



“Anterior appendix”: a boon for clinicians and radiologists

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Abstract

Vermiform appendix is considered as a vestigial organ, and it has minimal or no role to play in the digestion and absorption of food. It is an enigma to the clinicians due to its variable positions and symptoms caused by its inflammation. In the available literature, there are many reports on various positions, size and disease of appendix. However, there is no report on an anteriorly located appendicular attachment to the caecum. During dissection classes for medical undergraduates, an appendix with its base attached to the anterior wall of the caecum was noted. The entire appendix was attached to the ileum through a mesoappendix and was readily visible when the anterior abdominal wall was reflected. This position could be a boon to the clinicians and radiologists during diagnosis and surgery of the appendix.

Keywords Appendix · Appendectomy · Laparoscopy · Cecum · Intestine

Introduction

Vermiform appendix is a vestigial diverticulum of the large intestine. Its base is attached to the posteromedial wall of caecum and the tip hangs free in the abdomen. It is suspended from the terminal ileum by a short mesoappendix. Position of the base of the appendix is fixed. However, the tip may be in splenic, promontoric, pelvic, subcecal, paracolic or retrocaecal positions. Some rare positions of the appendix, which have been reported in the literature include lateral pouch appendix [4], intracecal appendix [1], and left-sided appendix [3]. Interestingly, there is no report on “anteriorly placed appendix” in the literature. Hence, we report an unreported variation of vermiform appendix here.

Case report

During dissection classes for undergraduate medical students, a peculiar position of the appendix was noted. The appendix was apparently healthy and had a length of 6 cm and diameter of 0.5 cm. Its base was attached to the anterior surface of the cecum (Figs. 1, 2 and 3). Its tip was in 4 O'clock position (pelvic position). The mesoappendix extended from terminal ileum to the entire length of the appendix. There was no other anomaly of abdominal viscera.

Discussion

Vermiform appendix develops from distal part of the caecal bud which is a small outpouching of the post-arterial segment of the midgut, in the sixth week of the intrauterine life. As a part of physiological umbilical hernia, it moves out of the abdominal cavity, to lie in the umbilical cord for about 5 weeks. When it returns to abdomen, first it occupies a subhepatic position. Later on it descends down to the right iliac fossa [6]. In the early development of the appendix, it is attached to the tip of the conical caecal bud. Later on, due to the differential growth of the walls of caecum, the appendix is pushed to the posteromedial aspect. In the postnatal life, base of the appendix is attached to the posteromedial wall of caecum, about 2cm below the ileo-caecal junction. The three taeniae coli meet at the base of the vermiform appendix [8].

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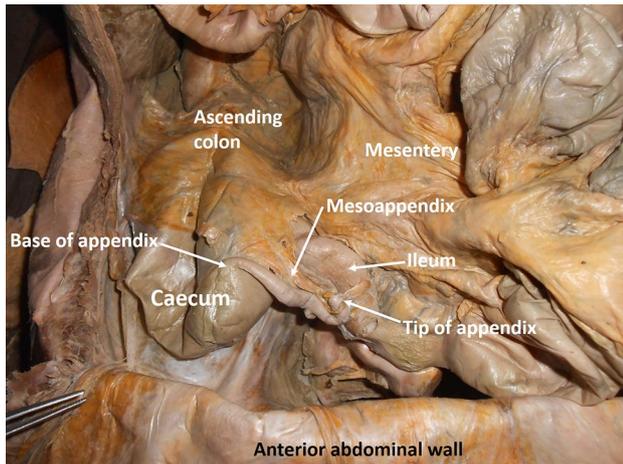


Fig. 1 Photograph of lower abdominal viscera showing the attachment of the base of the appendix to the anterior wall of the caecum. Note that the tip of the appendix is also held close to the ileum by the mesoappendix

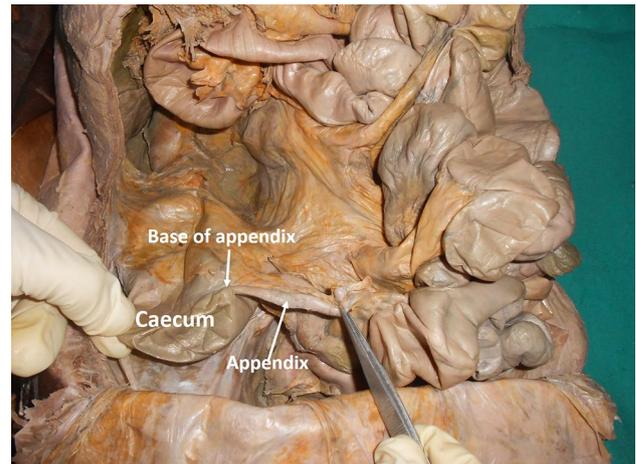


Fig. 3 Photograph of abdominal viscera showing the attachment of the base of the appendix to the anterior wall of the caecum. The caecum has been pulled to show the anterior attachment of appendix. Note that the ileum is attached to the left wall of the caecum

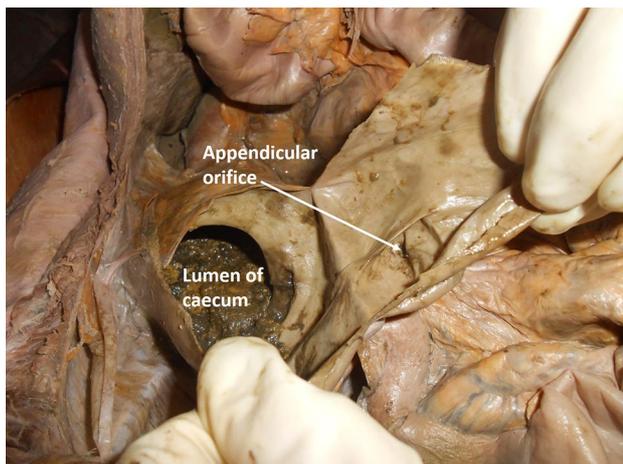


Fig. 2 Photograph of the caecum after the reflection of its anterior wall. Note the appendicular orifice on the anterior wall of the caecum

Many congenital anomalies of appendix such as its agenesis [10], duplication [9] and triplication [11] have been reported. Some other rare cases such as horseshoe appendix [7], uncinat appendix [5], gluteal appendix [2] have also been reported. The possible reason for the current anomaly is the differential growth of the posterior wall of the caecum during development, which could have pushed the appendix to an anterior position. Vermiform appendix is an enigma to the surgeons. It is unpredictable with regard to its position, dimensions, and symptoms when diseased. There are many reports in the literature regarding its anomalous positions and intriguing symptoms. Interestingly, there is no report about this unique, anterior position of the appendix. The anterior position of appendix could be considered as a boon

to the clinicians because it could be easy to diagnose and operate on due to a more visible position in the abdomen. At the same time, this could be the most vulnerable position of appendix as well since it is directly touching the anterior abdominal wall. The spread of infection from this position is easier than other positions and it could feel the direct vibrations of the anterior abdominal wall. Hence there is a greater chance for its rupture.

Conclusion

Anterior position of appendix has not been reported yet. Though this position is a boon to the clinician in terms of diagnosis and surgery, it could be potentially dangerous as the spread of infection from this position may be faster and it is liable to rupture faster due to direct exposure to the vibrations of the anterior abdominal wall.

Author contributions Dr. Satheesha B. Nayak dissected the cadaver, and drafted the manuscript. Dr. K.V. Soumya prepared the photographs, did the review of literature and proof reading of the manuscript.

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Compliance with ethical standards

Conflict of interest The author(s) declare that they have no conflict of interest.

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