

Small Bowel Volvulus on Incomplete Common Mesentery in Adults with Rare Late Presentation: Report of a Case

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Abstract

Case Report

Small bowel volvulus complicating incomplete common mesentery corresponds to an arrest in the 180° rotation of the primitive intestinal loop. The root of the mesentery is very short and the entire small intestine is pedunculated on the superior mesenteric artery. This situation carries a very high risk of small bowel volvulus and entero-mesenteric infarction. Acute volvulus requires emergency surgery; imaging should not delay surgical management. The surgical procedure consists of untwisting the volvulus (anticlockwise) and assessing the viability of the intestine. The intestine is stored in the position of complete common mesentery: coetus in the left iliac fossa. We report the observation of a 24-year-old patient admitted for small bowel volvulus on incomplete common mesentery, operated on as an emergency with a favourable postoperative outcome.

Keywords: Small bowel volvulus, small intestine, incomplete common mesentery, rotation anomaly.

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INTRODUCTION

Small bowel volvulus due to abnormal rotation of the primary intestinal loop is exceptional in adults, with only around one hundred cases reported [1]. Common mesentery results from a rotation anomaly of the digestive tract. It is characterised by the persistence of an embryonic anatomical arrangement secondary to a rotation anomaly of the primitive umbilical loop, thus constituting a meso common to the entire intestinal loop and an extremely short root of the mesentery. This rotation insufficiency is most often associated with a docking defect [2]. These intestinal rotation anomalies can lead to serious and sometimes fatal complications, which generally occur during the neonatal period or in paediatrics. It is estimated that the prevalence of these congenital malformations in adulthood is in the region of 0.2% to 0.5%, an age at which they very often remain asymptomatic and therefore undiagnosed [3]. The diagnosis of total small bowel volvulus can be made in a wide variety of circumstances: in an emergency in the presence of acute intestinal obstruction, or even a state of shock that can lead to death, or in the presence of

repeated abdominal pain more or less associated with transit disorders. We report the case of a 60-year-old patient admitted for total small bowel volvulus on incomplete common mesentery, operated on as an emergency with a favourable postoperative outcome.

PATIENT AND OBSERVATION

This 24-year-old patient with a history of chronic constipation and chronic abdominal pain was admitted to our department with an occlusive syndrome.

The symptoms began at the age of 10, with intermittent cramp-like abdominal pain of moderate intensity associated with chronic constipation, prompting the patient to self-medicate with a plant decoction, which led to a slight improvement.

The current episode occurred 10 hours ago and was marked by abdominal pain in the periumbilical region of strong cramp-like intensity associated with vomiting without any calming factor, leading to admission to our department for occlusive syndrome. On

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admission, the patient was found to be: conscious, GCS 15, dehydrated, blood pressure 110mmHg/70mmHg, heart rate 100 beats/min, polypnoea 30 cycles/min, afebrile at 37°C.

Abdominal examination revealed a distended abdomen, tympanic on percussion, with no contractures or defences. An emergency laboratory assessment revealed functional renal failure, hypokalaemia and hyponatraemia. There was no biological inflammatory syndrome. An unprepared abdomen (UAP) was performed, showing hydroaeric levels of the greaves type. Abdominal ultrasound was inconclusive, apart from a huge gas screen that interfered with the examination, which led to an unprepared abdominal X-ray showing hydroaeric levels of the greaves type. We adopted the diagnosis of a small bowel obstruction. After

a short resuscitation, the patient was admitted to the operating theatre. Exploration revealed that the entire small intestine was distended and in pain, with a turn of the spiral involving the first jejunal loop and the last ileal loop (Figure 1). The cecum was subhepatic, attached to the wall by a Ladd's flange. The surgical procedure consisted of anti-clockwise detorsion followed by immediate recoloration of the small intestine (fig. 2), then cure of the embryological rotation anomaly using the Ladd procedure (section of the flanges, transformation of the incomplete common mesentery into a complete common mesentery to avoid any recurrence and finally a principle appendectomy (fig. 3). The post-operative course was straightforward and the patient was discharged after 7 days in hospital.

