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Case Report

Value of CT in the Diagnosis of Mechanical Flange Occlusion of the Proximal Small Intestine Complicating an Incomplete Common Mesentery in an Adult: A Case Report

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Abstract

Incomplete common mesentery (ICM) is a rotation anomaly of the primary intestinal loop. Its symptoms are non-specific, ranging from repeated abdominal pain with transit disorders to extremely serious occlusive complications that are life-threatening. It is a rare pathology in adults, which can lead to diagnostic wandering. It is important to know the radiological signs, especially CT scans, for early treatment. We report the observation of a 57-year-old patient received for mechanical occlusion of the proximal small intestine on an incomplete common mesentery diagnosed on abdominal computed tomography (CT) and confirmed by surgical exploration, in whom the evolution was favorable.

Keywords: CT; Occlusion; LADD Strap; Incomplete Common Mesentery.

Introduction

The common mesentery results from an anomaly of rotation of the primitive intestinal loop during embryonic development. The cessation of rotation at 90° is called complete common mesentery (CCM). This form is not very pathogenic and does not pose any complications. This form is therefore most often discovered incidentally in adulthood or during childhood [1].

Failure to rotate at 180° is called incomplete common mesentery (ICM). It is the most common form of intestinal rotation abnormality and exposes the patient to occlusive and early digestive complications [2,3]. It is therefore most often revealed during childhood and very rarely in adulthood [4]. We therefore report the particular case of an MCI discovered in an adult, during an upper intestinal obstruction on a bridle, revealed on an abdominopelvic scanner.

Observation

This is a 57-year-old patient, admitted to the emergency room for upper intestinal obstruction syndrome with very intense epigastralgia associated with vomiting and resistant to drug

treatments. His history includes an intestinal obstruction in 2016 and a left inguinal hernia in 2022. On clinical examination, the abdomen was supple with a laparotomy scar.

A helical abdominopelvic CT scan was performed for persistent occlusive syndrome with a protocol without and with an injection of contrast product in the portal phase, covering the abdomen and pelvis. A gastroduodenal distention was revealed with an anteroposterior duodenal diameter measured at 55 mm upstream of a beak sign at the level of the Treitz angle which was to the right of the midline. This was associated with a malposition of the large mesenteric vessels with the superior mesenteric vein located in front of the superior mesenteric artery and the cecum in a subhepatic situation (Figures 1 and 2). There were no signs of digestive parietal distress with normal enhancement of the duodenal wall without thickening. A flange occlusion complicating an incomplete common mesentery was suggested.

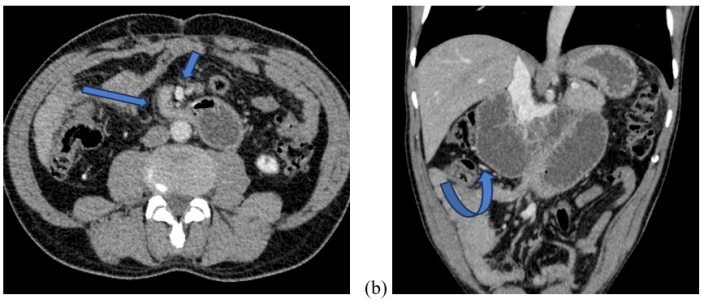

Figure 1: Abdominal CT scan in axial (a) and oblique coronal (b) section: beak sign at the Treitz angle (long arrow) located to the right of the superior mesenteric artery (short arrow) and duodenal distention in upstream (curved arrow)

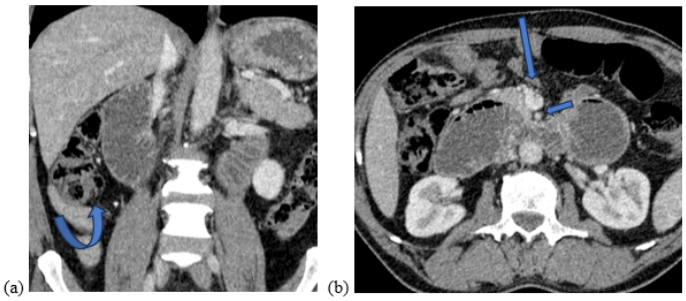

Figure 2: Abdominopelvic CT scan with coronal (a) and axial (b) section: Cecum in subhepatic position (curved arrow) and superior mesenteric vein (long arrow) in front of the superior mesenteric artery (curved arrow).

This diagnosis was confirmed by emergency surgery. A subhepatic cecum was found with a LADD strap stretched between the cecum and the posterior abdominal wall and encircling the duodenum. There were no signs of duodenal distress (Figure 3). The bridle was released and a LADD procedure was performed. The latter consisted of reducing the MCI to a complete common mesentery (MCC) by placing all the small intestine on the right and the colon on the left. The postoperative course was simple.

