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Case Report

Situs Inversus Abdominus and Intestinal Malrotation in an Adult with Ladd's Band

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ABSTRACT:
Intestinal malrotation has been recognized as a cause of obstruction in infants and children and may be complicated by intestinal ischemia; it is very rare in adults. It is a congenital anomaly of foetal intestinal rotation and it is mostly discovered in early childhood as acute intestinal obstruction. The situs inversus abdominus is a rare entity but not pathological, and it is exceptionally associated with intestinal malrotation. The Ladd's Band extends from the underside of the liver to the cecum, dangerously bringing the proximal jejunum and terminal ileum together which can cause twisting around the mesenteric vascular axis. We present a case of situs inversus abdominus and intestinal malrotation with Ladd's band leading in a 23 year old woman.

Key words: Situs inversus; Malrotation; Ladd's band

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INTRODUCTION:

Situs Inversus abdominalis is a rare condition occurringin Intestinal 1 in 4000 to1in 20,000 live births. Malrotation is caused by partial or complete failure of 270 degree counter clockwise rotation of midgut around superior mesenteric vessels in foetal life [1]. Malrotation in adult is very rare. It may present with vague abdominal pain or with intestinal obstruction or with intestinal ischemia. The cecum positioned in a median position close to the jejunum can cause torsion of the small intestine compromising its vascularization. This torsion can be temporary or fixed leading to mesenteric ischemia. Ladd's band prevents complete rotation of the cecum by securing it to the underside of the liver. Ladd first described the procedure to treat malrotation and volvulus in 1932 and since then it has been the definitive treatment for intestinal malrotation [2, 3], this procedure consists of initial untwisting of the volvulus, then we section the Ladd's band and mobilize the angle of Treitz to straighten the duodenum and small bowel [3,4]. In practice, the most important thing is to make the exact diagnosis and initiate the therapeutic means before the installation of intestinal necrosis [4]. We describe a patient with situs inversus abdominus who presented to us acutely with recurrent abdominals pain.

CASE REPORT:

B.H is a young woman of 23 who consults in the emergency of our department for acute abdominal pain evolving for 12 hours; this pain is accompanied by bilious vomiting. The patient has no pathological past medical history but she reports a similar symptom in her childhood but with spontaneous disappearance of the signs.

Physical signs: pules 86, blood pressure 110/70, temperature 37 °C and respiratory rate was 16. Small epigastric distension, no peritoneal signs, normal bowel sounds were present on auscultation and normal rectal examination. Biochemistry panel was within normal values. The simple abdominal X-Ray shows a gastric stasis, without signs of bowel obstruction or any signs of perforation of a hollow viscus. The emergency CT scan (in times of crisis) of the abdomen found dilatation of the stomach and duodenum (figure 1), added to a rotation coil at the duodenum-jejunum junction (figure2). The liver in the left hypochondrium,

the cecum in a central location and, the presence of a band between the liver and the cecum. A diagnosis of bowel obstruction was made and the patient sent for urgent laparoscopy. Intraoperative exploration revealed a right liver situation, and a medial coecum. An adhesion between the cecum and the anterior border of the liver (figure3). Dilation of the small bowel, which twisted around the adhesion, without signs of necrosis. We decide to perform a release of the Ladd's band, and complete release of the intestine, afterwards we uncompleted the intestinal malrotation, so we located the whole colon on the left and the small intestine on the right in the peritoneal cavity, to avoid recurrence.

DISCUSSION:

During embryonic life, the colon is initially developed in the left part of the coelomic cavity between the 4th and the 12th week of embryonic life, in a normal situation, there will be a rotation of the cecum of 270° to join the right iliac fossa. This rotation can be inhibited by the presence of an excess of coupling (Ladd's band). The result is that the cecum with its appendix will be located on the left or medial side. The small bowel is completely grafted on the right side of the mesenteric pedicle, and there is a defect in the attachment of the ligament of Treitz, which leaves a probability of torsion of the small bowel around the mesenteric axis. There will be a mesenteric strongulation with a necrosis of the small bowel [1,2]. In our case, we found a situs inversus associated with intestinal malrotation which is extremely rare. In this type of situation, the clinic is that of a high intestinal occlusion, with vascular involvement and risk of acute necrosis. The X-ray of the abdomen without preparation can show a level of occlusion and a stomach of stasis. CT scan is of considerable help in making a positive and etiological diagnosis, it may also show signs of severity related to intestinal necrosis [5]. The symptomatology can be intermittent and non-specific. It can also be confused with a functional digestive or biliary anomaly, but a radiological exploration should make the difference. The current question is whether patients with asymptomatic malrotation should be operated? [7] Many authors recommend elective Ladd's procedure in all patients with intestinal malrotation but there is no consensus [7]. As in children, the Ladd procedure is the treatment of choice for digestive malrotations, it consists in devolving the small bowel, section of the Ladd's band, lengthening of the duodenum by releasing the treitz angle, and a mesenteric separation to avoid a recurrence[8]. Appendectomy should no longer be systematic nowadays; it is enough to draw up a document that is given to the patient on which it is explained that his appendix is located on the left. The appendix is a lymphoid organ that keeps an importance in the defense of the organism especially in the gastro-intestinal infections.

