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# Chronic Volvulus in Children: A Case Report

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**Abstract** **Case Report**

Small bowel volvulus due to intestinal malrotation is an uncommon pathology, which can lead to intestinal necrosis if not diagnosed and treated promptly. Small bowel volvulus requires urgent surgical intervention; imaging should not delay surgical management. The surgical procedure consists of untwisting the volvulus (anticlockwise), with the intestine stowed in the position of complete common mesentery: coecum in the left iliac fossa. We report the observation of a 04-year-old child admitted for total small bowel volvulus on incomplete common mesentery, operated in emergency with a favorable postoperative course.

**Keywords:** Malrotation - small bowel volvulus - intestinal necrosis.



## INTRODUCTION

Small bowel volvulus due to intestinal malrotation is a serious, life-threatening condition. Primarily a perinatal condition, it may not be revealed until later in life.

This condition is frequently unrecognized due to its rarity hencè the diagnostic and therapeutic delay which could adversely affect the child's functional or even vital prognosis [3, 4].

We report a case of chronic intermittent small bowel volvulus on common mesentery in a 4-year-old boy.

## PATIENT AND OBSERVATION

The child was A. A., a 4-year-old boy, the eldest of 2 siblings, born to a 33-year-old mother and a 36-year-old father. The child was admitted to the emergency department for PEC of an occlusive syndrome.

His history dated back to 5 days before admission, when the patient presented with abdominal pain and bilious vomiting. The symptomatology worsened with the onset of an occlusive syndrome involving cessation of matter and gas, evolving in a context of apyrexia.

In addition, the family reported chronic episodes of abdominal pain and bilious vomiting. Clinical examination on admission revealed a conscious patient, normo-coloured conjunctivae, no dehydration folds, apyretic and stable hymodynamically and respiratorily.

Abdominal examination revealed a soft, normally breathing, flat abdomen with no abdominal tenderness to palpation.

The patient was admitted to hospital as an emergency. After conditioning, the patient underwent a radiological and biological work-up consisting of:

Abdominal ultrasound (Figure N°1):

- Gastroduodenal distension upstream of a prevertebral torsion coil with winding of the mesenteric vein around the mesenteric artery.
- Flat appearance of downstream digestive structures.
- Conclusion: appearance suggestive of duodenal volvulus on intestinal malrotation.

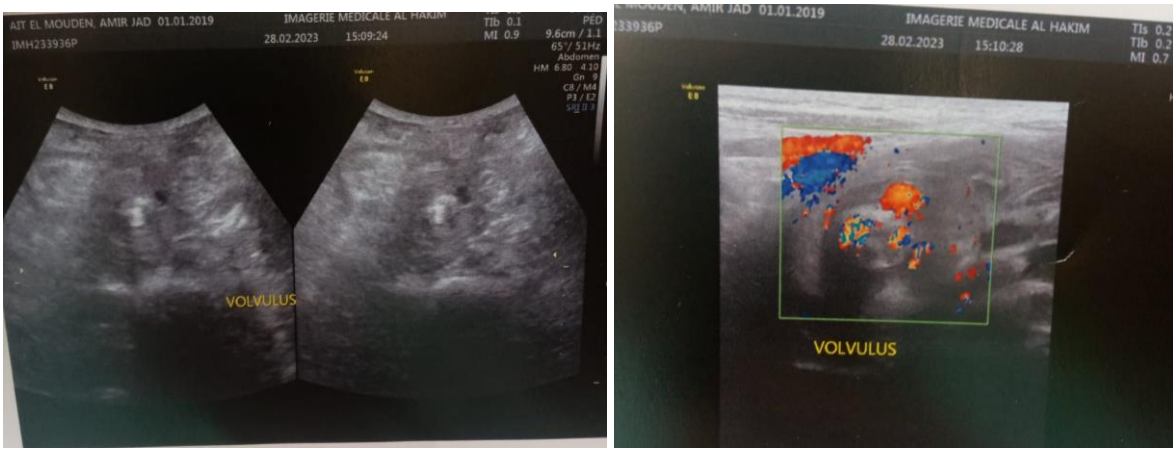


**Figure N1: Abdominal ultrasound: in favour of duodenal volvulus**

Biological workup revealed hyperleukocytosis (WBC=10090/mm3) with PNN predominance, hyponatremia (Na++=128 mEq/l) and hypokalemia (K+=2.6mEq/l).

After conditioning the patient and correcting electrolyte disorders, the patient was admitted to the operating room:

- Under general anesthesia, in dorsal decubitus position.
- Transversal right supraumbilical laparotomy.

Surgical exploration revealed:

- A volvulus on incomplete common mesentery with the presence of three counterclockwise turns of spiral.
- Caecum prehepatic.
- Gentle untwisting of volvulus with release of flanges.
- Release of coecum.
- Venous ectasia with multiple mesenteric ADPs.
- Release of mesenteric fusion and placement in complete common mesentery.
- Appendectomy.
- Plane-by-plane closing.

Patient was placed postoperatively on:

- Basic ration.
- Antibiotic prophylaxis (amoxicillin-clavulanic acid).
- Paracetamol.
- Antiemetic and gastric protection.

The patient was declared discharged four days after the operation, with good clinicobiological evolution.

The patient was seen in consultation 10 days after the operation, with a good clinical course and no complications with a Recul of 02 years.

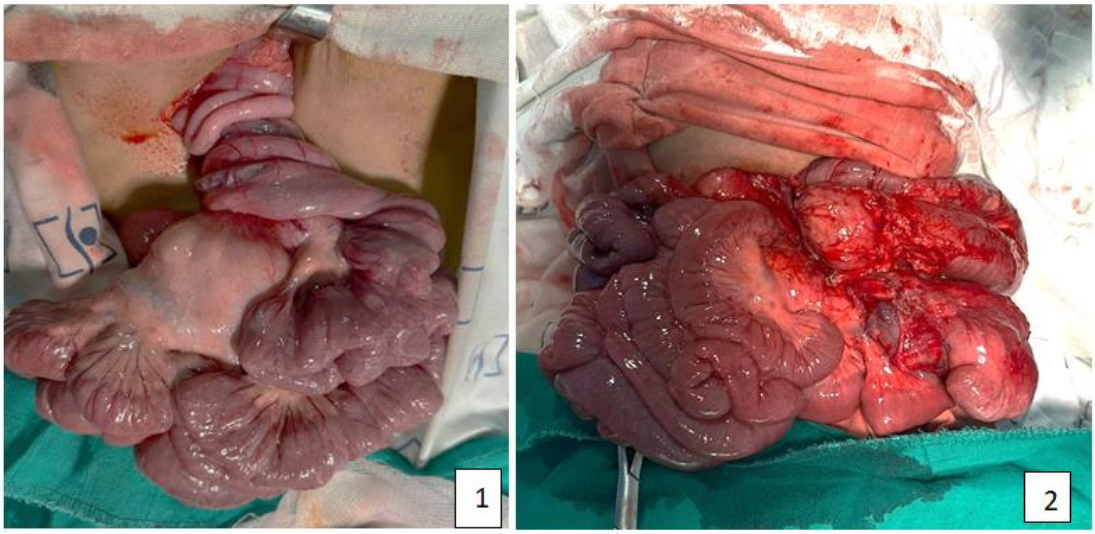


**Figure N2: Surgical exploration; Image 1: Per-op image shows appearance of incomplete common mesentery coves with the presence of three counterclockwise turns of the coils; Image 2: Per-op image shows location of coves in complete common mesentery**

## DISCUSSION

Interruption of the 180° intestinal rotation results in a position where the ileocaecal junction becomes fixed in the subhepatic region [1, 2].

If this attachment is located opposite the duodenum, it may inconstantly cause extrinsic compression of the first or second duodenum: these are known as “Ladd's flanges”. The duodenojejunal angle lies to the right of the spine. The first jejunal loop and the last ileal loop are therefore close to the superior mesenteric axis, and very close to each other [3]. In this 180° position, the root of the mesentery is extremely short, and the entire small intestine is “pedicled” on its superior mesenteric vascular axis. This position, known as “incomplete common mesentery”, is at high risk of total small bowel volvulus, due to the shortness of the mesentery root and its lack of abutment.

Chronic” volvulus is a rare entity in current practice. The acute form, which accounts for around 1/10,000 cases, is a surgical emergency [4-6]. In the neonatal period, malrotation may be associated with other congenital malformations (laparoschisis, omphalocele or diaphragmatic hernia) in around 50% of cases [4, 7]. On the other hand, it is isolated in late-onset forms.

Clinically, the symptomatology of malrotations is less specific in children. In infants under one year of age, total small bowel volvulus is the most frequent clinical manifestation, with a picture of high obstruction dominated by early bilious vomiting. In children, on the other hand, malrotations are less often complicated by volvulus on malrotation, but more frequently by recurrent abdominal pain, isolated or associated with other signs such as frequent diarrhoea, abdominal bloating, borborygms, feeling of early satiety, food intolerance [8].

Ultrasound can best show the mesenteric tendril in the form of a median image in the form of a cocoon, tissue, crossed by vessels and corresponding to the gain of the vortex described on the CT scan [9-12]. The examination can be optimized by performing a Doppler of the mesenteric vessels, which will then reveal a verticalization of the superior mesenteric vessels, or even their inversion, with a superior mesenteric vein located to the left of its artery.

TOGD is a diagnostic tool but was not performed in our context. Is a reference examination in pediatrics for the diagnosis of volvulus [13, 14].

Knowledge of the anatomy of the incomplete common mesentery is essential for intraoperative diagnosis and understanding the principles of its surgical cure.

Consensus has been reached on the surgical treatment of intestinal rotation anomalies using a median or transverse supra-umbilical laparotomy approach in infants [5, 7, 15].

Ladd's procedure, which is well codified and still relevant today, was performed on our child. This technique, described in 1941 to treat intestinal malrotations, is still current and well codified. The general principle is a repositioning of the intestine into a “complete common mesentery” at 90◦, corresponding to the initial stage of rotation of the primitive intestinal loop during embryonic life [16].

## CONCLUSION

Early diagnosis is essential, especially in the case of acute volvulus, in order to perform surgery before the onset of intestinal necrosis, which can have a detrimental effect on the child's digestive outcome. Ladd's procedure, which consists of a complete common mesentery with appendectomy, remains the reference technique.

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