



Intestinal Occlusion: Consequence or Diagnosis?

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ABSTRACT

Introduction: Intestinal occlusion is a very common pathology in health services, both in admission to the Emergency Department and in the definitive treatment and/or complication of surgical practice in Surgery. Its definition is per se underestimated. **Objective:** Presentation of a case. **Method:** A 39-year-old female with intestinal obstruction was a carrier of an intragastric balloon for more than 2 years without follow-up. With frank data of acute abdomen, exploratory laparotomy was performed, removing the foreign object by enterotomy. **Discussion:** The prevalence of obesity has multiplied in recent decades, which has led to an increase in bariatric surgery and other endoscopic modalities, which were developed for the first time around 1985 with the intragastric balloon, which today is the most widely used endoscopic modality, which therefore, surgical treatment of complications should be considered, if necessary, in case of perforation and/or gastrointestinal obstruction. **Conclusions:** Intestinal occlusion is not a definitive surgical diagnosis, but a consequence of another real disease.

Keywords: Intestinal occlusion, Obesity, Intragastric balloon, Perforation, Surgical treatment, Endoscopy.

INTRODUCTION

Intestinal occlusion (IO) is a very common pathology in health services, both in admission to the Emergency Department and in the definitive treatment and/or complication of surgical practice in Surgery. Its definition is per se underestimated, since there are too many variations in its etiology and clinical presentation, but it is still highly prevalent and incidence. [1] "Intestinal obstruction is a mechanical or functional blockage of intestinal contents that prevents their evacuation into the adjacent distal intestine or the external environment. It represents significant morbidity and mortality." [2] Historically, it was described as a pathological entity even before Christ, since at this time the most frequent cause of obstructions was a strangulated hernia and was therefore the most mentioned in the medical literature of that time. Praxágoras de Cox, 300 years B.C., already made an incision in the inguinal region in cases of strangulated hernia. [3] Paré and later surgeons of the stature of Cooper, Nelaton, Kocher and others, contributed significantly to the knowledge and treatment of IO. [4, 5]

IO is an important problem in surgical emergencies, representing about 20% of all causes of acute surgical abdomen, where the most frequent etiologies detected are adhesions first, hernias second, and tumors third. [6] IO of the colon or thin colon should be evaluated with the presence of occlusion, severity of obstruction, transition point, etiology, and associated complications, such as strangulation, intestinal gangrene, ischemia, perforation, and peritonitis. [7] The most common cause of IO is adhesions and one of the main etiologies of morbidity in emergency surgery, 5% of patients experience this pathology after abdominal or pelvic surgery. [8]

The colon in its anatomical components is a fixed organ compared to the small intestine that is very mobile and extensive, but, even so, the colon presents IO symptoms when it rotates on its own axis, in the so-called volvulus and it is a rare cause, which however, should not be ignored. [9] Another reason, which is the second largest in incidence of IO, is hernias, since they can be internal, external, and rare or difficult to diagnose. [10, 11] There are several etiologies of IO that are less common and have been reported in the national and international medical literature, the example being that there are few reports of ascariasis that cause complete obstruction of the small intestine in adults, but they do exist. [12] Cecal volvulus has been reported even in pregnant patients, with extreme rarity in its incidence, and is still a challenging diagnosis that causes increased morbidity and mortality for both mother and fetus. [13]

OBJECTIVE

Presentation of a case, analysis and review of the literature.

METHOD

A 39-year-old female patient with a height of 168 cm, and a weight of 77 kg. That he is in the emergency department with the surgical history of three cesarean sections, salpingectomy, abdominoplasty, rhinoplasty, and gastric balloon placement in January 2022. Traumatic history: he suffered an event of poly-contusion secondary to aggression by third parties with sequelae of athetosis. He reported starting 24 hours ago with intense abdominal pain in the epigastrium of onset and that radiated to the entire abdomen in a diffuse manner with a gradual increase in intensity, colic to oppressive type, with nausea and incoercible vomiting and frank intolerance to the oral route, he referred to channeling gases and emunctories present.

On physical examination with vital signs: blood pressure: 111/68 mm Hg. Heart rate: 107x'. Respiratory rate: 28x'. Temperature: 36.7°C. Sat O2: 92%. Conscious, oriented, cooperative, normocephalic skull, permeable nostrils with cylindrical neck, no palpable adenomegaly, pulses present, cardiopulmonary without compromise. Abdomen globose and/or distended at the expense of an adipose panniculus with the presence of a periumbilical keloid scar and a transverse scar of 35 cm., with complete extension from the right iliac fossa to the left, absent peristalsis, painful palpation in the right iliac fossa and mesogastrium, difficult to palpate visceromegaly, abdomen under tension, Blumberg's sign present with evidence of peritoneal irritation, peritonism and/or acute abdomen; 2-second capillary filling.

