2.07) in group B and 20.90(±3.48) and 21.20± 2.30 in group C respectively.The highest mean number was found in group B and lowest mean number was in group A. The mean difference in number of fimbria of right and left Fallopian tube between Group-A, Group-B and Group-C were statistically not significant.
Conclusion: In this study, the number of fimbriae does not vary in between right and left fallopian tubes, in any age group.

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Introduction

The fallopian tubes are paired, narrow tubular structures; extends bilaterally from the uterus towards the ovaries[1].The fallopian tube is divided into four parts, the interstitial segment, isthmus, ampulla and infundibulum[2]. Most lateral part of the tube, the funnel shaped infundibulum and terminates via the fimbriated abdominal ostium[3]. This opening is fringed by a number of petal-like processes, the fimbriae, which closely embrace the tubal end of the ovary[4].This finger like processes spread over the surface of the ovary and a large one, the ovarian fimbriae is attached to the ovary is responsible for pick up of ovum[5]. This fimbriated end has an important role in fertility[4].

At the time of ovulation, the venous plexus at the lateral portion of the Fallopian tube gets filled with blood and smooth muscle contracts, possibly as an effect of PG in the follicular fluid. This leads to an alignment of the fimbrial apparatus around the site of ovulation. After ovulation, the ovum is picked up by the cilia of the fimbria[6]. The presence of the spermatozoa can increase the ciliary beating frequency in the tube[7].

It is generally here, within the fallopian tube that the primary function of human sexual reproduction occurs: recombination of the genetic information from both parents in the first cell of the off spring[8].

Infertility is a common problem worldwide and has been classified as a major medical issue by the World Health Organization (WHO). About half the infertility problems are caused by problems in the female and among this about 14% of those are caused by impaired function of the Fallopian tubes[9]. In assisted reproductive technologies (ART) the Fallopian tubes are utilized by infertile couples to conceive. A clear conception on the anatomy of fallopian tube is a prerequisite for the diagnosis and treatment of fallopian tube disease.

Materials and methods

The samples of human Fallopian tubes were collected from the unclaimed female dead bodies that were under examination in the morgue of Department of Forensic Medicine, Dhaka Medical College, Dhaka from November 2008 to june 2009. After legal formalities, the samples were collected within 24-36 hours of death without any sign of putrefaction. All the samples were collected from medicolegal cases. During collection, appropriate age and the cause of death were noted from the morgue's record book. The samples were brought to the Department of Anatomy, Dhaka Medical College, Dhaka. The samples were tagged immediately, which was bearing a code number for subsequent identification. Soon after collection, each sample was gently washed with tap water on a dissection tray. Blood and blood clots were removed as far as possible. Then the sample was fixed in 10% formol saline solution. The collected samples were divided into three groups [9] (Table-1)

Table-1 Age distribution in different groups

Group	Age limit in years	Number of samples(120)	
		Right	Left
A	10-13 years	5	5
B	14-45 years	45	45
C	46-50 years	10	10

Parameter studied

Number of the fimbriae of fallopian tubes

Procedure for estimation of the number of the fimbriae of fallopian tubes

The number of fimbriae were counted by using a hand magnifying glass at the distal end of the tube.

Fig:1. Collected sample of uterus and adnexae taken from the group B

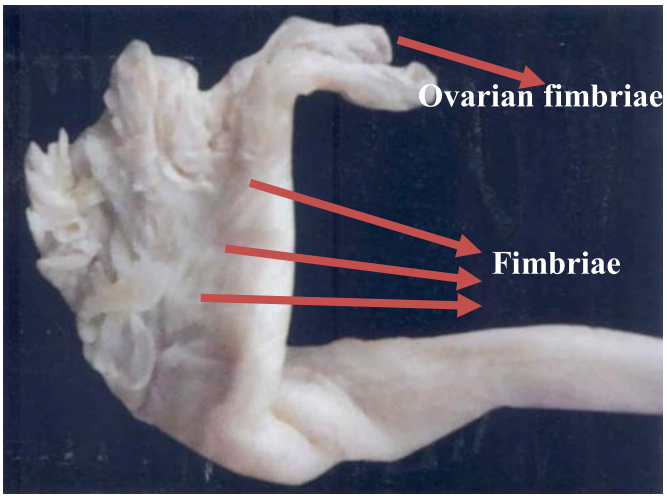

Fig: 2. Observation of number of fimbriae of the fallopian tube taken from group B

Result

In the present study, the mean ±SD number of fimbriae of the right & left Fallopian tubes were 21.20±3.63 and 21.00 ± 4.00 in group A, 21.71± 2.13 and 21.53 ± 2.07 in group B and 20.90 ± 3.48 and 21.20± 2.30 in group C respectively. The highest mean number was found in group B and lowest mean number was in group A. The mean difference in number of fimbria of right and left Fallopian tube between Group-A, Group-B and Group-C were statistically not significant.Results are shown in table-2 and figure- 3.

Table 2 Number of the fimbria of right and left Fallopian tubes in different age group

Age group	Right Mean±SD	Left Mean±SD	P value	Remarks
A (n=5)	21.20±3.63 (18.00-26.00)	21.00±4.00 (18.00-28.00)	>0.50	NS
B (n=45)	21.71±2.13 (18.00-26.00)	21.53±2.07 (18.00-28.00)	>0.50	NS
C (n=10)	20.90±3.48 (18.00-28.00)	21.20±2.30 (19.00-26.00)	>0.10	NS
	P value	*P value*		
A vs B	>0.50	>0.50		NS
A vs C	>0.50	>0.50		NS
B vs C	>0.10	>0.50		NS

NS = Not Significant

Figures in parentheses indicate range. Comparison between right and left side done by unpaired Student's 't' test and comparison between age group done by One-way ANOVA (PostHoc), ns = not significant.

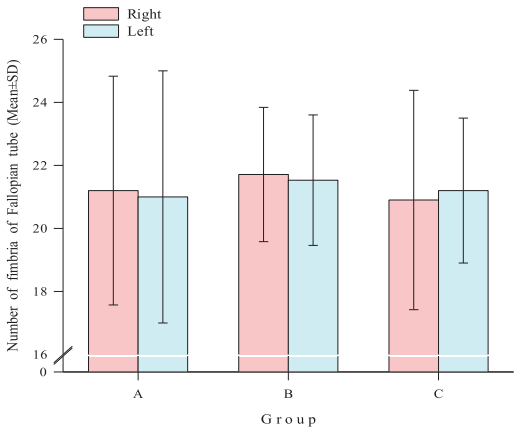

Fig. 3 Number of the fimbria of right and left Fallopian tubes in different age group

Group A : Age 10-13 years
Group B : Age 14-45 years
Group C : Age 46-50 years

Discussion

The number of fimbriae in right and left Fallopian tubes were 20.90± 3.48 to 21.71 ± 2.13. According to Moore[5] & Bardawil [10] the

number of fimbriae were 20-30 in number. The number of fimbriae do not vary in between left and right Fallopian tube. The number do not increase with age advancing or do not decrease after menopause. This finding corresponds with the present study findings.

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