CONCLUSION:

Intestinal malrotations are rare and usually occur in children, their discovery in adulthood is exceptional. A few cases associated with situs inversus are reported in the literature [9]. The Ladd procedure remains the treatment of choice even the appendectomy can be discussed, because the improvement of the diagnostic means of the acute appendicitis in ectopic position.

Declaration of Competing Interest:

The authors declare no conflicts of interest.

Ethical approval:

Nil ethical approval was required as this study was a retrospective case report and is exempt from ethical approval at the detailed institution.

Author contribution:

H.E-H and Kh.R and M.S were responsible for the surgical intervention. Kh.R conceived and written the case report.

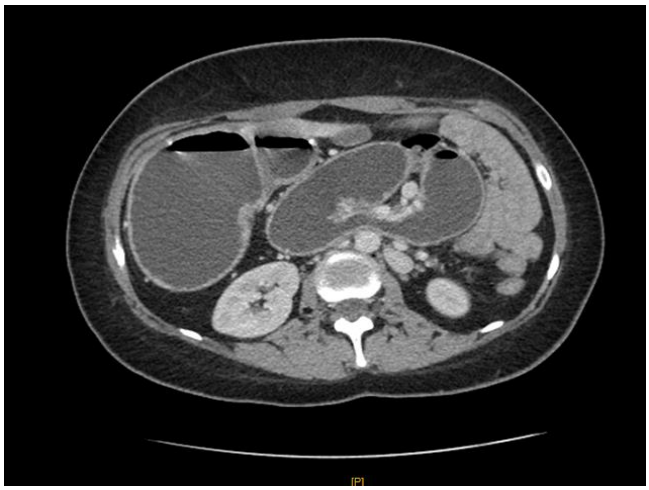

Figure 1: CT Scan imaging showing situs inversus (note liver on the left and stomach on the right side) with stomach and duodenum dilation.

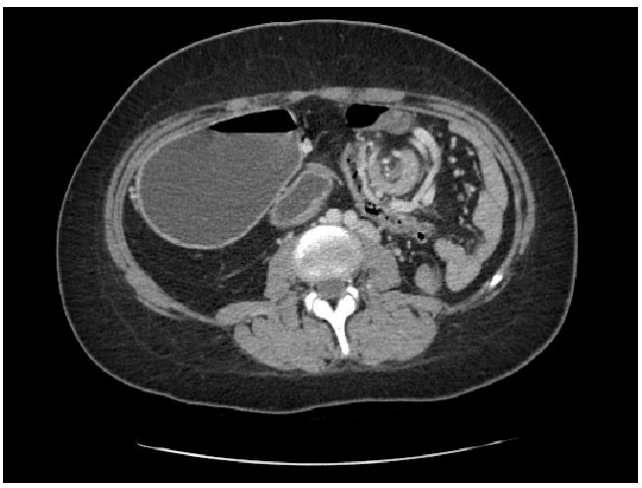

Figure 2: CT Scan imaging showing rotation coil at the duodeno-jejunal junction

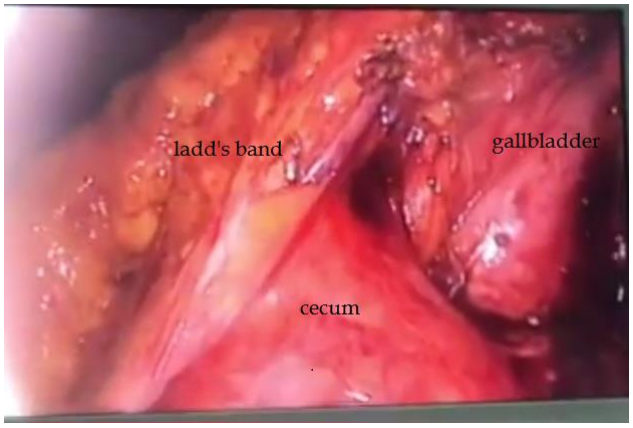

Figure 3: endoscopic picture showind the ladd's band from the liver to the cecum

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