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Acute Small Bowel Obstruction

Cesár Alberto Ortíz Orozco[1], Jimena Alvarez del Castillo Gonzalez[2], Félix Osuna Gutiérrez[3], José María Zepeda Torres[4]

[1]Dr Juan I Menchaca Public Hospital of Guadalajara,General Surgery Department

[2,3,4]Institution: Autonomous University of Guadalajara, Guadalajara, Jalisco, Mexico

ABSTRACT

An intestinal obstruction can be divided into mechanical or functional of the small intestine or the large intestine. This can happen if the lumen of the intestine is partially or completely blocked. Within the common clinical picture you can find abdominal pain, nausea, vomiting, constipation to constipation and abdominal distension. Small bowel obstructions occur more frequently than large bowel obstructions. One of the classifications to be able to divide them is in complete, closed handle or partial. The prompt identification of this pathology as well as indicating an opportune treatment is key for the survival of the patients.

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INTRODUCTION

Post surgical adhesions are the main cause of small bowel obstruction (60%), resulting in 8 days of hospitalization, with a mortality of 3%. Some 20 to 30% require surgical treatment, with a hospital stay of about 10 days. Definition "Peritoneal adhesion" or simply "adhesion". Fibrous tissue that connects surfaces or organs to the peritoneal cavity.[1,2]

Adhesions are the main cause of a surgical emergency, characterized by abdominal pain, vomiting, bloating and constipation. [3,4]

The mechanical etiologies of intestinal obstruction can be classified as follows:

	Extrinsic bowel obstruction	Intrinsic bowel obstruction	
		Intramural bowel obstruction	Intraluminal bowel obstruction
Etiology	• External compression of the bowel ◦ Bowel adhesions ◦ Volvulus ◦ Incarcerated hernia (e.g., inguinal hernia, umbilical hernia, femoral hernia) ◦ Intraabdominal mass (e.g., metastatic lymphadenopathy, large intraabdominal abscess or cyst)	• The underlying etiology arises from the intestinal wall. ◦ Strictures (e.g., IBD, tuberculosis) ◦ Intestinal tumors (e.g., colorectal carcinoma, lymphoma) ◦ Diverticulitis ◦ Intussusception	• The obstructing agent lies within the gastrointestinal lumen. ◦ Gallstone ileus ◦ Foreign body ingestion ◦ Bezoars (e.g., phytobezoars) ◦ Fecal impaction ◦ Helminthic infection

The causes of obstruction of non-adherent etiology are: incarcerated hernias, obstructive lesions both malignant and benign, as well as other infrequent causes such as bezoars, inflammatory bowel disease and volvulus. [5,6]

The confirmatory diagnosis of suspected adhesive etiology is during surgical treatment; non-invasive diagnostic methods are performed with a good anamnesis and clinical history (previous episodes) or exclusion of other causes by computed tomography. [6,7]

Adhesiolysis: Release adhesions by sharp or blunt dissection during surgery. [7]

Adhesiolysis complicated: Inadvertent damage when performing adhsiolysis, regularly to the intestine. [7]

Bowel injury classification

- Seromuscular injury: Damage to the visceral peritoneum (serosa) and smooth muscle layer of the intestine. The

wildebeest of the intestine or leakage of its contents is not visible. [8]

- Enterotomy: Full-thickness injury to the bowel; the mucosal lining or lumen of the bowel is visible or there may be leakage of bowel contents. [9]
- Delayed diagnostic perforation: Injuries during surgery that are not initially recognized. Typically the abdomen is closed at the end of surgery with bowel injury still in place, deteriorating the patient post-surgery. [9]

EPIDEMIOLOGY

Risk of small bowel obstruction from surgery:

1. Colorectal surgery.
2. Oncogynecologic surgery.
3. Pediatric surgery.

1 in 10 patients will develop at least one patient with small bowel obstruction three years after colectomy. 12% of patients managed with non-surgical treatment are readmitted to hospital for bowel obstruction after one year and 20% after five years; after surgical treatment, the percentage is 8% and 16% respectively. [10,11,12,13]

PREVENTION

There is evidence that the incidence is lower after laparoscopy. Peritoneal damage is less with bipolar electrocautery and ultrasonic devices compared to monopolar electrocautery. [14]

ADHESION BARRIERS

Adjuvants for peritoneal administration that can effectively reduce the formation of adhesions. They exist as solid membranes, gels and liquids. They act by separating the damaged surfaces of the peritoneum, allowing them to heal without creating fibrous tissue that leads to adhesions. [15]

- Hyaluronate carboxymethylcellulose.
- Regenerated oxidized cellulose.
- Icodextrin.
- Polyethylene glycol.

