Morphology of Cervix - A Postmortem Study

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Abstract

Context: Malignant neoplasms of cervix uteri is a major medical condition with aging population. Detailed anatomical knowledge about cervix uteri is important for obstetracian, pathologist and physician for proper diagnosis and management of cervical diseases.

Study design: Cross sectional, analytical type of study.

Place and period of study: Department of Anatomy, Sylhet M A G Osmani Medical College, Sylhet, from July 2006 to June 2007.

Materials: Present study was performed on 50 autopsied human uterus, age ranging from 1 to 65 years. The samples were collected from unclaimed dead bodies that were under examination in the morgue of the Department of Forensic Medicine of Sylhet M A G Osmani Medical College, Sylhet.

Methods: The samples were divided into four age groups. Group A (1-12 years), Group B (13-24 years), Group C (25-46 years) and Group D (46-65 years). All the samples were studied morphologically.

Results: Statistically significant positive correlation was found between age and length, breadth and thickness of cervix

Conclusion: There were changes in the morphology of cervix in relation to age.

Key words: Cervix Length, Breadth, Thickness

Introduction

The uterus-a thick walled, pear shaped, hollow muscular organ-lies in the lesser pelvis normally with its body lying on the top of the urinary bladder and its neck(cervix) between the urinary bladder and rectum.[1]

The normal human cervix is a collagenous structures that undergoes a drammatic metamorphosis in late pregnancy and labour, effacing and dilating without injury to permit the baby to pass through and, thereafter, returning in the course of a few weeks to its former state[2].

Carcinoma cervix is the second commonest cancer among women worldwide with only breast cancer occurring more commonly. World wide cervical cancer accounts for about 500,000 new cases diagnosed and 250,000 deaths every year. Of the new cases 80% occur in the less developed countries and in some of these countries cervical cancer is the commonest cancer in woman.[3]

In the United States (USA), it is the only 8th most common cancer of woman. In 1998, about 12.800 women were diagnosed in the USA and of them about 4,800 women died. Among gynecological cancer it ranks behind endometrial cancer and ovarian cancer[4].

In the United Kingdom (UK), the age-standardized (European) incidence is 8.5/100,000 per year (2006). It is the twelfth most common cancer in women, accounting for 2% of all female cancers, and is the second most common cancer in the under 35s females, after breast cancer. The UK's European age-standardized mortality is 2.4/100,000 per year[5]

Mortality rates for the disease are higher in Black woman in the US compared to White or Asian women, probably reflecting a later stage of presentation and higher likelihood of poor prognostic histological sub types. There seems to be little effect of socio- economic status on incidence.

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The situation in developing countries like Bangladesh is gloomier. There is no adequate data regarding the above mentioned diseased. So considering the above aspects, investigation regarding anatomical changes of the uterus in relation to age may lead to valuable information which may cause drammatic modification in both medical and surgical treatment of uterine disorders.

Materials and Methods:

The samples of human uterus were collected from unclaimed dead bodies that were under examination in the morgue of the department of Forensic Medicine of Sylhet M.A.G Osmani Medical College from September 2006 to March 2007. After legal formalities the samples were collected within 24-36 hours of death without any signs of putrefaction. All the samples were collected from medicolegal cases. During collection appropriate age and cause of death were noted from morgue's record. The samples were brought to the department of Anatomy, Sylhet M.A.G Osmani Medical College. The samples were tagged immediately, which bear a code number for subsequent identification. Soon after collection each sample was gently washed in tap water on a dissection tray. Blood and blood clots were removed as per as possible. Then the samples were fixed in 10% formol saline solution. The collected samples were divided into four groups.

Table –I
Age distribution in different groups

Group Age	Age limit (in years)	No of samples
A	1-12	7
B	13-24	15
C	25-45	19
D	46-65	9

Variables studied:

1. Length of cervix
2. Breadth of cervix
3. Thickness of cervix

Measurement procedure:

1. **Length:** Length of the cervix was measured with the help of slide calipers graduated in cm from external os to internal os.

2. **Breadth:** Breadth of the cervix was measured at the region of its highest transverse diameter by slide calipers graduated in cm.

3. **Thickness:** Thickness of the cervix was measured by the help of slide calipers graduated in cm.

Ethical clearance : The study was approved by the ethical review committee of Sylhet M.A.G. Osmani Medical College.

Result:

Length

The mean ($\pm$ SD) length of the cervix was 2.0 $\pm$ .26 cm in group A(1-12 years),2.60 $\pm$ .31 cm in group B(13-24years) 2.94 $\pm$ .32 cm in group C(25-45years) 2.42 $\pm$ .48 cm in group D(46-65years) Mean difference in the length of the cervix between group A vs B, group B vs C, group C vs D were statistically significant ($p<0.001$) but group A vs D was not statistically significant($p>0.05$).(Table-II, Fig- 1)

Breadth:

The mean ($\pm$ SD) breadth of the cervix was 1.12 $\pm$ .14 cm in group A(1-12 years) 2.84 $\pm$ .25 cm in group-B(13-24 years)3.03 $\pm$ .28 cm in group C(25-45 years)2.77 $\pm$ .50 cm in group D(46-65 years) Mean difference in breadth of the cervix between group A and B, group B and C and group A and D were statistically significant($p<0.001$) but group C and D and were statistically not significant ($p>0.05$). (Table-II, Fig -1).

