

# Study of Cervical Length in Bangladeshi Cadaver

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## Abstract

This cross sectional descriptive study was done to see the length of the cervix in Bangladeshi cadaver to find out the anatomical variation and to compare it with other study findings. 60 post mortem specimens containing female genital organs particularly uterine cervix were collected by purposive sampling technique from cadavers of different age groups. All the collected specimens were fixed in 10% formaline solution. This study was carried out in the department of Anatomy, Mymensingh Medical College from July 2006 to June 2007. Both gross and fine dissections were performed to measure the length of the uterine cervix. We compare our study findings with that of the references. Maximum mean length of the cervix was found in the 13-45 years age group. It was 2.89 cm.

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## Introduction

The uterine cervix averages 2.5-3.5 cm in length. It is the lower narrow and cylindrical part of uterus<sup>1</sup>. It is less mobile than the body and is slightly wider in the middle than above or below. The cervix projects through the anterior wall of the vagina, which divides it into upper supra vaginal and lower vaginal part<sup>2</sup>. The cervix contains a lumen that is cervical canal. Above, it is continuous with the uterine cavity through internal os and below opens into the external os.

The uterine cervix differs in histological structure from the rest of the uterus. The cervix has few smooth muscle fibers and consists mainly 85% of dense connective tissue<sup>3</sup>. The lining of the lumen of the cervix is simple columnar epithelium. But the external aspect of the vaginal portion of cervix is lined by non-keratinized stratified squamous epithelium. The commonest type of cervical carcinoma developed from this squamous epithelium of the cervix at junction of this epithelium with that of the mucous cells of the endocervical canal & a less common form of adenocarcinoma which arises from gland of endocervical mucosa<sup>4</sup>.

The mucosa of the cervix contains the mucous cervical glands which are extensively branched. This mucosa does not undergo remarkable changes during the menstrual cycle and does not desquamate during menstruation<sup>5</sup>.

Human cervix is fundamentally a fibrous

tissue structure. The lower part of the cervix is less muscular than the upper part. But the upper part of the cervix is not as muscular as the uterus<sup>6</sup>.

In 1992, Hossain<sup>7</sup> observed that mean length of the cervix in age group A (1-12 years) is  $1.84 \pm 0.12$  cm & age group B (13-25 years) is  $2.72 \pm 0.9$  cm & age group C (26-45 years) is  $2.87 \pm 0.11$  cm & age group D (46-65 years) is  $2.41 \pm 0.23$  cm. The value in group D (Post menopausal) was not significantly decreased as compared to that of group C but in group B & C the values were significantly increased as compared to that of group A (Pre-menarche).

Romanes GJ<sup>8</sup> stated that nearly half of the cylindrical neck ie cervix is 2.5 cm in length.

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Bhatla<sup>1</sup> stated that the cervix is barrel shape, measuring 2.5 to 3.5 cm from above downwards. Datta<sup>9</sup>, Lang<sup>10</sup> stated that the cervix in childhood is longer than the corpus uteri, the proportions being 2:1. Schwalm<sup>11</sup> observed that during pregnancy the muscle content of the uterus is sharply increased, but there is no significant change in the muscle content of the cervical wall. During the menopause there is a definite shrinkage of the musculature, which is mainly evident in the corpus uteri but no further reduction of the sparse muscle fibers take place in the cervix. Basmajian JV observed that cervix is 3 cm in length<sup>12</sup> while Datta AK stated that the length of cervix is 2.5 cm<sup>9</sup>.

## Methods

This cross sectional descriptive study was done at the department of Anatomy, Mymensingh Medical College, Bangladesh from July 2006 to June 2007. Permission of the local ethical committee was obtained prior to the study. For the purpose of the study 60 post mortem specimens containing female genital organs particularly uterine cervix were collected by purposive sampling technique. Collected samples were grouped into three age groups. These were group A (2-12 years), group B (13-45 years), and group C (46-80 years). Uterus was separated from other structures carefully and cervix was identified. After blotted with tissue paper length of each cervix was measured by the help of a divider and a scale from external os to internal os and expressed in centimeters (Figure-1) All data were recorded in pre-designed data sheet and were analyzed by SPSS for Windows (IBM SPSS Statistics for Windows, version 17.0, Armonk, NY, IBM Corp.).

## Results

The length of the 60 human uterine cervix was measured in the present study from Bangladeshi cadavers. Their ages ranged from 2 to 80 years. They were divided into three age groups, group A (2-12 years), group B (13-45 years) and group C (46-80 years) (Table I).

The mean ( $\pm$ SD) length of the cervix was found as 1.56 ( $\pm$  0.76) cm, 2.89 ( $\pm$ 0.49) cm

and 2.33 ( $\pm$ 0.56) cm in age group A, B & C respectively. They ranged from 0.80 to 2.70 cm, 2 to 4.40 cm and 1.60 to 3.40 cm respectively (Table II). The above mentioned measurement was significantly ( $p=0.0012$ ) increased with the increase of age up to 45 years.

In comparison to group B with group C and group A with C, the differences were statistically significant (where  $p=0.0060$  and  $p=0.035$  respectively).

