

## CASE REPORT

# A Paracolic Location of the Appendix Vermiformis with Lymphoid Hypoplasia

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## Abstract

The present case report from the dissection room

shows a rare and unique paracolic position of the vermiform appendix reaching almost up to the liver in a white European man. The appearance of the gut associated lymphoepithelial tissue was hypoplastic.

**Key Words:** *Vermiform appendix; Paracolic; Variation; Human; Lymphoid tissue; Hypoplasia*

## Introduction

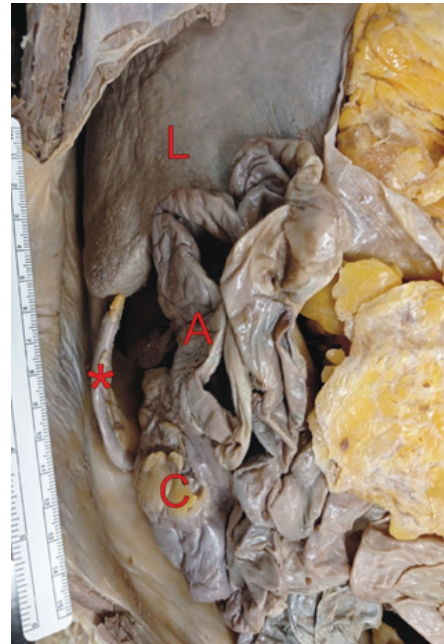
It is widely known that the vermiform appendix has a great variation of its position and length. Studies implicate various frequencies among different populations. This holds especially true for the paracolic/paracecal position, which is largely not described in European [1,2] and Asian [3-6] studies, which is a rare finding in African studies [7-9], but seems more frequent in South and North American studies (5-13% [10,11]). The possible occurrence in the European population is demonstrated in the case presented in this report.

## Case Presentation

For the first time within the last 15 years (around 25 body donors each year equals 375 donors which were seen in the Department of Anatomy, Medical Faculty Carl Gustav Carus, TU Dresden, Germany), a true paracolic position of the vermiform appendix was observed by chance in a white male, who died 77 years of age. The abdominal wall was opened midsagittal, at the costal arch, and inguinal. The unprepared situs was investigated.

The cecum just reached the right lower quadrant of the abdominal cavity (Figure 1). At its lateral side,

the vermiform appendix originated. It was 7 cm in length and not affixed to the abdominal wall with any mesoappendix. Still, towards the dorsal side there was some fatty tissue containing the larger vessels. The vermiform appendix was in the right paracolic gutter and reached the low facies visceralis of the right liver lobe (Figure 1).



**Figure 1)** Paracolic position of the vermiform appendix (asterisk) in a 77 years old white European male. C=cecum; A=ascending colon; L=liver

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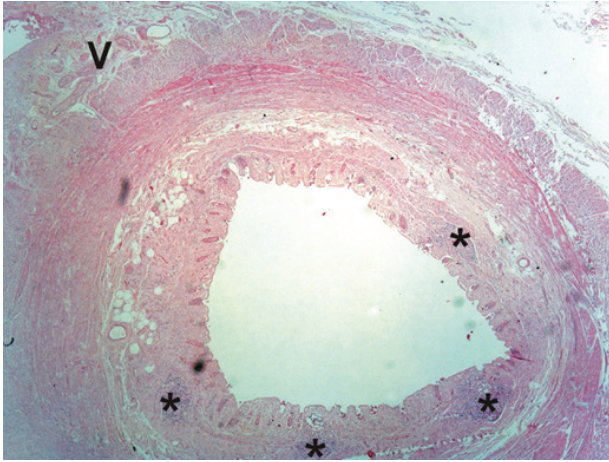
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The histology of the tip, the middle, and the base region revealed consistently only single lymphoid follicles and large regions without lymphatic colonization (Figure 2). The follicles presented opposite to the entrance of the larger vessels. There were even less follicles in the tip and middle region than in the base region.



**Figure 2)** Histological appearance of the lymphatic follicles (asterisks) in the base region of the vermiform appendix. HE Staining, magnification x2.5. V= region of the entering vessels.

## Discussion

Beside a clinical presentation of an unusually 17 cm long appendix with paracolic location in a child in Britain [12], this is the first notation of a true paracolic vermiform appendix in a European. Interestingly, the few paracolic locations in African studies mentioned long vermiform appendices up to 11 cm [9], while no correlation of location and length was noted in the South American study [10]. The single case study from an Asian origin [13] differs in showing an extensive mesoappendix and a lateral insertion of the ileum into the cecum. Another paracolic vermiform appendix was mentioned in an Asian study pointing to visual problems that can occur during laparoscopic intervention [14].

A collection of these rare cases of paracolic vermiform appendices might help to understand the origin of this unusual position. Hegazy stated that as a result of

rotation of the intestinal loop during intrauterine life development, the caecum and its attached appendix come to lie at first close to the liver in the upper right abdominal quadrant [15]. Then, he mentioned that the caecum carrying the appendix descends to reach the right iliac fossa creating the ascending colon above it. Therefore, it has been suggested in the current case that the caecum descends taking with it the base of appendix while its tip might be prevented by some sort of adhesions in region underlying liver causing the appendix to be in the paracolic position.

The second peculiarity was the lack of intense lymphatic tissue normally present in the vermiform appendix throughout the circumference and its length. It is known to be a prominent part of the gut associated lymphoepithelial tissue and is usually composed of many lymphoid follicles and a dense interaction with the epithelium [16]. Although there might be a reduction of lymphatic tissue in elderly people [17], the present finding cannot be explained by an age-related change but rather presents a rare example of primary lymphatic hypoplasia. This might be caused by the unusual position of the vermiform appendix preventing a major invasion of immunogens. Since the donor did not show any aspects of immune disturbances throughout his life (as demonstrated by his medical records), the low lymphatic activity in the vermiform appendix seems not secondary to any pathological condition.

## Conclusion

It has been concluded that surgeons performing appendectomy or other surgical procedures in such region might be aware the different positions of appendix including the rare paracolic appendix.

## Acknowledgement

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