ICONOGRAPHY

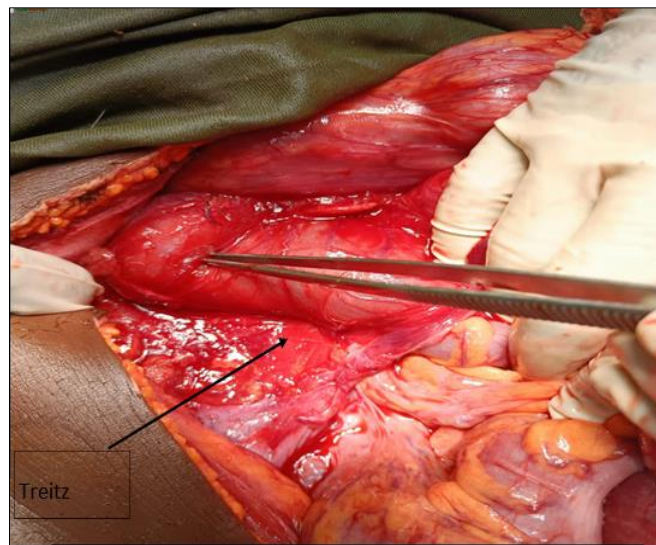


Figure 1: Intraoperative image of an incomplete common mesentery

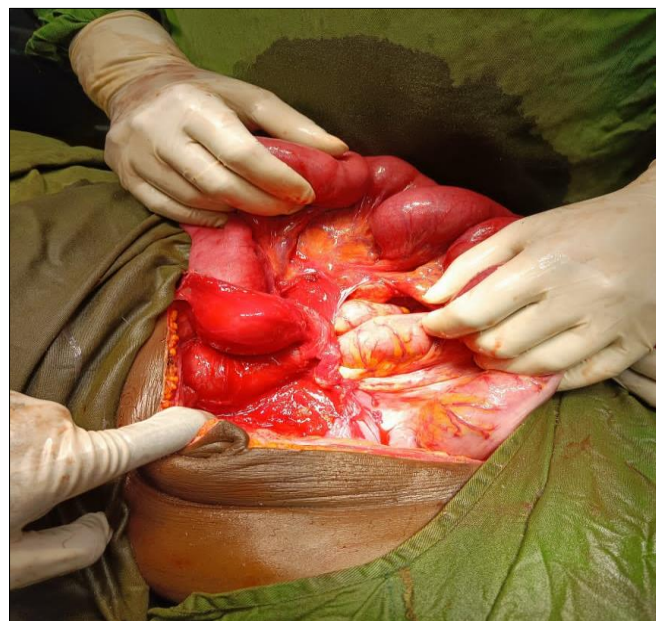


Figure 2: Intraoperative image of an incomplete common mesenter



Figure 3: Intraoperative image of an incomplete common mesentery

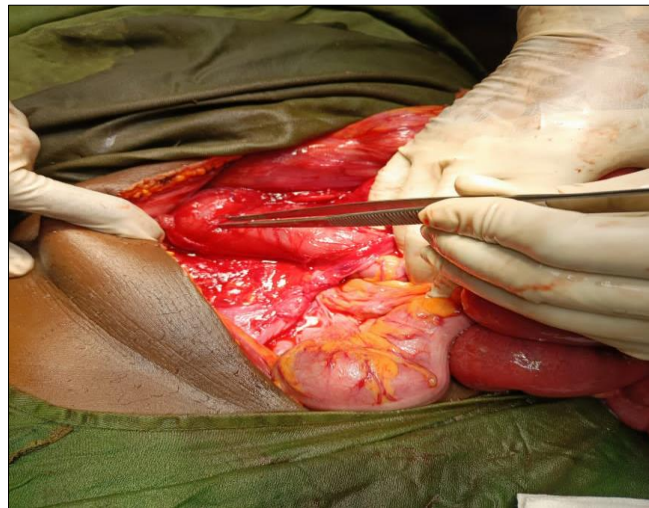


Figure 4: Intraoperative image of an incomplete common mesentery

DISCUSSION

It is estimated that the prevalence of these congenital malformations in adulthood is in the region of 0.2% to 0.5% [4, 5], at which age they very often remain asymptomatic and therefore undiagnosed. In these asymptomatic patients, the diagnosis may be revealed during attacks of ectopic appendicitis [5], or by chance during a radiological examination. Complications of intestinal rotation anomalies can be acute or chronic in adults. Acute complications include duodenal obstruction by flange and total volvulus of the small intestine, which is exceptional in adults and has a very poor prognosis. Chronic complications result from incomplete duodenal stenosis or chronic small bowel volvulus with mesenteric arterial insufficiency. The diagnosis of total small bowel volvulus may be made in a wide variety of circumstances: in an emergency, in the presence of acute intestinal obstruction, or even shock [6], which may lead to death; in the presence of repeated abdominal pain more or less associated with transit disorders; more rarely, following laparoscopic surgery,

as has been described after cholecystectomy [7-11], appendectomy [12, 13] or obesity surgery. The unprepared abdomen (UA) can be extremely variable and show no specific signs, however it is rarely normal and usually interpreted as "unusual" or discordant. Doppler ultrasound is often hampered by gas and does not always contribute to the diagnosis, although it has a sensitivity of 86.5%, a specificity of 74.7%, a positive predictive value of 42.1% and a negative predictive value of 96.3% [14]. Finally, according to some authors [15], ultrasound is the reference test for ruling out AR when it shows the presence of the third duodenum behind the superior mesenteric artery. The reference examination for the diagnosis of total small bowel volvulus due to abnormal bowel rotation in adults is abdomino-pelvic CT with contrast injection [16-19], described by Fischer [20], in 1981 under the name of whirl-like pattern, the "whirl" sign seems to be pathognomonic for the majority of authors. It corresponds to the tendril of the mesentery visible in a median position, in front of the aorta and at the level of the superior mesenteric artery, around which the superior mesenteric vein and proximal jejunum

"wrap". Treatment of acute small bowel volvulus due to intestinal malrotation is a surgical emergency. Ladd's procedure remains the gold standard [2], in both adults and children. It consists of a median laparotomy followed by reduction of the volvulus by detorsion (usually anticlockwise), section of the bridles responsible for shortening of the mesenteric root, fixation of the intestine as a complete common mesentery to avoid any recurrence, and finally a principle appendectomy. The outcome is generally favourable, provided the diagnosis and treatment are prompt.

CONCLUSION

A fearsome and rare complication in adults. The high mortality rate due to delayed diagnosis means that every practitioner needs to be aware of these rotational anomalies and the complications they can cause. Since clinical symptoms are non-specific, there should be no delay in carrying out radiological examinations. The prognosis for total volvulus of the small intestine is determined by the occlusive syndrome and the microbial proliferation it causes, and is highly dependent on the time taken to treat the condition and the patient's condition.

Conflicts of Interest: The authors declare no conflicts of interest.

Authors' Contributions: All authors contributed to the writing of this manuscript and also read and approved the final version of this manuscript.

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