Length of Vermiform Appendix: A Postmortem Study

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Abstract

Context: The vermiform appendix is an abdominal organ having variable length and position. It provides immunological function. Vermiform appendix is involved in different disease processes such as appendicitis, carcinoma and diverticulitis. Appendicitis is the most important clinical condition. An appropriate anatomical knowledge about vermiform appendix is important for surgeons, pathologists and other physicians for proper diagnosis and management of appendicitis and carcinoma.

Study type: Descriptive type of study.

Place and period of the study: Department of Anatomy, Sir Salimullah Medical College, Dhaka from January 2006 to June 2007.

Materials and Method: Sixty (60) human postmortem vermiform appendix, age ranging from 0 to 65 years. Fresh samples were collected from the morgue of Sir Salimullah Medical College and Dhaka Medical College, Dhaka. The samples were divided into five (5) different age groups.

Result: Length of vermiform appendix decreases gradually with increasing age and was highly significant (P<0.001) when compared between the groups.

Key words: Length, Vermiform appendix.

Introduction:

Vermiform appendix is the commencement of large gut but it is devoid of taenia coli, sacculations and appendices epiploicae¹. It extends from the posteromedial wall of the caecum, 2 cm below the ileum. Anterior taenia coli is usually distinct and traceable to the base of the appendix². Vermiform appendix is a narrow worm shaped blind tube suspended by mesoappendix.

Vermiform appendix varies considerably in length. The length varies from 2 to 20 cm and the average length is 9 cm ². It is longer in children and may atrophy or diminish after mid adult life². The appendix on an average is 0.5 cm longer in male than in female³.

Materials:

The present study was performed on sixty (60) human postmortem vermiform appendix of Bangladeshi people. The collected samples were divided into five age groups. The groups were Group-A (0-20 years), Group-B (21-30 years), Group-C (31-40 years), Group-D (41-50 years) and Group-E (above 50 years).

Methods:

The 10% formol saline fixed specimens were initially washed with the free-flowing tap water to wash away the formol saline so as to avoid irritation to the eyes and nasal mucosa. It also caused softening of the fixed issue. Then the specimens were taken in metallic tray, and the surrounding fat and other unwanted tissues were removed carefully with the help of sharp scissors, fine dissecting forceps and BP blade to expose vermiform appendix and its related structures.

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Parameter studied
Length of the vermiform appendix

Procedure for measurement of length of vermiform appendix

The length of the vermiform appendix was found out by measuring the distance from the base up to the tip of the appendix with the help of a measuring tape graduated in centimeter. The base of the appendix was identified where the taeniae coli on the ascending colon and caecum converge. The anterior caecal taenia coli is usually distinct and traceable to the appendix, affording a guide to it (Borley 2005).²

The average length for each group was calculated by simple arithmetic mean.

Result:
Mean length of the vermiform appendix was 10.02±0.84 cm in group A (0-20 years), 9.74±0.75 cm in group B (21-30 years), 9.56±0.61 cm in group C (31-40 years), 8.75±0.70 cm in group D (41-50 years) and 7.70±0.45 cm in group E (above 50 years) (Fig.-1).

The mean difference in the length of the appendix was highly significant (P<0.001) between group A and D, A and E, B and D, B and E and between C and E. The mean difference in the length of the appendix was significant between C and D (P<0.01) and between D and E (P<0.01). Other differences did not reach up to the level of statistical significance.

Figure: 2 shows the correlation between age and length of the appendix. The regression line showed negative correlation between age and length of the appendix which reached the level of significance (P<0.001).

Discussion:
In the present study, the highest mean length of the vermiform appendix was found to be 10.02±0.84 cm in group A (0-20 years), whereas the lowest mean length was found to be 7.70±0.45 cm in group E (above 50 years). This study showed that the length of the vermiform appendix decreased gradually with increasing age. It also showed that it is longer in children and in early adult life. Any organ diminishing in size by loss of cell substance leading to atrophy and one of its causes is aging process⁵.

The values were highly significant (P<0.001) when group A was compared with group D and E, group B
was compared with group D and E and group C was compared with group E.

The length of the vermiform appendix showed negative correlation with age (r = 0.760) which was highly significant (P<0.001).

In the present study, the average length of vermiform appendix was similar with Borley\(^2\), Balthazar and Gade\(^6\), Solanke\(^7\), and Davis and Couplend\(^8\). The average length in the present study did not coincide with the study in Gorgan Teaching Hospital by Golalipour \textit{et al.}\(^9\) on the anatomical variations of the vermiform appendix in people in the South-East of Caspian Sea (north of Iran) where average length was less. Delic \textit{et al.},\(^10\) findings regarding length in the people of Uttar Pradesh of India was higher than the present study. These variations were due to racial factor.

The present study also matched with Chowdhury\(^11\). He concluded that the vermiform appendix is longer in children and in early adult life. With the advancing age, the appendix gradually shortens in length.

References:


