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# In Bangladeshi Female Cadaver, the Change of Outer Diameter of the Infundibulum of Fallopian Tube in Advancing Age.

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## ABSTRACT

***Context*:** Problems with the fallopian tubes can lead to infertility. Disease can be defined and measured only in terms of deviation from normal structure. Detailed morphological and histological knowledge is essential for the diagnosis and management of fallopian tube disease.

***Objectives*:** To identify the outer diameter of the infundibulum and its changes with advancing age.

***Study Design*:** Cross sectional descriptive type of study.

*Period and place*: Department of anatomy, Dhaka Medical College from July 2008 to June 2009.

***Materials:*** Present study was performed on post mortem fallopian tubes of 60 Bangladeshi female. Among them lowest age was 12 years and highest age was 50 years.

***Methods*:** Samples were divided into three differential age groups: Group A (10-13 years), Group B (14-45 years), Group C (46-50 years). All samples were studied morphologically and histologically.

***Results*:** The mean outer diameter of the infundibulum of the right and left fallopian tubes ranged from 0.80±0.01 to 1.03±0.22 mm. The difference between all the groups were statistically significant ($p < 0.001$).

***Conclusion*:** There was change in outer diameter of the infundibulum of fallopian tubes of left and right in relation to age.

**KEY WORDS: Fallopian tube, Infundibulum.**

## INTRODUCTION-

The fallopian tube was first described by the Italian Anatomist Gabriello Fallopio (1523-1562). He discovered ducts leading from the uterus to the ovaries which he described as "trumpets of the uterus"[1]. This is where the sperm fertilizes the egg and human life begins. The fallopian tube is divided into four parts, the interstitial segment, isthmus, ampulla, and infundibulum[2]. The most lateral part of the tube, the funnel shaped infundibulum and it terminates via the fimbriated abdominal ostium[3]. This fimbriated end has an important role in fertility[4].

The length of infundibulum is 1.5cm, its outer diameter and inner diameter are 1-1.5cm and 3-6mm respectively[5]. The typical pattern of the adult oviduct is already sketch in fetal life. Tubal disease is usually defined as tubal damage caused by pelvic infection such as pelvic inflammatory disease, tuberculosis, salphingitis isthmica nodosa or iatrogenic disease with varying degree of tubal damage or obstruction[3, 6]. Tubal

disease is accountable for 30-40% of cases of female infertility[3]. Salphingitis is associated with distal occlusion of the fallopian tube and deciliation, which can be extensive[7]. The infertility, morbidity and mortality associated with fallopian tube disease within our population increasing day by day. A clear conception of the anatomy of the fallopian tube is a pre-requisite for the diagnosis and treatment of fallopian tube disease and in treatment of infertility and in ART (Assisted reproductive technologies).

## MATERIALS AND METHODS:

Samples of human fallopian tube were collected from unclaimed dead bodies that were under examination in the morgue of Forensic Medicine department of Dhaka Medical College, Dhaka from November 2008 to April 2009. After legal formalities, the samples were collected from medico legal cases. During collection, appropriate age and cause of death were noted from morgue's record. The samples were brought to the department of Anatomy, Dhaka Medical College. The samples were immediately tagged with a code number for subsequent identifications. Soon after collection, each sample was gently washed in tap water on a dissection tray. Blood and blood clots were removed as far as possible. Then the samples were fixed in 10% formol saline solution. The collected samples were divided into three groups [8].

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

**Table 1 Grouping of the sample of the present study (n = 120).** Group A indicates pre-menarche age group, Group B indicates reproductive age and group C indicates post-menopausal age group.

The outer diameter of the infundibulum of both right and left fallopian tubes were measured by using a slide calipers with a Vernier scale at their maximum thickness (Fig: 1).

**Fig. 1:** Photograph of measurement of outer diameter of the infundibulum of the Fallopian tube by using slide calipers with a Vernier scale.

