Case Report

Complete common mesentery revealed by acute perforated appendicitis: case report and review of the literature

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ABSTRACT

Intestinal malrotation in children is a rare aberration, due to a halt in the rotation and attachment of the primitive gut, it can be asymptomatic if the rotation terminates at 90 degrees, which manifests itself in unusual forms of appendicitis as in our observation, or dangerous in cases of inadequate common mesentery and worsened by small intestine volvulus. This 12-year-old boy experienced abdominal discomfort in the hypogastrum and left iliac fossa 4 days before admission. The pain had been developing in a feverish setting, and the clinical examination had revealed abdominal sensitivity. A biological inflammatory syndrome was detected throughout the biological workup, the CT scan allowed the diagnosis of acute appendicitis on a complete common mesentery, and the patient underwent a laparotomy appendectomy. Even though children frequently experience acute appendicitis in its conventional form, it is nevertheless highly challenging to identify in its atypical forms when intestinal malrotation is involved. An abdominopelvic CT scan is used to make the diagnosis, and appendectomy, preferably with laparoscopy, is the recommended course of action.

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Introduction

A full common mesentery is a rare feature of acute appendicitis presentation that can delay therapy. Imaging allows a precise anatomical and lesion diagnosis, which directs the surgical strategy.

Case report

This 12-year-old boy with no particular pathological history was admitted to the emergency department for an acute abdomen. The symptomatology goes back to 4 days before the admission, by the occurrence of abdominal pains in the left il-
iac fossa and hypogastrium that progressed in a febrile setting, and the clinical examination revealed an abdominal sensitivity that was more pronounced at the pelvic level without transit disorders. A biological inflammatory syndrome with neutrophilic hyperleukocytosis and an increased C-reactive protein was identified by the biological work-up. The ultrasound performed first found a swollen appendix in the median position containing stercoliths. An additional CT scan showed a complete common mesentery with the caecum and colon on the left and the small intestine on the right (Fig. 1), a transposition of the superior mesenteric vessels with an enlarged ectopic appendix in the median pelvic position with stercoliths and a parietal defect at its distal end, as well as multiple collections with hydroaeric content in the pelvic area linked to an intraperitoneal effusion (Fig. 2). Emergency laparoscopic surgery confirmed a complete common mesentery with a swollen and perforated appendix. The treatment approach entailed performing an appendectomy after removing the meso appendix. The postoperative course was simple and without complications. The anatomopathological study of the surgical specimen revealed inflammatory appendicitis.

Discussion

During embryonic development, the intestine undergoes reintegration, rotation, and docking phenomena. When these phenomena are incomplete or absent, they are the cause of malposition of the digestive tract which can lead to digestive complications. These malformations can affect one in 500 births [1].

There are 3 rotations, 90° counterclockwise around the superior mesenteric artery. The first rotation occurs before the 10th week of gestation when the primitive intestine is still located outside the abdomen, this rotation places the previtelline portion (small intestine) on the right and the postvitelline portion (colon) on the left, a stop at this stage is the origin of the complete common mesentery, in this case, the colon is located in the left part of the abdomen, the small intestine on the right, the angle of Treitz is absent and the mesenteric vein is located on the left of the artery. The second rotation places the previtelline portion posterior to the mesenteric axis (positioning of D3). The third rotation places the previtelline portion to the left of the postvitelline portion. A stop of the rotation at 180° defines the incomplete common mesentery. Only 15% of incomplete common mesenteries remain asymptomatic due to the significant risk of volvulus [2].

The complete common mesentery is often discovered, either fortuitously, or in the context of tumoral or inflammatory pathology of the gastrointestinal tract, in particular ectopic appendicitis, the clinical diagnosis of which has often been erroneous or not evoked [3].

In our description, the patient presented with left appendicitis. This is a rare form in the literature. Moreover, the left

Fig. 1 – X-ray image (A) and CT scan (B) show a complete common mesentery with colon in the left part of the abdomen (orange star), and small intestine on the right (black star).
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Fig. 2 – Injected helical CT scan of the abdomen (axial sections). (A) Left appendix containing a stercolith (green arrow). (B) The superior mesenteric vein (blue arrow) is located to the left of the artery (orange arrow). (C) Small intrapelvic collection with hydroaeric content (yellow arrow).

The location of the appendix is more frequent in the context of situs inversus. For example, out of 95 cases of left appendicitis published by Akbulut et al. in 2010, only 31% of cases were related to intestinal malrotation [4]. This unusual localization is responsible for a delay in diagnosis that can cause serious complications.

With the advent of modern imaging, particularly echo Doppler and computed tomography, which looks for transposition of the mesenteric vessels and the location of the small bowel about the colon, the diagnosis is made increasingly early [5].

The treatment is surgical and the approach determined by the surgeon’s habits and the patient’s history of abdominal surgery.

Conclusion

The atypical presentation of acute appendicitis constitutes a diagnostic challenge in an emergency. It requires appropriate imaging based essentially on a CT scan to establish the diagnosis, and to specify the congenital variations of the digestive tract to guide the emergency surgical management.

Patient consent

The patient’s parents agreed with a written informed consent to anonymously publish their son’s medical information.

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