A total volvulus of the small intestine on malrotation in adults: A case report.

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Abstract

Background: Total small-intestinal volvulus on malrotation (TSIVM) classically presents in the neonatal period; it occurs much less frequently in adult age.
We report a case of a total volvulus of the small intestine on malrotation in adult diagnosed in the emergency department.
Conclusions: Adult congenital midgut volvulus is often manifested with symptoms related to intestinal obstruction. Surgery should be conducted in an early stage, including intestine volvulus reduction, The outcomes of these surgical procedures are favorable.

Keywords: Intestine Volvulus; Diagnosis; Adults; Outcomes; Emergency

INTRODUCTION

Total small-intestinal volvulus on malrotation (TSIVM) classically presents in the neonatal period; it occurs much less frequently in adult age and is often misdiagnosed. Its prognosis is directly related to the risk of ischemia [1]. It is estimated that the prevalence of these congenital malformations in adulthood is in the range of 0.2% and 0.5% [2]. The diagnostic circumstances of this pathology may be an acute bowel obstruction syndrome or a circulatory shock [1]. We report a case of a total volvulus of the small intestine on malrotation in an adult diagnosed in the emergency department of the University Hospital Center Farhat Hached Sousse.

CASE PRESENTATION

A 38-year-old woman presented with acute abdominal pain and an occlusive syndrome evolving 24 hours before admission in the context of apyrexia and an altered general state. Physical examination on admission revealed abdominal bloating and signs of circulatory shock: blood pressure=80/40mmHg, heart rate = 140 beats per minute, hypothermia at 36°C, and a Glasgow Coma Scale at 14. Routine laboratory analysis revealed elevated

inflammatory markers. The patient required admission to a resuscitation unit (monitoring, oxygen therapy, central venous catheter, gastric and urinary catheter). The patient was oligoanuric and required fast vascular filling (physiological serum at 20ml/kg) and inotropic medication (Noradrenalin 3mg/h on the electric syringe pump). The patient was stabilized and an abdominal computerized scan with contrast was performed and showed a whirl sign on the first jejuna loop (Figure 1).

Figure 1. CT showing the ''whirl'' sign.

The diagnosis of occlusion on incomplete mesentery was confirmed and the patient was admitted urgently to the operating room under antibiotic coverage based on Ceftriaxone and Metronidazole. Surgical exploration found signs of suffering in all the transverse small intestines. The patient underwent a total resection of the small intestine with jejuno-colic anastomosis. She developed a short bowel syndrome and required parenteral nutrition.

DISCUSSION

Intestinal malrotation results from failure of normal rotation and mesenteric fixation of the gut during embryonic development. A lack of normal peritoneal attachment or a narrow mesenteric base can create abnormal mobility of the midgut, easily leading possibly to volvulus The incidence rate of malrotation is highly variable depending on whether the data are clinical or from autopsies, but it is estimated that it represents the cause of about 3-5% of cases of mechanical obstructions and 5% of cases of appendicitis and appears in 0.5% of radiological digestive series [2]. Studies on the incidence of malrotation in mixed populations show the influence of ethnic factors, radioactive or toxic substances, and low birth weight, but not of sex or number of siblings [2]. The incidence of TSIVM is 0.5-1 per 10000 births [3]. TSIVM occurs during the first month of life in 80% of cases [4]. In older children, malrotation is much less commonly diagnosed and is complicated with total small intestine volvulus in only a third of cases [5]. In adults, TSIVM is very rare but the increased recognition of intestinal malrotation in adults may be explained by the more frequent use of abdominal CT-scan and the refinements of the methods that visualize more correctly the variations in the abdominal anatomy [6-8]. Intestine malrotation in adults has multiple presentations and the symptoms are non-specific. The clinical diagnosis in adolescents and adults is difficult because it is rarely suspected on clinical grounds [7]. The clinical

symptoms of malrotation are less specific in adults than in children [1,7]. Thus, in infants under one year, total small intestine volvulus is the most common clinical manifestation, with a clinical presentation of proximal obstruction dominated by early bilious vomiting. However, in adults, TSIVM is less often associated with complications, and more commonly presents with isolated recurrent abdominal pain or combined with other signs such as frequent diarrhea, abdominal bloating, early satiety, food intolerance, upper or lower gastrointestinal bleeding, constipation, etc. [9]. Some patients may even carry diagnostic labels of functional or psychosomatic pain [10, 11]. Patients may have been treated elsewhere for other misdiagnoses such as tuberculous peritonitis, acute pancreatitis, or severe gastro-oesophageal reflux [12]. The majority of adults with congenital intestinal malrotation and volvulus have acute abdominal symptoms and even intestinal strangulation and necrosis [11]. Imaging examinations such as CT and color ultrasonography play an important role in the diagnosis of adult congenital intestinal malrotation. Small bowel follow-through is often enough to recognize the type of malrotation, but multimodal imaging offers a better definition of this abnormality. For some conditions, such as this, in which the transverse colon has a posterior location behind the superior mesenteric artery, CT can help to define the type of malrotation by adding additional anatomical information [13]. The main specific sign for TSIVM on CT is the ‘‘whirl-wind’’ sign, corresponding to the winding of the superior mesenteric vein around the superior mesenteric artery [14]. Many authors advocate surgical correction of malrotation due to the difficulty in predicting who will be a victim of torsion of the intestine, bringing an urgent, life-threatening condition in the future. So, in the case of TSIVM, surgery is indicated in extreme urgency [6, 15]. the need for an emergency operation because of the possibility that there may be massive necrosis of the intestine. The success of surgical treatment lies in judging the rotation form and degree and the correct knowledge of rotation form is the premise of successful lysis and reduction. Another critical aspect is the complete lysis of the Ladd’s band, which removes the membranaceous adhesion of peritoneal bands and upper jejunum pressing the duodenum. All surgical procedures should be carefully performed. During lysis, the superior mesenteric vein and artery should be paid special attention to prevent any damage. In some patients, rotation leads to compression and deformation of the superior mesentery vein, which is often erroneously identified as adhered bands. The vein damage induces the intestine resection will result in short bowel syndrome. The appendix is also resected during surgery to avoid delayed diagnosis due to positional variation of the cecum [11]. The majority of adult congenital intestine volvulus has a good prognosis. Only those with extensive bowel necrosis have to receive surgical resection [11].

CONCLUSION

Adult congenital midgut volvulus is often manifested with symptoms related to intestinal obstruction. To Some patients it's complicated in malnutrition and intestinal necrosis; if required, surgery should be conducted in an early stage, including intestine volvulus reduction, Ladd's band loosening, and appendectomy. The outcomes of these surgical procedures are favorable. Color ultrasonography and CT scans are helpful for preoperative diagnosis and positional crossing and whirlpool volvulus of the superior mesenteric vein and artery are the characteristic manifestations of congenital mid-gut malrotation. A surgeon's ignorance of this diagnosis can result in potentially fatal extensive small intestinal necrosis or result in short bowel syndrome.

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