Case study

Intestinal Obstruction Caused by Small Bowel Volvulus

Abstract :

Small bowel volvulus is a surgical emergency, the etiology can be primary or secondary, and the clinical presentation is that of an acute intestinal obstruction by strangulation. The Abdominal X-ray and abdominal CT scan are the radiological examinations of first choice for the diagnosis. We report the case of a small bowel volvulus admitted to the emergency room with acute intestinal obstruction, the diagnosis was confirmed by abdominopelvic CT scan and the treatment consisted of ileo-cecal resection with ileocolostomy,with good postoperative outcomes.

Keywords: Intestinal obstruction. Small bowel volvulus , Diagnosis , Surgery

Introduction:

Small bowel volvulus is a rare cause of intestinal obstruction in adult patients.(1) It is a twisting of the small bowel around its mesenteric axis. It is a well-known condition in infants and children, but is rare in adults. Diagnosis is difficult because the symptoms resemble those of an acute abdomen.(2) Prompt diagnosis and treatment are necessary to avoid intestinal necrosis.(3)

Case presentation:

This is a 44-year-old patient, followed for tuberculous miliaria under antibacillary treatment, admitted to the surgical emergency room for an occlusive syndrome evolving for 7 days. The clinical examination revealed a distended abdomen, tympanic with a generalized abdominal defense, the rectal touch showed empty rectal ampulla. The Abdominal X-ray showed small intestines. Abdominal CT scan showed a small bowel obstruction with a moderate peritoneal effusion.

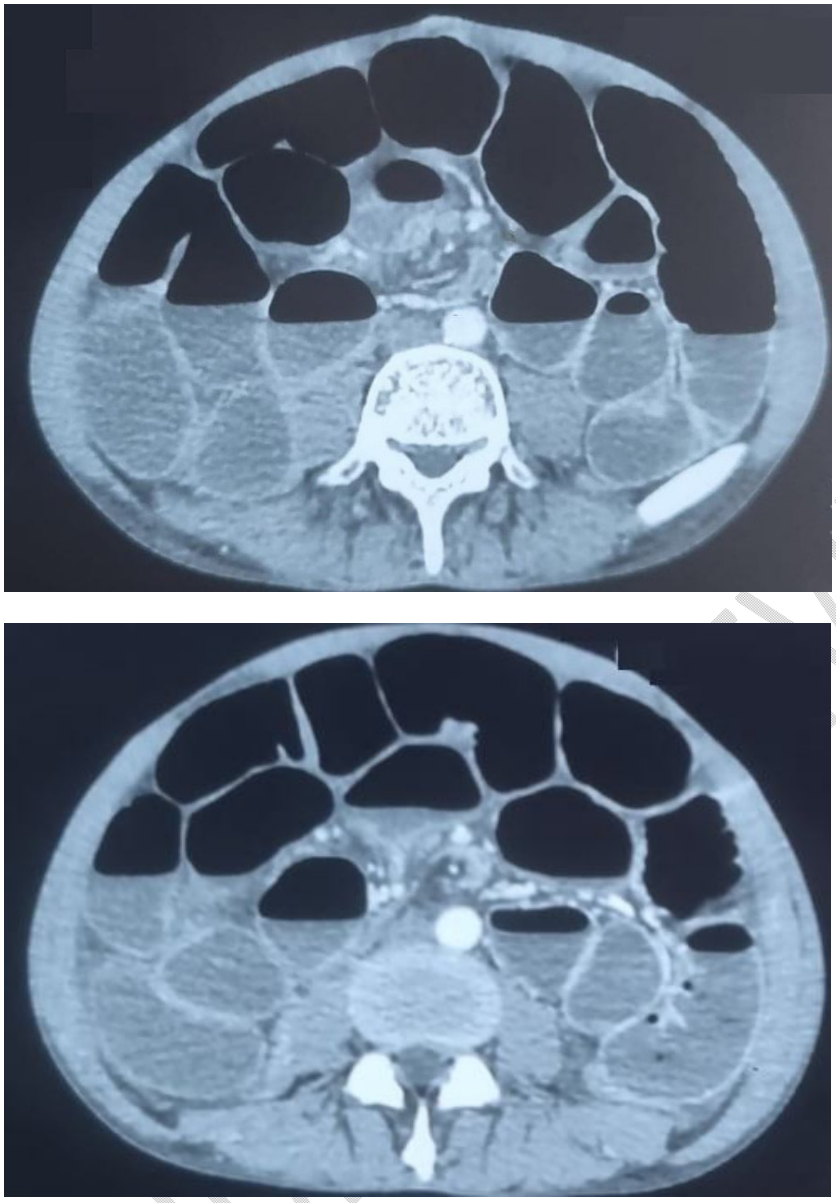

Figure **1 and Figure 2 :** CT scan of the abdomen showing the twisting of the ileum around its mesentery (whirl sign).

The patient was operated on in the emergency room. The surgical exploration found a peritoneal effusion of medium abundance with the presence of a small bowel volvulus on incomplete common mesentery with 2 counterclockwise spiral turns with small bowel necrosis from 1m extended from the ileocaecal junction to 2m40 from the duodenojejunal angle with perforation of distal ileal. The operation consisted of an ileocaecal resection taking 1m of small bowel and a double-barrel ileo-colostomy,with good postoperative outcomes.

