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Incomplete Common Mesentery Revealed by Appendicitis in Adults: A Case Report

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Abstract **Case Report**

The incomplete common mesentery corresponds to a cessation of the 180° rotation of the primitive intestinal loop. This situation is rarely diagnosed in adult and is at very high risk of small bowel volvulus and mesenteric infarction. The occurrence of acute appendicitis in such a malformation, which is in a subhepatic position, makes its clinical diagnosis difficult and can be a source of diagnostic and therapeutic delay. Radiological imaging, in particular CT scanning, coupled with a good knowledge of the different anatomical variations of the appendix and the intestine, plays a major role in the diagnosis of complicated or ectopic acute appendicitis. It allows a precise anatomical and lesion diagnosis and guides the surgical approach. Laparoscopy, if available in the emergency room, in addition to its therapeutic interest allowing the performance of the appendectomy and the treatment of possible complications through a minimally invasive approach, it retains an important diagnostic interest in case of doubt, allowing good exploration of the entire peritoneal cavity. In this paper, we report the case of a young patient admitted for acute abdominal pain in the right hypochondrium whose investigations concluded with acute subhepatic appendicitis on an incomplete common mesentery.

Keywords: Case Report; Acute Subhepatic Appendicitis; Incomplete Common Mesentery; Appendectomy.

INTRODUCTION

Acute appendicitis is the most common abdominal surgical emergency [1, 7]. Its subhepatic location coupled with intestinal malrotation such as "incomplete common mesentery" presents a diagnostic and therapeutic challenge. Given the atypical clinical presentation and the multitude of differential diagnoses of acute subhepatic appendicitis, the diagnosis may be late, increasing the risk of appendiceal rupture and sepsis [2, 3]. This makes the use of cross-sectional radiological imaging fundamental in this type of clinical situation or even laparoscopy in case of diagnostic doubt [2, 3]. We highlight the diagnostic and therapeutic particularities of this entity, reporting the case of a 34-year-old patient admitted to the emergency room for acute abdominal pain in the right hypochondrium secondary to acute subhepatic appendicitis on an incomplete common mesentery.

Report Box:

A 38-year-old man with no significant medical history. Admitted to the emergency room of our hospital for epigastric abdominal pain lasting for 3 days with nausea without other signs, notably no vomiting or transit problems. Physical examination finds a conscious patient, tachycardia at 105bpm, eupneic, with a fever of 37.8°C, as well as epigastric guarding and tenderness of the rest of the abdomen. Initially an electrocardiogram returning no abnormalities, notably no repolarization disorder. The biological assessment reveals hyperleukocytosis at 15,250/mm3 with a predominance of polynuclear neutrophils at 12,810/mm3 as well as a high CRP at 347 mg/L. The rest of the assessment was without abnormalities, notably normal lipasemia.

An ultrasound is carried out initially non-contributory, the abdominal CT scan with injection of objective contrast products (Figure 1):

- Acute appendicitis in the laterocecal epigastric position, with phlegmonous infiltration of the peri-appendicular fat all around.
- An intestinal malrotation type incomplete common mesentery objectified by the positioning of the colonic frame on the left with a cecum in mid-

hepatic position and an inversion of the position of the mesenteric vessels, with visualization of the SMA on the right and the VMS on the left.

After an initial preparation consisting of rehydration and antibiotic therapy, a surgical exploration is carried out under general anesthesia by a midline suprasombilical laparotomy, revealing a purulent effusion of low abundance with false membranes in the subhepatic area as well as the presence of an incomplete common mesentery with the caeco-appendix subhepatic and presence of a swollen, inflamed and perforated appendix at the level of its middle part and with a healthy base (Figure 2). The intervention consisted of performing an appendectomy with peritoneal washing. Postoperatively the patient progressed well and was discharged home on POD2.

Histological studies of the surgical specimen revealed acute ulcerated appendicitis with localized peritoneal reaction.

Postoperative monitoring did not show any abnormalities and the patient is doing well, with no re-consultation one year after surgery.