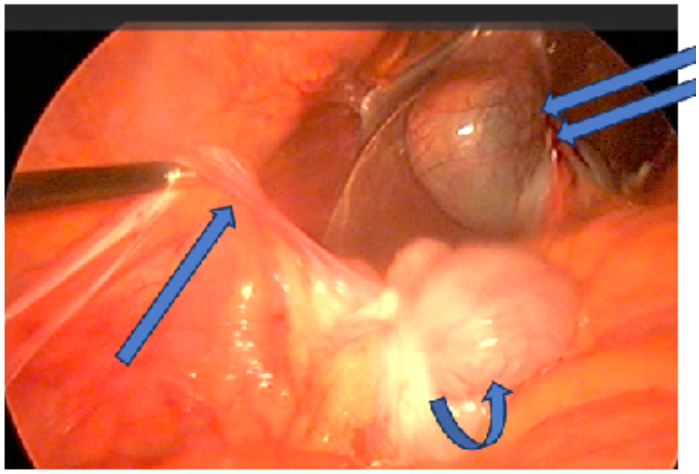

Figure 3: Laparoscopic view: cecum (curved arrow) located under the liver and gallbladder (double arrow) and the LADD flange (single arrow).

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 intestinal loop, thus constituting a meso common to the entire intestinal loop and to the root of the mesentery. This insufficient rotation is most often associated with a lack of fit [5].

Indeed, during intrauterine life, between the 5th and 10th week, the umbilical loop is outside the abdominal cavity. Then it will undergo a rotation of 270° counterclockwise, re-entering the abdominal cavity, and complete its rotation to attach definitively. The premature interruption of this rotation will determine the definitive positioning of the intestine in a more or less risky situation [6].

Stopping the rotation at 90° is called MCC. In this situation, we find all the small intestine on the right and the colon on the left. This form is asymptomatic and is most often discovered incidentally [1].

Stopping the rotation at 180° is called MCI. This is the most common form of intestinal rotation abnormality. In this situation, the root of the mesentery is short and the ileo-caecal junction is

fixed subhepatic. The duodenojejunal angle is fixed to the right of the spine. Thus, the first jejunal loop and the last ileal loop are located close to the superior mesenteric axis and very close to each other [5]. There are tight flanges joining the cecum to the posterior abdominal wall called Ladd flanges [1]. They cross the 2nd duodenum and can be responsible for acute intestinal obstruction in a previously asymptomatic adult patient [7]. Our patient presented a duodenal occlusion upstream of the angle of Treitz on a Ladd bracket certainly crossing the angle of Treitz, since it was located to the right of the superior mesenteric artery and therefore close to the cecum. The prevalence of these malformations in adulthood is estimated at around 0.2% to 0.5% [8].

Clinically, the symptoms are less specific in adults than in children. In the latter, total volvulus of the small intestine is the most frequent clinical manifestation [4]. In adults, malrotation tends to give rise to recurrent abdominal pain, isolated or associated with other signs such as frequent diarrhea, abdominal bloating, borborygmus, feeling of early satiety, food intolerance, upper or lower digestive bleeding, constipation, etc. [4]. Our patient's history includes chronic epigastralgia and he was treated for a long time for Helicobacter pylori peptic ulcer. When not diagnosed and corrected early, these anomalies can be responsible for late occlusive complications [9]. Our patient presented with a flange occlusion in 2016. Unfortunately, the diagnosis of MCI was not made until 7 years later in the face of the same occlusive picture. This significantly delayed his treatment.

CT is a test of choice in the pathology of intestinal malrotation and its occlusive complications in adults. If it is quickly accessible in a hemodynamically stable patient, it should be the first-line test [10]. The examination must be carried out without an injection of contrast product. In the case of MCI, it highlights the intestinal malrotation itself with a Treitz angle to the right of the spine, an absence of passage of the duodenum into the aortomesenteric clamp, and inversion of the mesenteric vessels at their origin [4]. CT also constitutes the gold standard in the exploration of occlusive syndromes [11]. Indeed, it is effective in making a positive diagnosis of the occlusion, specifying its location, investigating its cause, and assessing its severity. In our patient, the CT scan made it possible to accurately diagnose MCI and its occlusive complication.

The treatment is based on the LADD procedure which remains the reference in both adults and children [6,7,9]. This procedure consists first of a median laparotomy, followed by a reduction of the volvulus by untwisting in a counterclockwise direction, then, we proceed to a section of the flanges responsible for the shortening of the mesenteric root then a fixation of the intestine to the mesentery common to avoid any recurrence. The procedure also includes a basic appendectomy [7]. Our patient benefited from a release of the Ladd clamp and an MCC placement. The postoperative course was simple.

Conclusion

Flange occlusion of an incomplete common mesentery is a rare complication in adults. Indeed, in the latter, the chronic symptomatology preceding the acute accident (bridle occlusion in our case) is non-specific, which can lead to diagnostic wandering. It is therefore necessary to know these rotation anomalies as well as the complications they cause. Imaging, in particular CT scanning, makes it possible to make the diagnosis. The treatment is based on the LADD procedure which is the benchmarking reference.

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