

INTESTINAL MALROTATION IN ADULTS AND LADD SURGERY - CASE REPORT AND LITERATURE REVIEW

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Abstract: Intestinal malrotation consists of a congenital alteration resulting from failure during the return of the intestine to the abdominal cavity after its formation during embryogenesis. Rare are the cases of intestinal malrotation that are diagnosed in adult life, and it must be considered as an important differential diagnosis for intestinal obstruction in non-pediatric patients, given its potential for complications due to the diagnostic difficulty. This paper deals with the case of a 26-year-old patient with an acute obstructive abdomen who underwent the Ladd procedure for the treatment of intestinal malrotation, with good postoperative evolution, as well as a review of the current literature.

Keywords: Volvo, obstruction, ladd, bad rotation.

INTRODUCTION

Between the eighth and tenth week of embryonic development, the midgut returns to the abdominal cavity, rotating approximately 270° counterclockwise around the superior mesenteric artery.⁶

In the same period, the duodenojejunal segment first returns to the cavity, rotating below and to the right of the artery and attaching itself to the left upper quadrant through the ligament of Treitz.⁶

The cecocolic segment will be positioned in the lower right quadrant, its final position at the end of the twelfth week of development, the process being complete when the colon is fixed to the retroperitoneum.⁶

In this case report, we bring the failure of stages of this development process, a case of intestinal malrotation, leading to chronic intestinal subocclusion caused by peritoneal bands (Ladd's bands), diagnosed only in adult life.

CASE REPORT

Female patient, 26 years old, born in Rio de Janeiro, who was referred on November 20, 2022 to the Lourenço Jorge Municipal Hospital, by CER Barra, for an evaluation by the General Surgery team because of diffuse abdominal pain that had worsened for 3 days, more intense in the right iliac fossa, associated with nausea, vomiting and unmeasured fever.

She reports a similar condition 4 years ago, with hospitalization and discharge improved without a defined diagnosis.