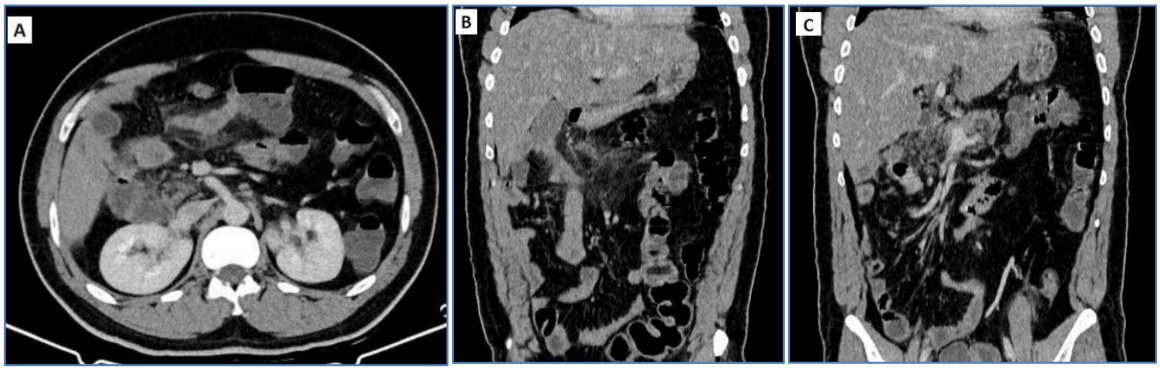

Figure 1: Axial and frontal CT scan sections showing appendicitis in the epigastric position, with phlegmonous infiltration of the peri-appendicular fat (AB) and intestinal malrotation like incomplete common mesentery objectified by the positioning of the colonic frame on the left with a cecum in the median subhepatic position and a reversal of the position of the mesenteric vessels (BC)

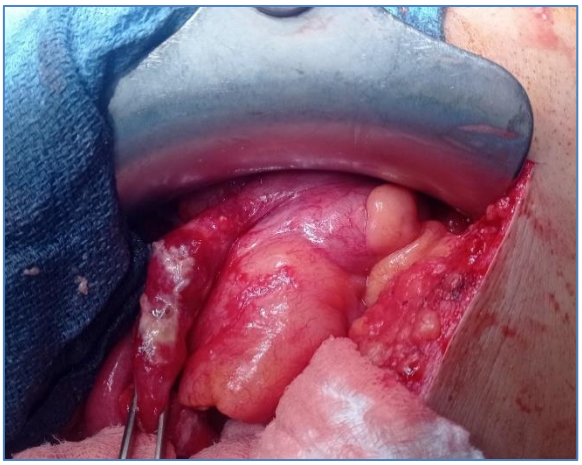

Figure 2: Operative findings showing perforated subhepatic appendicitis in its middle part

DISCUSSION

The common mesentery results from an abnormal rotation of the digestive tract. It is characterized by the persistence of an embryonic anatomical arrangement secondary to an anomaly of rotation of the primitive umbilical loop, thus constituting a meso common to the entire intestinal loop and an extremely short root of the mesentery. This lack of rotation is most often associated with a misalignment [4]. These intestinal rotation abnormalities can lead to serious and sometimes fatal complications, which generally occur during the neonatal period or at pediatric age. It is estimated that the prevalence of these congenital malformations in adulthood is of the order of 0.2% to 0.5%, an age at which they very often remain asymptomatic and therefore undiagnosed [5]. The interruption of the 180° intestinal rotation results in a position where the ileocaecal junction is fixed in the subhepatic region. This position, called “incomplete common mesentery”, is at high risk of total volvulus of the small intestine due to the shortness of the root of the mesentery and its lack of adjoining [4, 5].

Acute subhepatic appendicitis accounts for 0.08% of all cases of acute appendicitis and has an annual incidence of 0.09 per 100,000 adults [6]. Knowing that acute appendicitis is the most common abdominal surgical emergency in the world, with an annual incidence of 96.5 to 100 cases per 100,000 adults [7].

The position of the appendix is extremely variable and can also present atypical locations such as subhepatic, left-sided, intrahernial, mesocolic and lumbar locations [3]. The first case of acute subhepatic appendicitis, due to non-descent of the cecum, was described for the first time in 1955 by King [8].

Knowledge of variations in appendix position is important because in acute appendicitis, its varying positions can produce variable symptoms and signs that mimic other diseases. In the case of acute subhepatic appendicitis, abdominal pain is generally at the level of the right hypochondrium, which makes it clinically impossible to distinguish it from acute cholecystitis or a perforated duodenal ulcer. This can lead to delayed diagnosis of acute subhepatic appendicitis, which can lead to complications such as perforation of the appendix and abscess formation, peritonitis and sepsis [2, 3]. Radiological imaging is therefore of paramount importance to identify such an anomaly as well as to confirm the diagnosis of incomplete common mesentery [1, 2]. Ultrasound may be the preferred first-line screening tool due to its availability and ease of implementation. However, it presents a high probability of misdiagnosis of acute subhepatic appendicitis. Computed tomography with contrast injection remains the best modality for identifying acute subhepatic appendicitis with a sensitivity of 88 to 100%, a specificity of 92 to 98% and a positive predictive value of 86 to 98% [2, 3]. MRI, compared to CT, has comparable sensitivity and specificity for the diagnosis of acute appendicitis, but it still has emergency availability and cost as disadvantages [2].

