

Anatomical Study of uterine cervix dimensions related with delivery ways

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Abstract

Introduction: Uterine cervix is important part of female reproductive system, because its role in maintenance of pregnancy until delivery, this part undergo to anatomical changes in its dimension related with recurrent vaginal deliveries.

Aim of study: Comparative study of uterine cervix dimensions between vaginal delivery women group and non vaginal delivery group.

Methods: Samples were obtained from cadaveric women after take permission and life history from their families, and divided into two groups, group (A) non previous vaginal delivery, and group(B) previous vaginal delivery and take the measurements for each sample.

Result: Macroscopic observation recorded differences between non previous vaginal delivery group (A) and previous vaginal delivery group (B) in uterine cervix dimension, group (B) revealed increases in (length, width and thickness) compare with group (A) due to effect of recurrent vaginal deliveries.

Conclusion: Uterine cervix is affected by mechanical, physiological, and hormonal state. Frequent of vaginal delivery are play role in changes of parameters of uterine cervix.

Keyword: Anatomical measuring; Uterine cervix; Delivery ways; Number of birth

1. Introduction

The cavity of uterus is connected to the vagina by fibromuscular organ called Uterine cervix⁽¹⁾. Have a cylindrical and appear extend into the upper part of the anterior wall of vagina⁽²⁾. The cervix has numerous functions, one of the most important role occurring in pregnancy through keeping of the developing fetus within the uterus until time of birth. When the childbirth began, the cervix become more ripening, softness and effacement for facilitating the child's passage. The flexibility of cervix due to nature of the sub epithelial stroma, which contain fibroblast, myofibroblast and fibrocytes (dendritic interstitial cell)⁽³⁾. This organ play major role during birth. At pregnancy, the cervix play important role in maintenance of fetus development through firmly closed so provide safety state to complete the pregnancy. Towards for delivery the cervix become shortness, flexible and dilated to prepare of delivery and ease of passage of fetus. Any problems in cervix may lead to increase the riskiness of premature birth, and effect of pregnancy fate.⁽⁴⁾

1.1. The goal of the study

The study aims to assess the variances of human uterine cervix parameters reproductive age women and effect of number of vaginal deliveries on uterine cervix dimensions.

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2. Methods

Twenty samples of uterine cervix were collected from fresh human cadavers, whose death with natural causes and ages ranging from (20-40) years were taken from the Forensic Medicine institute in Baghdad and Anbar Governorates during the period extended from January 2022 to June 2023. The samples divided into two groups included Group A (No previous vaginal delivery), and Group B (Previous vaginal delivery more than twice). The cervix was removed from the body of uterus and taken the dimension length, width and wall thickness using a slide caliper graduated in cm.

2.1. Statistical analysis

Statistical analysis was conducted using correlation analysis and (ANOVA) tests to determine the significance of variation among the study groups. The quantitative outcomes were given as means $\pm$ standard deviation. We compared the difference in means by Paired sample t-test between groups. Pearson correlation test. These statistical tests were carried out using a statistical program under the systems SPSS and Microsoft Excel XP.

3. Results

The outcomes were recorded in the present study the uterine cervix parameter (length, width and wall thickness) in group A (**23.99 $\pm$ 2.12, 21.87 $\pm$ 2.91, 11.35 $\pm$ 1.61**) while the parameter in group B (**26.24 $\pm$ 4.27, 23.91 $\pm$ 3.19, 12.50 $\pm$ 3.76**) respectively. This result revealed the changes in the uterine cervix parameters in women group A and group B. The results which recorded increase in the length, width and wall thickness related with physiological state and with increase of number of birth.

Table 1 The measurement of uterine cervix parameters related with parity status

Obstetric history	"Length/cm Mean $\pm$ SD	"Width/cm Mean $\pm$ SD	Thickness/mm Mean $\pm$ SD
Group (A) No previous vaginal deliveries(NPVD)	23.99 $\pm$ 2.12	21.87 $\pm$ 2.91	11.35 $\pm$ 1.61
Group(B) previous vaginal deliveries(PVD)	26.24 $\pm$ 4.27	23.91 $\pm$ 3.19	12.50 $\pm$ 3.76

4. Discussion

The important part of female reproductive system is uterine cervix which is a dense fibrous organ that is located at end of the female uterus. It has internal OS provides the site of connection between the cervix and body of uterus. The organ has a cylindrical shape mainly, but also may appear as conical and barrel shaped. The typical length of normal human cervix is about 2.5-3 cm. The diameter of its anteroposterior is about 2-2.5 cm, the lateral diameter about 2.5-3 cm. This difference is due to the cervical canal shape, which in the sagittal plane is straight, and in the frontal plane, spindle shaped. The cervix wall about 1 cm⁽⁵⁾. This organ has an important role in maintenance of pregnancy and facilitates the delivery at birth term. The present study recorded the parameters of cervix in frequent vaginal deliveries women larger than the non vaginal deliveries women. This finding agrees with Helen & Lindsey⁽⁶⁾. The changes in the cervix parameters due to changes in composition of its structure and alteration of mechanical characteristics of cervical stroma and affected by hormonal changes. At time of delivery and under influences of uterine contraction the cervix dilates to facilitate passage of fetus. An insufficiency of cervix can lead to preterm delivery and causes extremely premature birth⁽⁷⁾. The natural composition of cervix tissue included type I and type III collagen⁽⁸⁾, hyaluronan and proteoglycans⁽⁹⁾, elastin⁽¹⁰⁾ and water.

Lura⁽¹¹⁾ indicated that in the non vaginal deliveries women, the cervix is cylindrical, amounting to some 2.5-3cm in length, and 2-2.5cm in diameter and it is recorded increase in size due to frequent vaginal deliveries women, so their parameters depend on, the number of previous vaginal births, these findings agree with our findings.

In present study revealed changes in cervix dimension related with number of vaginal birth. The highest mean of length, width and thickness were recorded at vaginal birth women groups (26.24 $\pm$ 4.27), (23.91 $\pm$ 3.19), (12.50 $\pm$ 3.76) respectively and the lowest mean were recorded at non-vaginal birth women group (23.99 $\pm$ 2.12), (21.87 $\pm$ 2.91), (11.35 $\pm$ 1.61) respectively, groups (Table 1).

5. Conclusion

Present study was concluded, that the effect of multi-parous by vaginal way on structure of cervix and its measures. The result obtain from this study referred that increase number of vaginal delivery causes increase in cervix dimensions compare with non-vaginal birth.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

Ethical approval was done

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