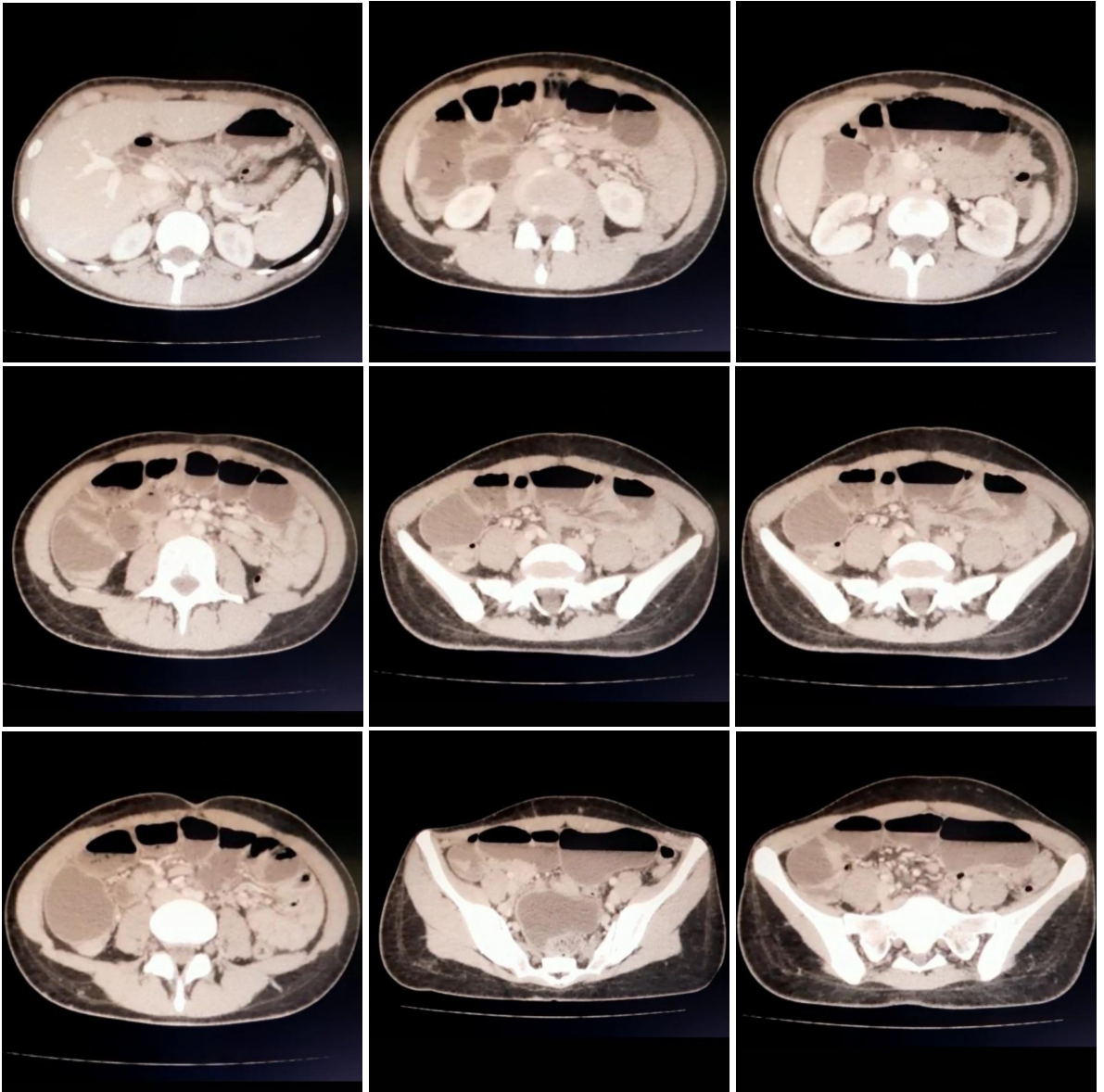
Upon admission, she had a depressed abdomen, diffuse abdominal pain, no signs of peritoneal irritation, present peristalsis, and no palpable masses. Laboratory with hemoglobin of 11.5, no leukocytosis or deviation, no changes in coagulogram or renal function, PCR of 58.

A CT scan of the abdomen/pelvis was performed without contrast and evaluated by the unit's radiologist, which showed diffuse distension of the small bowel loops, without visualization of the "stop" point, without free fluid or pneumoperitoneum.

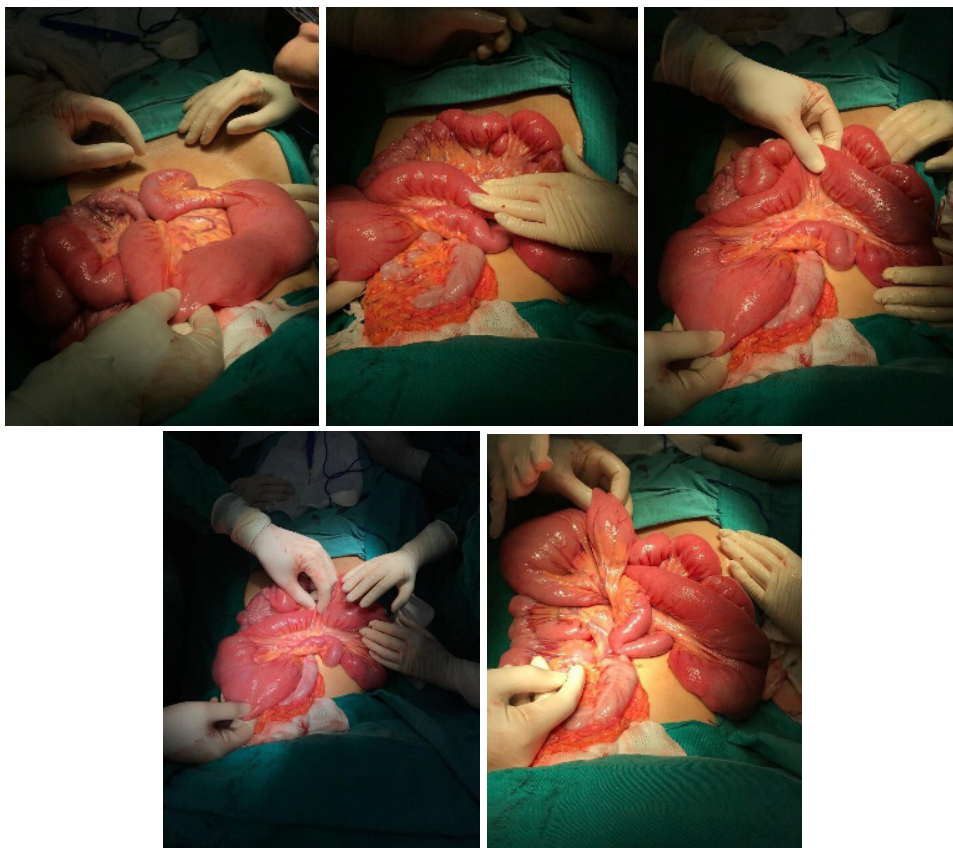
After passing a nasogastric tube, a flow rate of 300 ml was determined, and the device was removed by the patient herself, even before 24 hours of admission, on the grounds of discomfort.