## RESULT:

In the present study, the mean ±SD Outer diameter of the infundibulum of right and left fallopian tubes were 0.80 ± 0.00 cm and 0.80 ± 0.01 cm in Group-A, 1.03 ± 0.22 cm and 0.99 ± 0.22 cm in Group-B and 0.84 ± 0.12 cm and 0.80 ± 0.12 cm in Group-C respectively. The mean difference in Outer diameter of the infundibulum of right and left fallopian tubes was not statistically significant.

The highest mean diameter was found in group B and lowest diameter found in group A.

The difference in mean Outer diameter of the infundibulum between Group-A & Group-B and Group-B & Group-C were statistically significant (Table: 2, Fig: 2). (P< 0.05 and P< 0.01 respectively)

| Outer diameter (mm) | | | |
|---|---|---|---|
| Age Group | Right Mean±SD | Left Mean±SD | P Value |
| A (n=5) | 2.70±0.14 (2.50-2.80) | 2.65±0.14 (2.45-2.75) | >0.50$^{ns}$ |
| B (n=45) | 3.24±0.27 (2.80-4.00) | 3.19±0.27 (2.75-3.95) | >0.10$^{ns}$ |
| C (n=10) | 2.04±0.08 (2.00-2.20) | 1.99±0.08 (1.95-2.15) | >0.10$^{ns}$ |
| | P value | P value | |
| A vs B | <0.001$^{***}$ | <0.001$^{***}$ | |
| A vs C | <0.001$^{***}$ | <0.001$^{***}$ | |
| B vs C | <0.001$^{***}$ | <0.001$^{***}$ | |

**Table 2:** Outer diameter of the infundibulum of right and left Fallopian tubes in different age group 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, *** = significant. Group A: Age 10-13 years, Group B: Age 14-45 years, Group C: Age 46-50 years

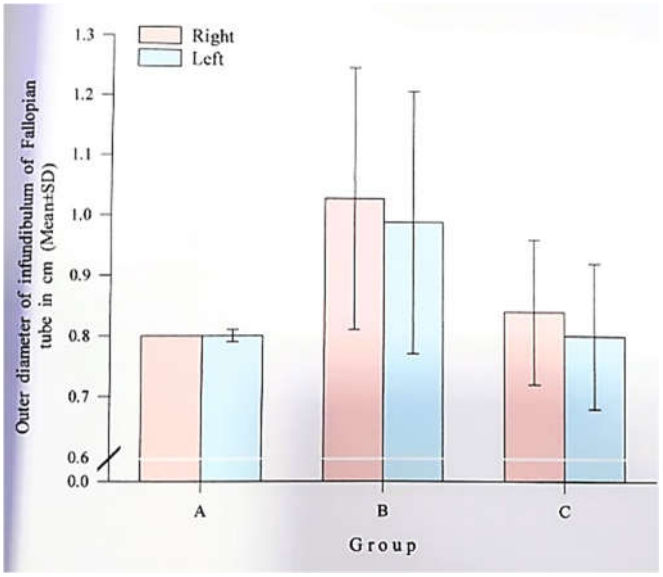


**Fig. 2:** Outer diameter of the infundibulum of right and left Fallopian tubes in different age group. Group A: Age 10-13 years, Group B: Age 14-45 years, Group C: Age 46-50 years.

## DISCUSSIONS:

The mean ± SD outer diameter of the infundibulum of fallopian tube was 1.03 ± 0.22 cm in reproductive age group. According to Bardawil (2008)[9] the outer diameter of infundibulum of fallopian tube is 1 cm in adult, which is quite similar with present study values in reproductive age group. The mean ± SD outer diameter of the infundibulum of fallopian tube studied by Rahman (2007)[10] is dissimilar to the result of present study in various age groups. These findings are higher than present study, it may be due to the fact that, the present observation was done with the formalin fixed viscera. But Rahman (2007) [10] did his study with fresh viscera.

## CONCLUSION:

The growth of the fallopian tube as evidenced by morphological parameters increase until the menopause and after menopause there was gradual decrease in the parameters.

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