Laboratories: blood count with leukocytosis: 10,790/mm³, neutrophilia: 87.2%, hemoglobin: 14.67 g/dl, hematocrit: 43.33%, platelets: 380,500 u/l; blood chemistry with glucose: 118 mg/dl, chlorine: 104 meq/l, potassium: 3.95 meq/l, sodium: 138 meq/l, C-reactive protein u/liter: 2.020, calcium: 8.6 meq/l, creatinine: 1.09 mg/dl, urea: 40.3 mg/dl, Prothrombin time: 13.3", Thromboplastin part-time: 25.5". INR: 0.98". A simple tomography of the abdomen was performed in axial section, where the presence of a "foreign body" at the level of the small intestine that blocks the intestinal lumen throughout its diameter can be seen in the two images. See figures 1 and 2.

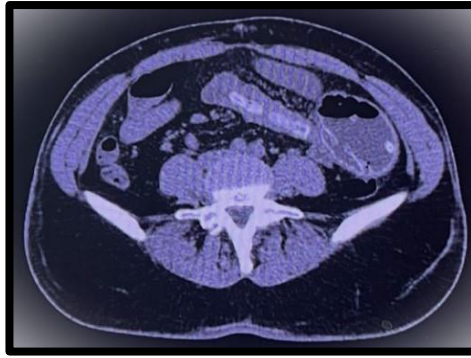


Figure 1

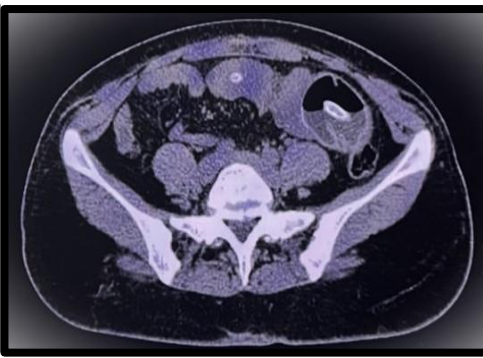


Figure 2

That due to the history of being a carrier of intragastric balloon greater than 6 months and the syndromatic diagnosis of intestinal occlusion with data of systemic inflammatory response and not having an endoscopy or enteroscope at that time. The patient was admitted to the operating room for emergency surgery, and an exploratory laparotomy was performed, locating the foreign body at the level of the jejunum (proximal small intestine), due to its dilation in the diameter of the entire intestinal lumen, with evidence of organ suffering and ischemia. See Figure 3.



Figure 3

An antimesenteric enterotomy of 3 cm., to 80 cm., with a fixed loop was performed, successfully extracting the "foreign body": intragastric balloon, plastic intraluminal object of 10 x 6 cm., it was cut and liquid content of approximately 400 cc3., blue in color ("probably methylene blue" probable intragastric balloon type "Monterrey"). See figures 4 and 5.



Figure 4



Figure 5

The enterotomy with closure is sutured in 2 planes, with the Heineke-Mikulicz method with polyglycolic acid 3-0, continuous emergence and then separated Lembert seromuscular points. Her postoperative evolution was adequate, she was discharged home after 6 days without any complications and her subsequent control in the surgery consultation.

DISCUSSION

Another extremely rare cause in adults of suffering in an IO should be described, is that unlike in babies from 6 to 18 months where it is very common, it is the case that when the penetration of an intestinal segment into another adjacent one, in the so-called intestinal intussusception; which is secondary to physical forces of contraction and peristalsis caused by a foreign body or intraluminal tumor or actual obstruction of intestinal lumen. [14, 15] Another etiology is pancreaticoduodenal artery aneurysm, which is uncommon but has potentially fatal consequences such as IO and can be resolved with early endovascular embolization without surgery. [16] It should be noted that food impaction and foreign bodies are among the most common gastrointestinal ailments in emergency rooms and are found in both adult and

pediatric populations, with an incidence of up to 80% to 90% of cases, they disappear on their own without assistance, but those that do not, stasis causes an excess of intestinal flora, which can cause bacterial translocation through the intestinal wall. [17]

On the other hand, postoperative ileus is a common surgical complication that causes prolonged hospitalizations, patient suffering, and a substantial economic burden on the health system. The frequency of postoperative ileus in the initial week after surgery shows a substantial variation, estimated in a range ranging from 3% to 50%, largely attributable to the lack of consensus of recently graduated surgeons on the definition of the normal duration of recovery of intestinal motility that should be 5 days and that they currently start the diet in less than 3 days. evoking that they behave like an IO with its devastating complications in some patients. [18]

It should not be forgotten that there are also limited data on the surgical outcomes of acute colonic pseudo-obstruction, commonly called Ogilvie syndrome, which behaves like a mechanical IO, but is pathophysiological in nature, its therapeutic approach is to initially administer non-surgical therapy in 65.6%, and non-responders undergo surgical therapies: which included total abdominal colectomy 43.1%, ascending colectomy with terminal ileostomy 25%, transverse colostomy 15.6%, ileostomy and transverse colostomy in 9.4% and up to Hartmann's operation in 3.1%. [19]