Within the first 24 hours of admission, still without a conclusive diagnosis, she had two episodes of large amounts of diarrhea associated with maintenance of abdominal pain.

Radiological control with double contrast (oral and venous) was then chosen, which showed partial improvement in the distention of small bowel loops, "whirlpool sign" and gas in the rectum.



Images provided by the General Surgery Service of:Hospital Municipal Lourenço Jorge.



Images provided by the General Surgery Service of: Hospital Municipal Lourenço Jorge.

PATIENT REMAINED SYMPTOMATIC

On November 23, 2022, she underwent an exploratory laparotomy, which showed intestinal malrotation causing small bowel volvulus).

Patient with good postoperative evolution, started diet on the third day, with partial acceptance. She had an emetic episode on the first day of the diet.

On postoperative D4, no nausea and better diet acceptance, present evacuation, innocent abdomen, pain compatible with postoperative period. Laboratory without noteworthy changes.

On November 29, 2022, six days after surgery, the patient had no complaints, was oriented in lay terms and was discharged from the hospital with outpatient follow-up.

DISCUSSION

Incomplete rotation or no rotation of the primitive gut around the superior mesenteric artery during the 8th to 10th week of embryonic development causes intestinal malrotation.

Generally, the symptomatology triggered by these alterations appears in the first year of life (up to 90% of diagnoses are made in this period), and its presentation in adult life is rare, with an estimated incidence of 0.2%.^{2,4}

Its symptoms vary, depending on the obstruction mechanism. In the case above, the absence of rotation of the duodenojejunal component followed by normal rotation and fixation of the colic cecum component resulted in an intestinal obstruction by abnormal mesenteric bands, Ladd's bands, which extended from the colon anteriorly to the duodenum.^{3,7}