MEDICAL HISTORY AND PHYSICAL EXAMINATION

It is important to investigate potential causes of small bowel obstruction due to adhesions, nutritional status and signs of dehydration. They traditionally present with colicky abdominal pain, bloating, nausea with or without vomiting, and may or may not defecate. Patients with incomplete obstruction may present with watery diarrhea. During the examination we must look for signs of peritonitis that could reveal strangulation or ischemia. [16, 17,18]

LABORATORY: It is indicated to request a blood biometry, lactate, serum electrolytes, reactive protein C and BUN / Creatinine ratio. The values that may indicate peritonitis are CRP >75 and leukocytosis >100,000/mm^3. [19,20]

X-RAYS: In case of suspicion of high obstruction we must look for the tria 1) Hydro-aerial levels, 2) Distension, 3) Absence of gas in the colon. [21,22]

CONTRASTED STUDIES: The absence of contrast 24 hours after administration is highly indicative of failure of conservative treatment. Some authors point out that it can serve as therapeutic management. [23,24]

COMPUTERIZED TOMOGRAPHY: It is capable of detecting strangulation and the need for surgery with 90% effectiveness. Signs of closed loop, ischemia and leaking fluid are suggestive of the need for surgery. [25,26]

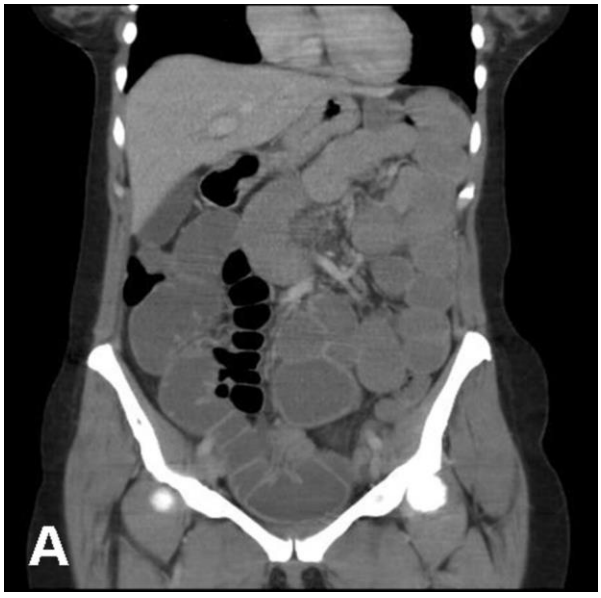

Fig.1 Significant dilatation of the mid and distal small bowel loops can be seen.

MANAGEMENT/TREATMENT

Initial Handling

Conservative management should be considered in the first instance in patients with small bowel obstruction due to adhesions unless there is evidence of peritonitis, strangulation, or ischemia. The cornerstone of conservative management is the nasogastric tube or gastrointestinal tube, which is effective in 70 to 90% of cases. [27]

Conservative management should include fluid resuscitation, electrolyte correction, nutritional support and prevention of aspiration. Management for at least 72 hours is considered appropriate and safe. [28]

Surgical treatment

Historically, exploratory laparotomy is the standard treatment, but laparoscopy has been included with benefits such as a lower incidence of adhesions, early return of bowel movements and less postoperative pain and hospitalization time; however, laparoscopy in an overly distended bowel may increase the risk of complications such as enterotomy or late diagnostic perforations. [29,30,31]

CONCLUSION

Intestinal obstruction is a highly frequent surgical emergency of high clinical importance. The constant increase in abdominal and pelvic surgeries has caused the number of adhesions, as well as intestinal obstructions to increase.

The variants that exist such as the etiology, the site of obstruction, the viability of the intestine as well as the delay in diagnosis are key to survival.

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