It should be considered that the decision and timing of surgical exploration of IO depends on the clinical findings, the probable actual etiology suspected, as well as the symptoms. Patients with IO often present with intra-abdominal hypertension, which is an important factor that has been proven to predict the possibility of intestinal ischemia with gangrene, perforation, intra-abdominal sepsis, surgical site infections, and resulting in prolonged hospitalization. When the cause of IO is evident, then the management or therapeutic conduct is determined. [20] And all of the above is just an example of how varied or multiple etiologies are; however, we cannot fail to mention the objective of this manuscript, where the prevalence of obesity has multiplied in recent decades, which has led to an increase in bariatric surgery and other endoscopic modalities, which were developed for the first time around 1985 with the intragastric balloon, which today is the most widely used endoscopic modality, which therefore, the surgical treatment of complications must be taken into account if necessary, in case of perforation and/or gastrointestinal obstruction; in an investigation of a total of 326 patients, only 6 patients required emergency surgery, due to esophageal and gastric perforation, and IO. [21]

In another study of 1,149 patients managed with an intragastric balloon, fifty patients required balloon removal due to intolerance. There were eight cases of balloon rupture and there were only two serious complications, a gastric perforation, and an IO, which accounted for 0.17%. [22] In Mexico, the Orbera balloon, a trademark registered by Apollo Endosurgery, Inc., is the most widely used in this country and worldwide; it is made of silicone, has a capacity of 400-700ml and lasts on average 6 months, which was reported in a study of 128 patients, where intolerance was only described during the first 14 days after placement, but there were no serious complications during removal or repositioning. [23, 24] In another study, the types are specified with their specifications, where there are 4 intragastric balloons, which are: the Monterrey, the Obalón, which is a device that is swallowed and not placed by endoscopy, inflated once inside the stomach by a thin catheter, with the option of placing several, and with a duration of up to 6 months; the aforementioned the Orbera and the Spatz3, in the latter, it is

specified that the volume is adjustable from 400 to 800 ml., with a viability of 12 months and is placed by endoscopy; on the other hand, in another protocol of 109 patients, intolerance was only reported in 3 subjects and no complications. [25, 26] A report was made in Monterrey, Mexico, with the Orbera intragastric balloon in 152 patients and did not specify any complications, in addition, with achieved objectives of weight reduction in the cases. [27]

In most patients it is clinical, its severity and/or prognosis is uncertain, so the support of laboratory and paraclinical studies is essential; it is clear that the diagnosis of IO is only syndromatic (set of signs and symptoms, this is incomplete and vague, since in most patients, they present abdominal pain, distension of the abdomen, anorexy, nausea and vomiting, in some cases they channel gas and in others, there are even liquid to semi-liquid evacuations, or even normal evacuations, but in most of them it does not occur, since classically there is no evacuation and there is no flatus, [28] but it is not conclusive that therefore the behavior to be followed or its evolution itself is not specified. As previously mentioned, the etiology is so wide and varied that it is therefore essential to be able to glimpse a causal diagnosis (congenital, acquired or both). [29, 30] With regard to radiological studies, it is crucial to perform plain abdominal radiographs in standing and recumbency, chest telegraph while keeping the subject standing for 20 minutes beforehand, [31] some authors mention abdominal ultrasounds, [32] but computed tomography is a powerful tool or the gold standard for diagnosis. [33, 34, 35]

With regard to the treatment of IO, it is known by the surgeon that there is an alternative of the so-called conservative treatment, which consists of a fluid and electrolyte supply, empirical antibiotic therapy by bacterial translocation, intestinal rest with fasting and use of a gastric or ileal tube in conjunction with ambulation, especially in patients who do not present a systemic inflammatory response; this management can be prolonged from 3 to 5 days or more with a exquisite follow-up/surveillance with laboratories and daily radiological x-rays (abdomen in the two projections and chest TV). [36] A computed tomography scan with contrast is the best tool to accurately identify the presence of the surgical pathology to be resolved, and it makes a difference for early and/or timely surgical management of curative surgical treatment. [37] There are endoscopic treatment options, but as mentioned above, it will depend on the specific etiologic diagnosis or disease. [38, 39]

CONCLUSIONS

IO is not a definitive surgical diagnosis, but a consequence of another real disease, in a diagnosis of syndromatic integration. It should be remembered that conservative treatment, medical, endoscopic, or surgical, will depend on diagnostic certainty, the underlying disease, the infrastructure of the hospital, the surgeon's expertise or the etiological diagnosis itself.

Conflict of Interest

The authors declare that they have no conflict of interest.

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