**Table I: Distribution of the cadavers by age groups**

Group	Age limit (yrs)	No. of Specimens (%)
A	2-12	08 (13.3)
B	13-45	44 (73.4)
C	46-80	08 (13.3)
Total	2-80	60 (100.0)

**Table II: Length of cervix in different age groups**

Age group (yrs)	Number of specimen	Length (cm)	
		Mean	$\pm$ SD
A (2-12)	8	1.56	0.76
B (13-45)	44	2.89	0.49
C (46-80)	8	2.33	0.56

Comparison between the age groups

A vs. B

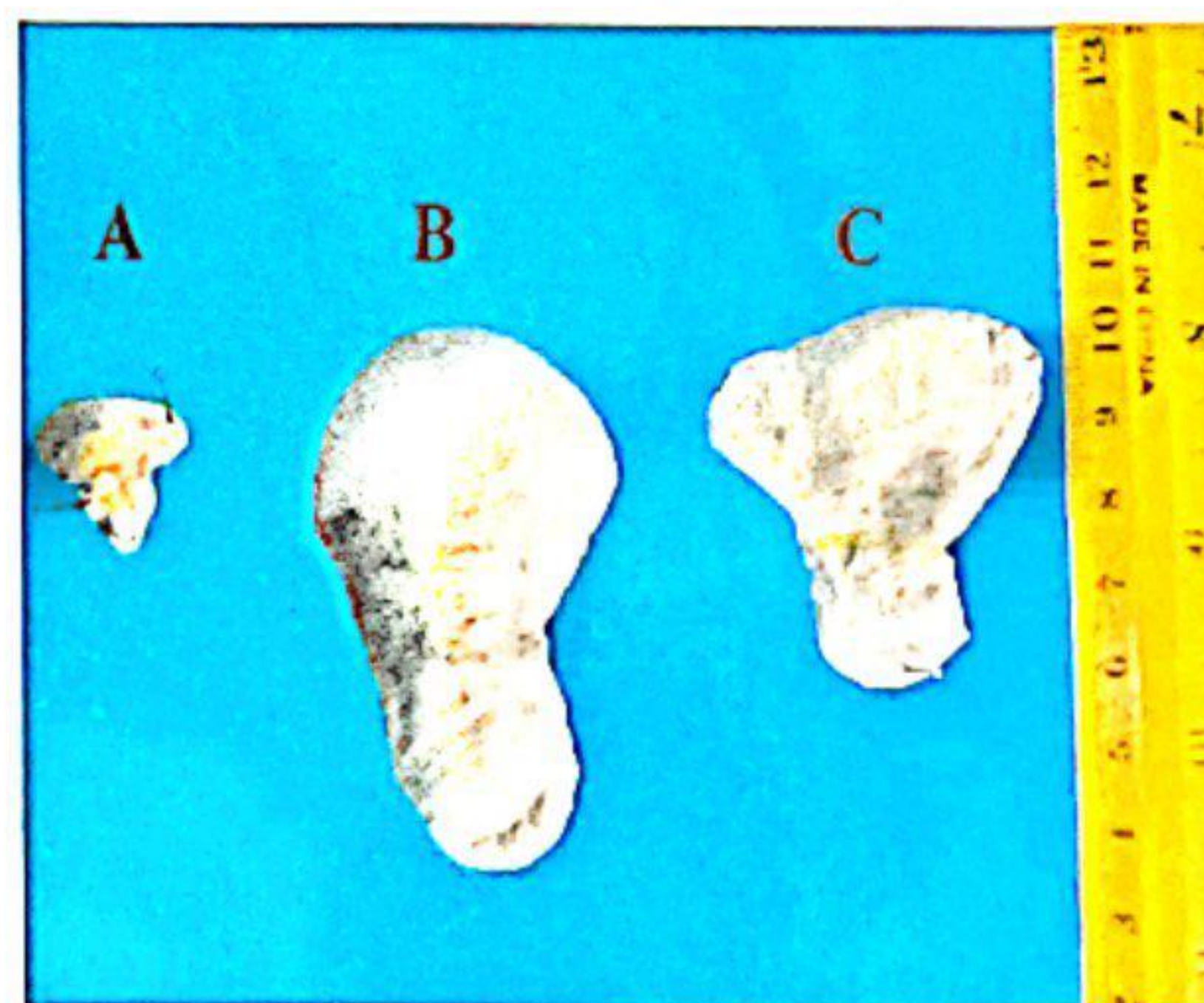
$P = 0.0012$  (Moderately significant) ( $p < 0.01$ );

B vs. C

$P = 0.0060$  (Moderately significant) ( $p < 0.01$ );

A vs. C

$P = 0.0351$  (Significant) ( $p < 0.05$ )



**Figure-1 :** Photograph showing cervix of different age groups (A = 2-12 years, B = 13-45 years and C = 46-80 years)



## Discussion

In the present study, the mean length of cervix was 1.56 ( $\pm 0.76$ ) cm, 2.89 ( $\pm 0.49$ ) cm, 2.33 ( $\pm 0.56$ ) cm in age group A, B & C respectively. These measurements were similar to that of Hossain's study where the findings were reported as 1.84 $\pm$ 12 cm, 2.27 $\pm$ 0.9 cm, 2.87 $\pm$ 11 cm and 2.41 $\pm$ 0.23 cm in group A, B, C & D respectively<sup>7</sup>.

In group A, cervical length was remarkably less. Danforth<sup>13</sup> described that the normal human cervix is about 2.5-3 cm in length. According to Romanes & his colleagues<sup>8</sup> the length was 2.5 cm while Datta<sup>9</sup> & Bhatla<sup>1</sup> described the length of the cervix as 2.5 to 3.5 cm respectively.

The length of the cervix in present study in group B & C followed the classical description of above mentioned studies. The highest mean value was found in the group B (reproductive group) which was supported by Guyton<sup>14</sup>. In puberty the size of the uterus increases 2 to 3 folds due to estrogen hormone. In the present study, slight decrease in the length of the cervix in late age group was noted which was supported by Singer A, where it was suggested that age did not influence the morphology of the cervix<sup>15</sup>.

## Conclusion

Maximum length of the cervix was found in the age group B (13 to 45 years). It was observed that the length of the cervix increased with the increase of age up to a certain limit (up to 45 years) then it start to decline after menopause.

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