In our patient with right upper quadrant abdominal pain and an inconclusive ultrasound, we performed an abdominal CT scan which confirmed the diagnosis of acute subhepatic appendicitis associated with an incomplete common mesentery. The generally unusual location of the appendix may delay proper diagnosis and treatment of acute appendicitis [2, 3, 7]. However, in this case report, there was no delay in diagnosis.

In many cases, the diagnosis of acute subhepatic appendicitis is made by laparoscopy, especially if abdominal CT is inconclusive. After establishing the diagnosis of acute subhepatic appendicitis, the surgical options are the same as for acute appendicitis of usual locations. Appendectomy represents the standard treatment for acute appendicitis, although conservative medical treatment based on antibiotics may be offered as first-line treatment in certain patients [2, 3, 7].

Conventional laparotomies may not be suitable for removing the infrahepatic appendix. Therefore, laparoscopy, if available, constitutes the optimal minimally invasive approach in this situation of rare anatomical position of the appendix for adequate access and also allows better exploration of the peritoneal cavity [3, 6]. Laparoscopic appendectomy can be difficult in retrocaecal subhepatic appendicitis where dense adhesion or fibrosis is present. However, switching to an open approach may be inevitable in difficult and complicated cases. The decision to move to the open approach for patient safety should never be considered a failure [3].

Acute appendicitis remains one of the most common surgical emergencies with low morbidity and mortality if surgical treatment is not delayed. The delay is often due to misdiagnosis of acute appendicitis. The mortality rate of acute appendicitis is reported to be less than 1%, but it can be increased up to 5% in cases of acute appendicitis diagnosed late [2].

CONCLUSION

Acute subhepatic appendicitis on an incomplete common mesentery is a rare situation in adult emergencies which poses a diagnostic and therapeutic challenge, hence the importance of this type of paper for raising awareness among practitioners (emergency physicians, radiologists and surgeons), to avoid diagnostic delays leading to serious complications. Laparoscopy is recommended in case of doubt for diagnostic confirmation and performance of appendectomy which remains the standard treatment for this disease.

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REFERENCES

1. Ababacar, T. A., Franck, M. K., Seydou, L., Youssef, A. L., Meryem, B., Maaroufi, M., & Badreeddine, A. (2017). Detection of complete common mesentery on CT scan for perforation in acute appendicitis. *The Pan African Medical Journal*, *27*, 3.
2. Evola, G., Lanaia, A., Cantella, R., Di Fidio, C., Di Fede, G. F., & Piazza, L. (2022). Subhepatic perforated acute appendicitis in a patient with midgut malrotation: A case report and review of the literature. *International Journal of Surgery Case Reports*, *95*, 107249.
3. Chong, H. C., Chai, F. Y., Balakrishnan, D., Asilah, S. M. D., Adila, I. N. I., & Syibrah, K. Z. (2016). Malrotated subhepatic caecum with subhepatic appendicitis: diagnosis and management. *Case reports in surgery*, *2016*(1), 6067374.
4. Oudou, A. Z., Soumana, I. D., Souiki, T., Majdoub, K., Toughrai, I., Laalim, S. A., & Mazaz, K. (2019).

Total small bowel volvulus complicating common incomplete mesentery, an exceptional complication in adults: About a case. *The Pan African medical journal*, *33*, 220.

5. Coulibaly, M., Boukatta, B., Derkaoui, A., Sbai, H., Ousadden, A., & Kanjaa, N. (2015). Incomplete small bowel volvulus on common mesentery--a severe and rare complication in adults: report of 1 case. *The Pan African Medical Journal*, 20, 157.
6. Palanivelu, C., Rangarajan, M., John, S. J., Senthilkumar, R., & Madhankumar, M. V. (2007). Laparoscopic appendectomy for appendicitis in uncommon situations: the advantages of a tailored approach. *Singapore medical journal*, *48*(8), 737-740.
7. Moris, D., Paulson, E. K., & Pappas, T. N. (2021). Diagnosis and management of acute appendicitis in adults: a review. *Jama*, *326*(22), 2299-2311.
8. King, A. (1955). Subhepatic appendicitis. *AMA Archives of Surgery*, *71*(2), 265-267.