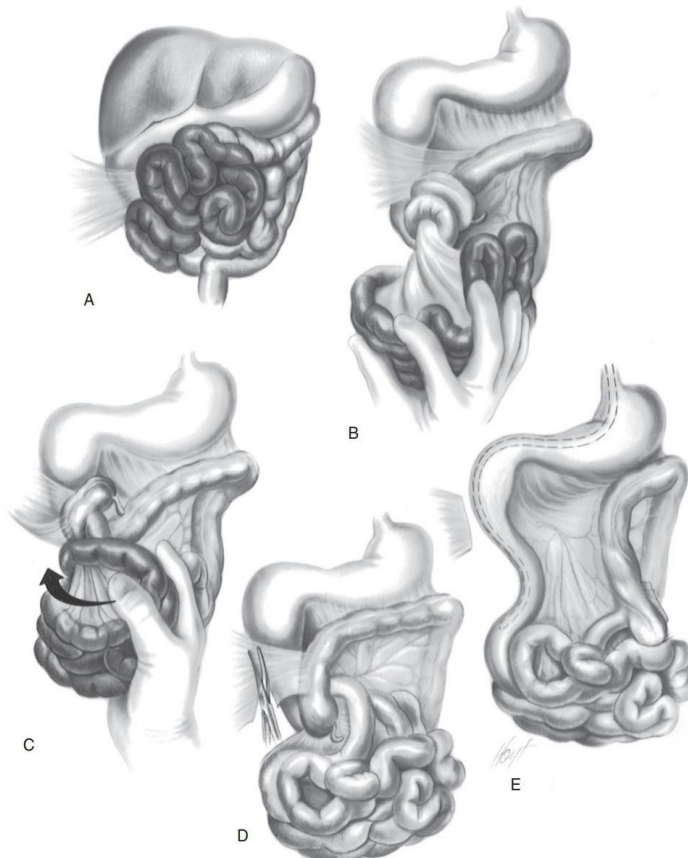
The picture can vary from acute to chronic, from weight loss, vomiting and abdominal pain/other abdominal complaints to upper intestinal obstruction with potential evolution to intestinal volvulus, ischemia, necrosis and peritonitis.^{2,4}

The double contrast exam is considered the gold standard, showing the “Whirlpool Sign”, which describes a rotation and/or engorgement of the mesenteric vessels and intestine along the superior mesenteric artery⁴, as well as complications such as ischemia, necrosis, pneumatosis, pneumoperitoneum and signs of perfusion alterations.^{2,4}

Often, as in our case, the malrotation is evidenced during the surgical act, performed for the treatment of an intestinal subocclusion that does not resolve with clinical treatment.

The indicated procedure is Ladd’s surgery, which consists of eviscerating the intestine and inspecting the root of the mesentery, followed by counterclockwise rotation of the volvulus, positioning heated compresses on the loops and observing their integrity, resection of necrotic segments (if necessary), lysis of Ladd’s bands and appendectomy by chance due to later diagnostic difficulty given that the cecum will be positioned in the lower left quadrant and the small intestine in the right.^{7,3}

This procedure can be performed laparoscopically or laparotomy, and studies have shown that laparoscopy is related to shorter hospital stays and fewer complications regarding the surgical wound. However, there is no evidence of advantages regarding the reduction of intraoperative complications,



³CORAN, Arnaldo G; ADZICK, N Scott. **Pediatric Surgery**. Philadelphia: Elsevier, 2006. 1731 p.

resolution of symptoms or prevention of future complications.⁵

Complications and death are usually associated with peritonitis derived from extensive intestinal necrosis due to intestinal volvulus, complications due to nutrition, catheter-related sepsis (mainly in patients older than 1 year). The mortality rate can reach 65% when more than 75% of the intestine is necrotic.³

The most common surgical complication after the Ladd procedure is small bowel obstruction by bands. Recurrence of volvulus after the procedure is rare, accounting for around 0.7% of cases.²

Studies show that patients with recurrence of symptoms will have radiological findings. And, in most cases, findings on abdominal X-ray combined with the clinic are enough to indicate a new surgical intervention.²

CONCLUSION

There are few cases of intestinal malrotation diagnosed in adulthood, such as the case presented above. The patient's diagnosis was delayed since she had

already had previous episodes requiring hospitalization, but with resolution of symptoms after conservative treatment, leading to non-diagnosis promptly, generating margin for the emergence of a new subocclusion process 4 years later.

It can be said that the patient had more chronic symptoms, exacerbated in the context of hospitalization for suocclusion, since she was diagnosed only at the age of 26, with nonspecific symptoms, such as diffuse abdominal pain and vomiting, without signs of severity as the peritoneal irritation.

Diagnosis delay often occurs because it is not a common factor among adults, the final diagnosis being made intraoperatively as in our case, in which the patient underwent surgery since she remained symptomatic despite the conservative measures instituted for treatment. of subocclusion.

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