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Total Small Bowel Volvulus on Incomplete Common Mesentery, an Exceptional Complication in Adults, Clinical Manifestation: A Case Report

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Abstract **Case Report**

Introduction: Incomplete common mesentery is the result of a rotational abnormality of the digestive tract. It is characterized by the persistence of an anatomical arrangement**.** Secondary to a rotational anomaly of the omphalo-mesenteric duct, thus constituting a meso common to the entire intestinal duct and an extremely short root of the mesenterium .These abnormalities of intestinal rotationcan lead to dreadful and sometimes fatal complications. The diagnosis of small bowel volvulus can be made in a wide variety of circumstances: acute intestinal occlusion, or even in shock. Repeated abdominal pain that can be associated with transit disorders. ***Case report:*** we report the observation of a 63 year old patient admitted for small bowel volvulus onincomplete common mesentery in whom the postoperative evolution wasfavourable. ***Conclusion:*** small bowel volvulus on incomplete common mesentery has a non-specific symptomatology; CT scan with contrast injection can confirm the diagnosis. Early intervention can be the one solution to treat this pathology.

Key words: Incomplete common mesentery, Lad intervention, CT scan role.

INTRODUCTION

An acute occlusive event of small bowel volvulus on incomplete common mesentery is unusual, especially in adults, which may lead to a delay in diagnosis [1], although it is a serious situation. It is an absolute surgical emergency. It is characterized by the persistence of an embryonic anatomical arrangement secondary to a rotational anomaly of theumbilical duct, this constituting a meso common to the entire intestinal duct and an extremely short root of the mesenterium. This rotation abnormality is most often associated to amismatch. We describe a clinical observation of an occlusion on volvulus of the small bowel revealing an incomplete common mesentery which was diagnosed intraoperatively. The objective of this work is to discuss the diagnosis, the therapeutic and evolutionary modalities.

OBSERVATION

Patient aged 63 years with no pathological history, admitted for the management of an occlusive syndrome consisting of abdominal distension and cessation of flatusand bowel movements associated with some episodes of vomiting evolving for 10 days in a context of apyrexia and conservation of the general state. Clinical examination found a conscious patient with a GCS of 15/15, blood pressure: 120mmhg/70mmhg heart rate 100 beats per minute, eupnea 18 cycles/min apyretic at 37° C. Also distended abdomentympanic on percussion. On rectal touch empty rectal ampulla. Biologically: hypokalaemia at 3millimol/l, hyponatraemia at 128millimol/l, normal renal function and no inflammatory syndrome. Abdominal X-ray showed air-fluid levels **(Figure 1).**

Figure 1: abdominal X-ray: grafted air-fluid level

A CT scan of the abdomen and pelvis showed a volvulus of the cecum in a sub hepatic and median position**.**

A significant distension upstream reaching 2.7 cm at the level of the jejunum, a swirling image involving the jejunal coves and showing the duodeno-jejunal flexurelocated on the right of the spine **(Figure 2 A, B)**

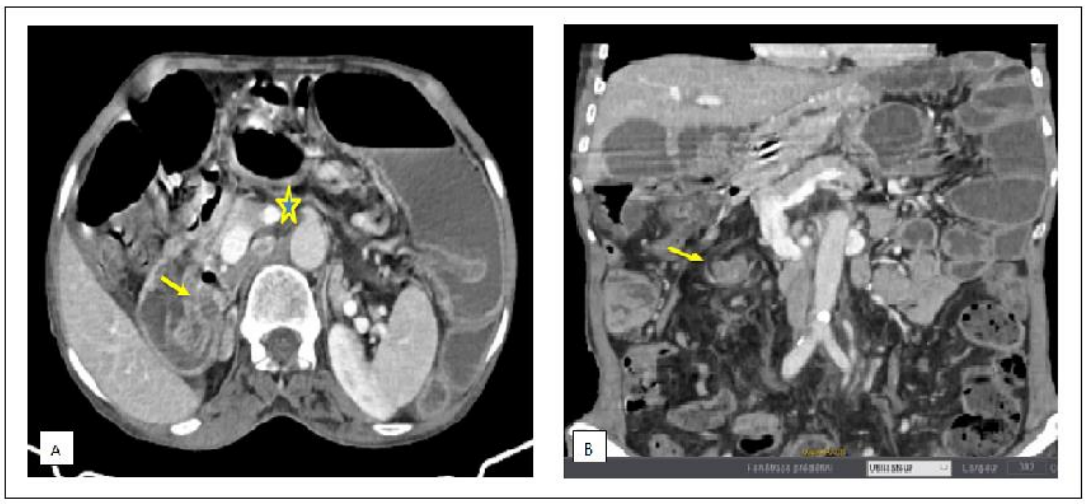

Figure 2: a) Axial section showing the duodeno-jejunal angle located on the right of the spine (arrow) with very short mesenteric root (asterixis) b) Coronal reconstruction showing the "whirl" image of the last ileal loop (arrow)

After a short conditioning, the patient was admitted to the operating room. Surgical exploration revealed the entire distended small intestine with a twist concerning the first jejunal loop and the last ileal loop **(Figure 3).** The caecum was found in the sub hepatic region, joined to the wall by a Ladd's band **(Figure 4).** The procedure consisted of sectioning the band, untwisting it in an anticlockwise direction and cure of the embryological rotation anomaly according to the Ladd procedure transformation of incomplete common mesentery into complete common mesentery. The evolution was favorable and the patient was discharged after four days hospitalization