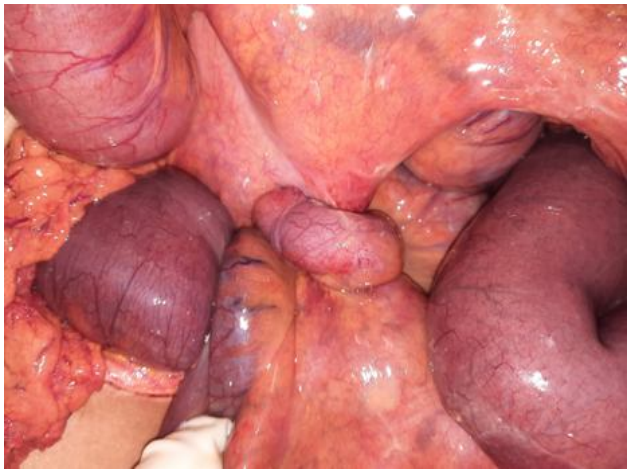

Figure 3: Intraoperative photograph showing volvulus of ileum

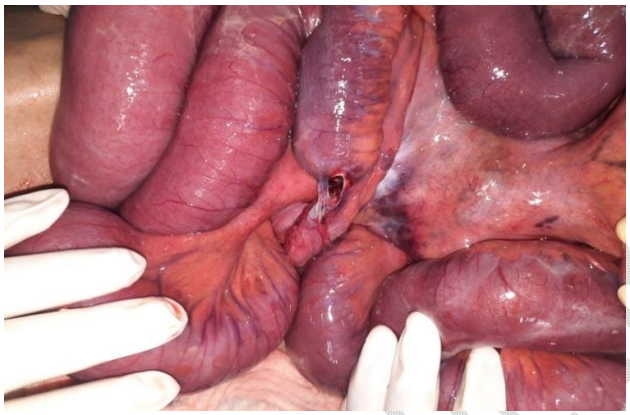

Figure 4 : Distal iléal perforation

Discussion:

Small bowel volvulus is torsion of the small bowel around its mesenteric axis, resulting in mechanical obstruction of the small bowel (1-4-5), Mesenteric torsion also results in occlusion of the mesenteric vessels with intestinal ischemia and ultimately necrosis. It is a rare surgical emergency. It represents 1% of the etiologies of intestinal obstructions (1-4-6-7).Depending on its etiology; small bowel volvulus can be divided into two categories: primary and secondary. Primary volvulus occurs in abdominal cavities in which there are no predisposing anatomical abnormalities. On the other hand, secondary small bowel volvulus occurs in the presence of predisposing lesions, congenital or acquired, such as malrotations, flanges and adhesions (1).

The diagnosis of small bowel volvulus is difficult (4-8), and the clinical picture is that of an acute intestinal obstruction, (4) it is marked by abdominal pain,

associated with nausea, vomiting and cessation of matter and gas. Physical examination shows abdominal meteorism with tympany, and pelvic touches are painless. This may lead to a delay in diagnosis. Mortality of small bowel volvulus ranges from 9% to 35%, but increases to 20% to 100% with intestinal necrosis (2).

The unprepared abdomen is the first-line examination for acute intestinal obstruction, and can show hydro-aerosic levels of the small bowel (1-8).The barium enema can be useful in some cases, showing the Corskcrew sign (1).Abdominal CT is the gold standard for the positive, topographical and severity diagnosis of small bowel volvulus (8); it is rapid, non-invasive and has a sensitivity ranging from 89 to 100%. The "swirl" sign appears to be pathognomonic for the majority of authors, (1-4-7) contrast injection allows visualization of the verticalization, or inversion, of the superior mesenteric vessels, with a vein lying above or to the left of the artery (8).The "beak" sign is also another sign on CT showing the tapering of three dilated intestinal segments, resembling a bird's bent beak (3)

Surgery is the mainstay of management of primary small bowel volvulus (3), according to the International Society for Emergency Surgery guidelines. Surgery must be performed in a timely manner to avoid intestinal necrosis and thus reduce morbidity and mortality. Supportive preoperative management with a nasogastric tube and fluid resuscitation is necessary. (4) Some authors recommend management of primary volvulus in the absence of necrotic bowel by simple devolvulation, others recommend resection and anastomosis in all small bowel volvulus, regardless of whether the bowel is necrotic. In the case of a primary volvulus, fixation is recommended if resection is not performed. When necrosis is present, management is clear and resection is mandatory. Treatment of secondary volvulus focuses on correction of the underlying cause, which will guide subsequent management (3-9)

Conclusion :

Primary SBV is an extremely rare situation (3). Physiopathology is still misunderstood. The clinical presentation is not specific. Diagnosis can be evoked by CT scan but can only be confirmed intraoperatively. The surgical treatment should be performed timely. Different techniques have been described to avoid recurrence. None of those techniques is consensual. (4)

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