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Diameter of the Vermiform Appendix in Bangladeshi People: A Postmortem Study

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Abstract

Context: *The human vermiform appendix is usually recognized as a secondary lymphoid organ. Vermiform appendix performs functions related with gastrointestinal tract. The main function of it is immunological. Secretory immunoglobulins produced by gut associated lymphoid tissue (GALT) act as an effective barrier. Vermiform appendix has surgical importance too. Appendicitis is the most common clinical condition. An appropriate anatomical knowledge about vermiform appendix is important for surgeons, pathologists and other physicians for proper diagnosis and management of diseased appendix.*

Materials and Method: *A cross sectional descriptive type of study was carried out in the department of Anatomy, Sir Salimullah Medical College on sixty (60) human cadaveric vermiform appendix, age ranging from 0 to 65 years. The collected samples were divided into five age groups such as group A (0-20 years) group B (21-30 years), group C (31-40 years), group D (41-50 years and group E (51 years and above). Fresh specimens were collected from the morgue of Sir Salimullah Medical College and Dhaka Medical College, Dhaka. The present study was conducted to measure the diameter of vermiform appendix.*

Result: *Diameter of vermiform increased upto 50 years of age then decreases and when compared among different age groups were found to be highly significant in the group A vs C, D, E and group B vs D.*

Key words: *Diameter, vermiform appendix.*

Introduction

The vermiform appendix is an organ of variable length and position. It is a narrow worm shaped tube arising from posteromedial caecal wall 2 cm or less below the end of ileum[1]. It is suspended by mesoappendix. The length of mesoappendix is short in respect to the length of appendix. So the body of the appendix is kinked on itself and becomes worm shaped. The diameter of appendix varies from 6 to 8 mm, average being 6 mm at its base[2]. The lumen of vermiform appendix is relatively small, narrow and irregular due to presence of abundant lymphoid follicles in the wall[3]. Vermiform appendix is involved in different disease processes, such as appendicitis, carcinoma and diverticulitis[4]. Acute appendicitis is the most common surgical problem all over the world. Maximum incidence of appendicitis is in between 10 to 30 years of age. It may be obstructed or non obstructed. Obstructed appendicitis may be due to narrowness of the lumen, impaction of fecolith, gallstone and worms[5]. The incidence of appendicitis is increasing in our country day by day due to urbanization and dietary variance. Diameter of vermiform appendix is greater in appendicitis than normal appendix[6]. So the present study is important for the surgeons.

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Materials and Methods

The present study was performed on sixty (60) human postmortem vermiform appendix of Bangladeshi people. The collected specimens were divided into five age groups and has been shown in table I.

Table-I

Age distribution of different groups[7]

Groups	Age in years	Number of samples (n=60)	Percentage (%)
A	0-20	10	16.67
B	21-30	17	28.33
C	31-40	15	25.00
D	41-50	11	18.33
E	Above 50	7	11.67

The 10% formol saline fixed specimens were initially washed with free-flowing tap water to wash away formol saline. Then the specimens were taken in metallic tray and surrounding fat and other unwanted tissues were removed carefully to expose vermiform appendix and its associated structures. The diameter of vermiform appendix was measured with the help of a vernier calipers. For accurate measurement of the diameter, three measurements were taken. The diameter was measured at its base, middle part and 5mm proximal to tip[8]. Then the average diameter was calculated by simple arithmetic mean. Summation of diameter in three regions of each sample divided by 3 is the average diameter of each specimen.

Results

Table II and Fig. 1 show the average diameter of vermiform appendix

When the average diameter of vermiform appendix of different age groups were compared among each other, highly significant results *ie*, (P<0.00l) were found in group A vs C, D, E and group B vs D.

Table-II

Average diameter of vermiform appendix in mm.

Groups	n	Mean ± SD
A	10	5.70 + 0.27 (5.20-6.10)
B	17	5.84 + 0.21 (5.30-6.17)
C	15	6.09 + 0.15 (5.80-6.32)
D	11	6.24 + 0.18 (5.98-6.52)
E	7	6.16 + 0.55 (5.25-6.63)

Groups	P value
A vs B	$>0.10^{ns}$
A vs C	<0.001***
A vs D	<0.001***
A vs E	<0.001***
B vs C	<0.01*
B vs D	< 0.001***
B vs E	<0.01**
C vs D	$>0.10^{ns}$
C vs E	$>0.50^{ns}$
D vs E	$>0.50^{ns}$

Group A	:	Age 0-20 years
Group B	:	Age 21-30 years
Group C	:	Age 31-40 years
Group D	:	Age 41-50 years
Group E	:	Age above 50 years

Figures in parentheses indicate range. Statistical analysis was done by ANOVA (multiple comparison), ns = not significant, */**/*** = significant

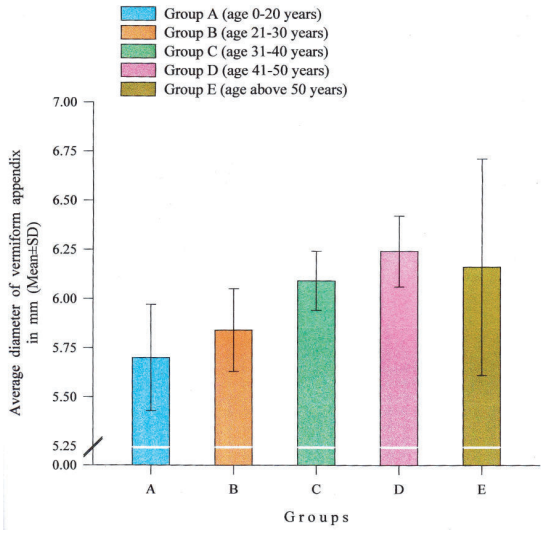

Fig.-1: *Average diameter of vermiform appendix in different study groups*

Discussion

Diameter of the vermiform appendix

In the present study, the highest mean diameter of vermiform appendix was found in group D, whereas the lowest mean diameter was found in group A. The mean diameters of the vermiform appendix in this study were highly significant ($P < 0.001$) when diameter of group A was compared with group C, D, E and group B compared with group D.

The findings of the present study was similar to Ndoye *et al.*[9], Romanes[2] and Solanke[10]. Similarities with the above mentioned researchers might be due to their study on cadaveric appendix.

The result of the present study coincided with the findings of Feri *et al.*[6] although the work was done on ultrasonographic approach where the diameter of appendix in diseased condition was higher than normal.

Conclusion

Further studies using the larger sample size covering both sexes and different socioeconomic status are recommended. Besides postmortem study, using more sophisticated and advanced technology like CT scan, MRI are suggested for further study.

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