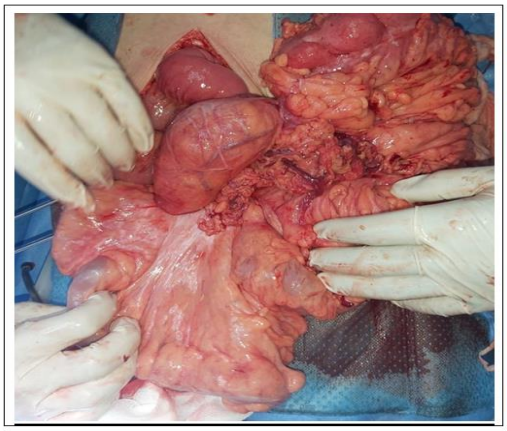

Figure 3: Per operative image of distended small bowel with a twist concerning the first jejunal loop and the last ileal loop

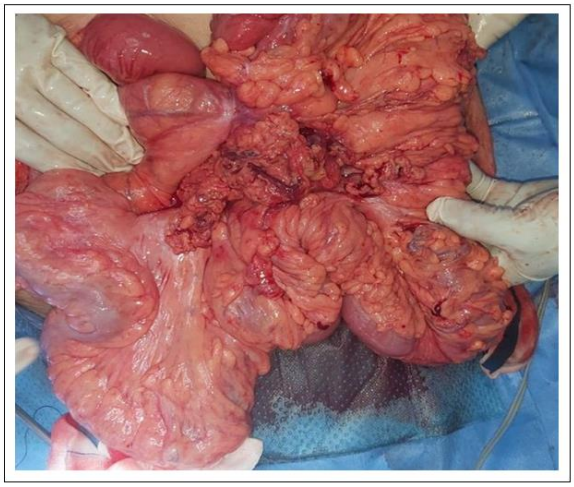

Figure 4: Per operative image the caecum is sub hepatic attached to the wall by a Ladd's band

DISCUSSION

Incomplete common mesentery results from a rotation anomaly of the gastrointestinal Digestive tract. The frequency of these congenital malformations in adulthood is estimated to be in the range of 0.2% to 0.5% [2]. The most common complication is total volvulus of the small intestine. The arrest of 180° intestinal rotation results in ascension of the caecum upwards and to the right, pre duodenal. The last iléal loop is therefore close to the duodéno jejunal angle; and consequently, this is most frequently encountered in volvulus, where the rotation is almost always clockwise (opposite to the normal direction of rotation) [3]. There is often a band between the cecum and the lateral right upper abdominal wall. This peritoneal band is called "Ladd's band"; well known to surgeons. It crosses the second duodenum and can be responsible for an acute upper intestinal obstruction in a previously asymptomatic adult patient.

The diagnosis of total small bowel volvulus can be made in a wide variety of circumstances. In emergency, an acute intestinal obstruction and even a state of shock that can lead to death. When faced with a case of repeated abdominal pain associated with transit problems; and infrequently, after laparoscopic surgery, as has been described after cholecystectomy, appendectomy or obesity surgery [4]. Total small bowel volvulus on incomplete common mesentery has an unspecific symptomatology, it is essential to consider the diagnosis early, in order to be able to confirm it, ideally preoperatively [5]. As in our patient's case. The abdominal X-rays can be extremely variable and show no specific signs; however it is rarely normal and usually interpreted as "unusual" or discordant. In the literature, ultrasound is considered to be the reference examination to eliminate intestinal mal rotation, when it shows the presence of the third duodenum behind the superior mesenteric artery. It also allows looking for parietal thickening of the loops, which indicates intestinal ischemia. The reliability of ultrasound is very high [6] with the whirl sign as a pathognomonic element. In trained hands it is sufficient for the diagnosis. The ultrasound was nonspecific in our patient as she did not benefit of an abdominal ultrasound, as in other observations [7]. The gold standard for the diagnosis of high occlusion on total small bowel volvulus with incomplete common mesentery in adults is abdominal-pelvic CT with injection of contrast product described by Fischer [8] in 1981 under the name of whirl-like pattern, the "whirl" sign appears to be pathognomonic for the majority of authors.The treatment of acute small bowel volvulus of the small intestine due to intestinal mal rotation is a surgical emergency. The Ladd's procedure remains the reference [9], both in younger and children. It consists of a median laparotomy followed by reduction of the volvulus by detorsion (usually anticlockwise), section of the bands responsible for the shortening of the of the mesenteric root, fixation of the intestine into a complete common mesentery to avoid any recurrence and finally an Appendectomy in principle [10]. The outcome is generally positive, if the diagnosis and therapeutic management have been carried out rapidly.

CONCLUSION

To sum up, small bowel volvulus on incomplete common mesentery has a non-specific symptomatology, it is essential to think of this diagnosis early on, in order to be able to confirm it, ideally preoperatively, by a CT scan with contrast injection. If this is not possible, every adult surgeon must at least be able to diagnose the total small bowel volvulus on incomplete common mesentery on open-belly, as well as its complications, and the principles of its treatment, according to the Ladd procedure.

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

Authors' Contributions: All authors have contributed to the development of the work and endorse the document. They have also read and approved the final version of this manuscript.

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