

Anatomical Variations in the Positions of the Vermiform Appendix

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Abstract: 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 position of vermiform appendix is important in view of surgeons for on-time diagnosis and management of acute appendicitis and appendicectomy.

Material and method: 50 human vermiform appendixes were studied on different positions by dissection method in Indian people

Results: The commonest position were retrocecal 32 (64%) while pelvis 15 (30%), post ileal 2(4%) and subcaecal 1 (2%).

Conclusion: Knowledge of these variations is important during appendicectomy

Keywords: vermiform appendix, different positions

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).

Variation in different positions 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 common position(s) of the appendix helps on-time diagnosis of acute appendicitis. Variable positions 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 appendixes of Indian people. The study period was october 2012 to march 2016.

Parameter

Positions of the vermiform appendix.

Method

The positions of the vermiform appendix were studied by Dissection methods

Dissection method

The study was done in situ in the cadavers, The abdomen was 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 position of the vermiform appendix was studied in relation to the caecum, the terminal parts of ileum and the direction of the tip of the appendix. Accordingly, the position of the vermiform appendices was noted.

III. Results

In this study total 50 vermiform appendix were studied, out of which 45 vermiform appendix were of male cadaver and 5 vermiform were of female. Age of cadaver was ranged behind 40 – 50year.

Position

Table I and Fig. 2 show the incidence of positions of vermiform appendix. The percentage of position of vermiform appendix were 64% retrocaecal, 30% pelvic, 4% post ileal,2% subcaecal and Pre ileal and paracolic varieties were not found.

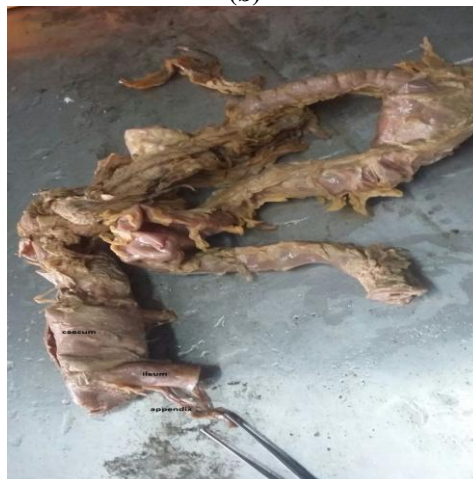
Tabel - 1 – Positions of vermiform appendix

SL No.	Positions of vermiform appendix	Numbers	%
1	Retrocaecal	32	64%
2	Pelvis	15	30 %
3	Pri ileal	0	0%
4	Post ileal	2	4%
5	Subcaecal	1	2%
6	Paracolic	0	0%

(a)



(b)



(c)



(d)



(e)



(f)



Figure 2: Position of the appendix (a) post ileal appendix (note the appendix curving behind the cecum). (b) Pelvic appendix (note the appendix crossing the pelvic brim (PB)). (c) retrocaecal appendix. (d) Subcaecal appendix. (e) Pelvis appendix. (f) retrocaecal appendix.

IV. Discussion

the present study showed, the percentage of position of vermiform appendix were 64% retrocaecal, 30% pelvic, 4% post ileal and 2% subcaecal but Pre ileal and paracolic varieties were not found, and this study was similar with the study of uttam kumar he found the retrocaecal position was highest (65%) followed by pelvic (31.7%) and post ileal (3.3%). But the subcaecal and pre ileal varieties were not found (6). and also studies of Bakheit and Warille, 1999(7) In this study, retrocaecal position was seen in 32.5% ,Wakely (8) observed 65% , 38% of Solanki's study (9), Ajmani and Ajmani, obserbed 68%(10). in this studied retrocaecal position was higher than the pelvic position But in other studied,the pelvic position was the commonest position in the study of Golalipour, M. J. ;he observed (11) the incidence of pelvic position of appendix (33.3%) was the highest accounting for33.9% in males and 32.8% in females. These results are similar to another study in Katzurskj et al, 1979(12) in which the pelvic position was the commonest (43%).

V. Clinical Significance

Meticulous knowledge of possible variations in positions of appendix is very important to surgeons for early valuable help in the management of appendicitis and prevention early perforation and gangrene of appendix.

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