

Original article:

Study of the length of vermiform appendix

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Abstract:

Introduction- The vermiform appendix is an abdominal organ; it provides immunological function as tonsil of abdomen. Vermiform appendix has diverse anatomical positions, lengths, and conditions of mesoappendix. Appendicitis is the most common surgical emergency, knowing the exact anatomical length of vermiform appendix is important in view of surgeons for on-time diagnosis and management of acute appendicitis and appendicectomy.

Material and method-The lengths of 50 human vermiform appendix were studied by measuring tape in Cadavers.

Results- In adult age group, normal length appendix were found in 92% with mean length of 6.98cm. In old age group, short length appendix were found in 4% with mean length of 1.5cm. In young age group, long length appendix were found in 4% with mean length of 21cm.

Conclusion- length decreases with increasing age. Knowledge of these variations is important during appendicectomy

Keywords: vermiform appendix, different length.

I. Introduction

The Vermiform appendix present only in human beings, certain arthropod, apes and the wombat (a nocturnal, burrowing Australian marsupial) was probably first noted as early as the Egyptian civilization (3000 B.C). It was described as “worm of the intestines” [1].

The vermiform appendix is located in right lower quadrant of abdomen [2]. It is a narrow, worm shaped tube which arising from the posteromedial caecal wall, approximately 2 cm below the end of the ileum [3]. Its length varies from 2-20 cm, with an average length of 9 cm [4]. Appendix of the male is, on an average, 1 cm longer than that of the female [5]. Its opening is occasionally guarded by a semicircular fold of mucous membrane known as the valve of garlach.

It is the only organ in the body that has no constant anatomical position [1]. The attachment of the base

of appendix to the caecum remains constant, whereas the tip can be found in a retrocaecal, pelvic, subcaecal, paracolic, preileal and post ileal position. It is connected by the short mesoappendix to the lower part of the ileal mesentery. This fold is usually triangular, extending almost to the appendicular tip along the whole tube. The mesoappendix has a free border which carries the blood supply to the organ, by the appendicular artery, a branch from the ileocolic artery [2].

Variations in length of appendix is very important for surgeons and radiologist as it may be associated with the diagnosis uncertainty by virtue of its inflamed tip not reaching up to the average length and delay can lead to early perforation and gangrene.

Acute appendicitis is mainly diagnosed by medical examination and clinical evaluation. There is no definitive diagnostic laboratory test or imaging.

Knowing length of the appendix helps on-time diagnosis of acute appendicitis. Variable lengths of the appendix may mislead physicians to make a wrong decision or diagnosis of other diseases. Delayed diagnosis of acute appendicitis may lead to its perforation and subsequent abscess or peritonitis. So, accurate information about the anatomical location of appendix can improve prognosis of the disease [6].

II. Materials and method

The present study was performed on fifty (50) human vermiform appendices of cadavers.

Parameter

Lengths of the vermiform appendix.

Method

The lengths of the vermiform appendix were measured by measuring tape.

Dissection method

The study was done in situ in the cadavers, The abdomen were opened by a long midline incision and all the layers of abdomen (skin, anterior abdominal wall, peritoneum) were reflected for good view of the abdominal cavity along with its contents. The organs were separated from the right

iliac fosse and the Tania coli were visualized, the anterior caecal taenia coli acts as the best guide for the vermiform appendix. Although the relation of the base of the appendix to the caecum is constant, the lengths of the vermiform appendix were studied in relation to the caecum, the terminal parts of ileum and the direction of the tip of the appendix. Accordingly, the lengths of the vermiform appendix were noted and measured by a measuring tape.

III. Results:

In this study total 50 vermiform appendices were studied, out of which 45 vermiform appendices were of male cadaver and 5 vermiform appendices were of female. Age of cadaver was ranged behind 19 – 70year.

Lengths: Table I shows the incidence of lengths of vermiform appendix.

In adult age group, normal length appendix were found in 92% with mean length of 6.98cm.

In old age group, short length appendix were found in 4% with mean length of 1.5cm.

In young age group, long length appendix were found in 4% with mean length of 21cm.

TABEL - 1 – Lengths of vermiform appendix

SL No.	Lengths of vermiform appendix	Age groups	Numbers	%	Mean length
1	Normal length (2-20 cm)	20 -50 year (adult age group)	46	92%	6.98 cm
2	Short appendix (below than 2 cm)	50 – 60 year (old age group)	2	4 %	1.5 cm
3	Long appendix (more than 20cm)	19 -20 year (young age group)	2	4%	21 cm

Figures – 1 showing various length of appendix. lengths of the appendix (a) normal length appendix (b) long appendix (c) normal length appendix. (d) long appendix. (e) short appendix. (f) short appendix.

(a)



(b)



(c)



(d)



(e)



(f)



IV. Discussion

The present study matched with Chowdhury [7] and Uttam kumar [6], 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

In the study, the average length of vermiform appendix was also similar with Borley[8], Balthazar and Gade[9], Solanke[10], and Davis and Couplend[11]. The average length in the present study did not coincide with the study in Gorgan Teaching Hospital by Golalipour *et al.*[2] 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 *et al.*[12] findings regarding length in the people of Uttar Pradesh of India was higher than the present study. These variations were due to racial factor.

knowledge of possible lengths of appendix is very important because when inflamed, abnormally longer appendix may stimulate inflammation of other structures such as enteritis, salpingitis, scrotal pains, and endometriosis so it may create difficulty in diagnosis of appendicitis. Accordingly, appendicitis should always be considered as a differential diagnosis in acute abdomen even when the pattern of pain or tenderness is not at the right iliac fossa.

When appendicitis were reported in short appendix so the sign and symptoms were found in late stage not in earlier so which may be caused perforation of appendix.

V. Clinical significance

Meticulous knowledge of possible variations in length of appendix is very important to surgeons for early valuable help in the management of

appendicitis and prevention early perforation and gangrene of appendix.

VI. Conclusion

The lengths of appendix decreases with the increasing the age.

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