CASE REPORT

Retrorenal appendix: An atypical position of the vermiform appendix

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SUMMARY

INTRODUCTION

Beginning from the first drawings of the appendix by Leonardo da Vinci in 1492 (1), the study of anatomy and embryology of the appendix has captured the attention of the surgical fraternity right up to the mid twentieth century. From the time of Sir Frederick Treves’ mention of the ‘splenic’ or post ileal appendix being the most common position of the vermiform appendix to it being challenged by Cecil Wakeley with his study claiming that this blind diverticulum was most often found in the retro-caecal location, it has been repeatedly observed that the appendix can be found in almost any position relative to the cecum (2). There is no definite rule governing the position of the appendix. Its length varies from 2 cm to 20 cm with an average of 10 cm (3). The base of appendix is fixed whereas the remaining part of the appendix may occupy any of the following reported positions indicated by the hour hand of the clock: i) retrocaecal (12 O’clock), ii) preileal (1 O’clock) iii) postileal (2 O’clock) iv) promonteric (3 O’clock) v) pelvic (4 O’clock) and vi) subcaecal (6 O’clock) (4-7).

Although vestigial it can be a significant source of morbidity and occasionally mortality, when inflamed. In spite of being one of the most common surgical procedures performed by the surgeon, appendicectomy is fraught with pitfalls for the unwary due to the highly variable position of the appendix.

Herein described is, to the best of our knowledge, one such never before described anatomic variation of appendix.

CASE REPORT

A 55-year-old lady presented to the emergency department of a tertiary care centre with complaint of diffuse burning lower abdominal pain for 15 days, predominantly in the right lumbar region, which was insidious in onset, moderate in intensity, aggravated with exertion not associated with vomiting. She gave history of similar pain intermittently since the past two months relieved on medication but the present pain was not relieved by analgesics. The pain was not associated with bowel and bladder symptoms. She was a known seropositive patient (HIV 1 positive) and was on antiretroviral medications for the past 5 years. She had no other co morbidity.

On examination, general condition of the patient was fair with normal vital parameters. Per abdomen the patient was soft on palpation, no tenderness or guarding was appreciated over the abdomen. Routine investigations were within the normal range except for mildly elevated WBC count of 12,500. Chest and erect abdominal Xrays were normal. On ultrasonography of the abdomen and pelvis, the appendix could not be visualised. Considering the age of the patient, leucocytosis and her seropositive status a contrast enhanced CT scan of the abdomen and pelvis was done to rule out any finding missed on the ultrasound scan.

CT scan showed a blind tubular structure arising from the caecum travelling back into the retroperitoneum with its tip lying behind the right kidney. The tubular structure was confirmed as the appendix by radiologists with a diameter of 9 mm. The caecum was orthotopic in position. There was no sign of peri appendiceal fat stranding or peri appendiceal fluid. No other significant abnormality could be detected on the scan. Based on the clinical and radiological profile of the patient, a diagnosis of acute appendicitis was derived.

The notable finding on the scan was the unusual position of the appendix, a never before seen or described position of the vermiform appendix (Figure 1). As the tip of the appendix ended behind the right kidney, it has been termed as Retrorenal appendix (Figure 2). In view of a soft and non-tender abdomen, normal vital parameters and lack of signs of active inflammation of the appendix on computed tomography of the abdomen, the patient was managed conservatively with IV antibiotics and analgesics. After relief of symptoms and normalization of leucocyte count, she was discharged and planned for laparoscopic interval appendicectomy. However, the patient failed to report for follow up visits.

Key Words: Retrorenal appendix; Vermiform appendix

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Figure 1A

Figure 1B

Figure 1A and 1B: Coronal sections of a computed tomograph showing the appendix (thick arrows), 9 mm in diameter, travelling behind the right kidney into the retroperitoneum.

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Till date majority of the described anatomical variations of the appendix have been peritoneal structures. Only 7% are retroperitoneal (or retrocolic) (9). In this case the retrocecal appendix is seen travelling into the retroperitoneum between the paranephric fat and the Gerota’s fascia with the tip lying behind the right kidney. Hence it is termed as a retrorenal appendix.

CONCLUSION

In addition to expanding the literature on the anatomical variations of the vermiform appendix, this case implores surgeons to keep an open mind to the range of possible positions of the appendix when diagnosing both common and rare pathologies affecting this organ and while planning surgical interventions involving the appendix.

REFERENCES