Thickness:

The mean ($\pm$ SD) thickness of the cervix was .91 $\pm$ .16 cm in group A(1-12 years)1.86 $\pm$ .28 cm in group B(13-24 years) 2.24 $\pm$ .26 cm in group C(25-45years)1.90 $\pm$ .30 cm in group D(45-65yeras) Mean difference in thickness of the cervix between group A and B, group B and C, group C and D and group A and D were statistically significant ($p<0.001$) (Table- II, Fig-1).

Table-II

Length, Breadth and Thickness of the cervix uteri (Mean± SD) in cm.

Age group	No. of Specimen	Length	Breadth	Thickness
A	7	2.0 ± .26	1.12 ± .14	.91 ±.16
		(1.6-2.4)	(.86 -1.32)	(.62 -1.08)
B	15	2.60 ± .31	2.84 ± .25	1.86 ± .28
		(1.7-3.1)	(2.10 -3.20)	(1.20 -2.35)
C	19	2.94 ± .32	3.03 ± .28	2.24 ± .26
		(2.3 -3.7)	(2.40 -3.52)	(1.75 -2.52)
D	9	2.42 ± .48	2.77 ± .50	1.90 ± .30
		(2.o -3.6)	(2.20 -3.92)	(1.45 -2.52)

Figures in parentheses indicate range

P value	Length	Breadth	Thickness
A vs B	<0.001***	<0.001***	<0.001***
B vs C	<0.001***	<0.001***	<0.001***
C vs D	<0.001***	>0.05ns	<0.001***
A vs D	>0.05ns	<0.001***	<0.001***

Group A : 1-12 years
Group B : 13-24 years
Group C : 25-45 years
Group D : 46 -65 years
SD = Standard deviation
*** = Significant
ns = Not significant
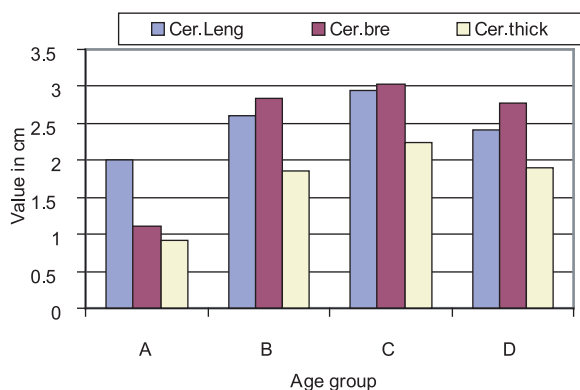(In unpaired Student's 't' test of significance of difference between groups)

Fig:-1: *Length, breadth and thickness of the cervix uteri in different age group*

Discussion:

In the present study, the mean (±SD) length of the cervix was 2.0 ± .26, 2.60 ±.31, 2.94 ±.32, and 2.42 ± .48 cm. The mean(±SD) breadth of the cervix was 1.12 ±.14, 2.84 ±.25, 3.03 ±.28, and 2.77 ±.50 cm The mean(±SD) thickness of the cervix was .91 ± .16,1.86 ± .28, 2.24 ± .26, and 1.90 ± .30 cm in group A (age1-12 years), B (age13-24 years) C (age 25-45 years) and D(age 46-65 years) respectively. This study showed that the length, breadth and thickness of the cervix decreased gradually with increasing age

Datta[6] and Williams et al[7] stated that the length of the adult cervix is about 2.5cm. Hossain[8] studied 40 uterus of Bangladeshi people age ranging from 1-65 years.

The average mean(±SE) length, breadth and thickness of the cervix were 1.84 ± .12cm, 1.17 ± .09cm and 0.76 ± .9cm from 1 to 12 years age group, 2.72 ± .09cm, 3.01 ± .09cm and 1.89 ± .12cm from 13 to 24 years age groups, 2.87 ± .11cm, 3.06 ± .12cm and 2.24 ± .11cm from 25 to 45 years age groups and 2.41 ± .0.23cm, 2.81 ± 0.23cm and 1.88±0 .13cm from 46 to 65 years age group respectively. The length, breadth and thickness of different group observed by Hossain[9] are similar to that of the present study.

Danforth[9] stated that the normal human cervix is about 2.5 to 3 cm in length. Its anteroposterior diameter is about 2 to 2.5 cm, the lateral diameter is about 2.5 to 3 cm. The wall of the cervix is about 1cm thick throughout its length.

So the findings of the present study are similar to the findings of Hossain[9]. The length, breadth and thickness of the cervix of the present study in group B, group C and group D followed the classical description of Danforth[9]. But in group A, the above mentioned parameter was somewhat less.

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