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Research Article

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Meckel's Diverticulum in Incarcerated Eventration as an Extraordinary Cause of Intestinal Obstruction. Case Report

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Abstract

Introduction: Meckel's diverticulum (MD) is the most common congenital defect of the gastrointestinal tract. It is difPicult to diagnose preoperatively, so the diagnosis of MD in adults is usually incidental. Intestinal obstruction is one of the most frequent complications associated with Meckel's diverticulum in adults. It may cause volvulus or be associated with internal and external hernias (Littre's hernia). However, MD within an incarcerated eventration causing obstruction has not been reported in the medical literature. Therefore, the following case represents a very rare presentation of this pathology.

Case Presentation: An 84-year-old female patient presenting with a 7-day history of abdominal pain, accompanied by nausea and vomiting, absence of bowel movements, and non-passage of Platus. The non-contrast computed tomography (CT) scan reported a large aponeurotic defect in the anterior abdominal wall measuring approximately 12 cm, with a multilobulated sac containing multiple air-Pluid levels, consistent with intestinal obstruction. A diagnostic laparotomy conPirmed the presence of a necrotic and ischemic Meckel's diverticulum within this large sac. Subsequently, a resection and end-to-end biplane anastomosis were performed, along with abdominal wall closure using Albanese technique. The patient had a satisfactory recovery.

Discussion: The presence of Meckel's diverticulum through a natural abdominal wall defect is widely described in the literature as Littre's hernia; however, it is not described in the same manner when it involves an incisional hernia. One of the rarest complications reported is axial torsion, which can lead to compromised blood supply and subsequent gangrene, as occurred in this case. The resolution was surgical, involving diverticulectomy without complications and resulting in excellent recovery.

Keywords: Eventration, Meckel's diverticulum, complication, necrosis, intestinal obstruction.

Introduction

Meckel's diverticulum (MD) is the most common congenital anomaly of the gastrointestinal tract (approximately 2% of the general population) [1]. It results from the incomplete obliteration of the omphalomesenteric duct and appears on the antimesenteric border of the ileum, within the last 100 cm of the ileocecal valve [2,3].

Most patients remain asymptomatic throughout their lives[4]. Symptomatic cases are nonspeciPic and may present as small bowel obstruction, diverticulitis, perforation, gastrointestinal bleeding, and, rarely, a neoplasia [4,5,6]. In adults, obstruction and diverticulitis are the most frequent [7].

Diagnosis is challenging and rarely made preoperatively. Imaging studies, particularly in complicated disease, are often not useful; however, exploratory laparoscopy is an important diagnostic tool [1].

The lifetime risk of complications reportedly ranges widely, from 4% to 40%[5]. However, the likelihood of complications decreases with age, which often makes the diagnosis of DM in adults incidental [1]

MD can twist around the omphalodiverticular remnant, the Pibrous cord attaching the MD tip to the abdominal wall, causing volvulus. Therefore, the discovery of this Pibrous attachment in uncomplicated MD is considered a risk factor for subsequent obstruction [8].

MD may incorporate into the sac of an external hernia (also called Littre's hernia), such as inguinal (50%), umbilical, and femoral hernias [7]. The hernia of Littre's is a hernia containing an incarcerated Meckel's diverticulum [9].

Occasionally, an internal hernia may develop through the mesodiverticular band [7]. Internal hernia refers to the displacement of the internal abdominal organs from their original position through a normal or abnormal cavity channel or Pissure into an abnormal cavity [10]. They used to be secondary to abdominal adhesions or iatrogenic mesenteric

defects caused by prior abdominal surgery. A small number of patients without prior abdominal surgery may develop internal hernias such as paraduodenal hernias or hernias through the Winslow's foramen. However, it is extremely rare for Meckel's diverticulum to cause an internal hernia leading to intestinal gangrene [10].

These presentations are unusual but should be considered in the differential diagnosis of intestinal obstruction, especially in patients without a history of prior abdominal surgery [10].

In this paper, we present a rare and undocumented case of incarcerated eventration by a Meckel's diverticulum causing intestinal obstruction and surgically resolved through resection and termino-terminal anastomosis in biplane, along with abdominal wall closure using the Albanese technique.

Presentation of Case

Female patient of 84 years of age who presents 08 days of evolution with abdominal pain of strong intensity of constant progressive onset, located in left hemiabdomen with concomitant nausea and vomiting on multiple occasions of food content, absence of bowel movements and non-passage of Platus. The patient's medical history included umbilical herniorrhaphy.

Physical examination revealed a globular abdomen at the expense of adipose panniculus, depressible, painful on deep palpation in the left hemiabdomen, an increase in volume in the left iliac region and hypogastrium of 3.94" x 5.91" in diameter with smooth edges and irreducible contents inside (Figure 1), without changes in color, decreased hydroaerial sounds, not painful to external maneuvers, no signs of peritoneal irritation, empty rectal ampulla.

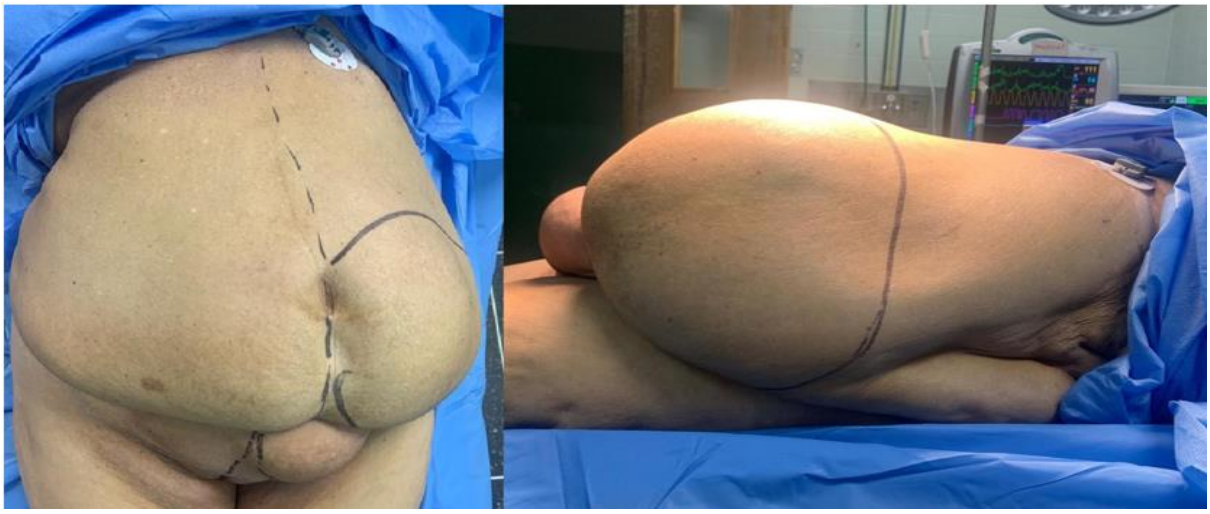

Figure 1: Preoperative: patient in decubitus supine position shows an increase in volume of approximately 3.94" x 5.91" in the left hemiabdomen. A. Superior view. B. Left lateral view.

A non-contrast abdominopelvic computed tomography scan revealed a large aponeurotic defect in the anterior abdominal wall measuring approximately 4.72". The defect contained small bowel loops and large intestine, where a multilobulated sac with multiple hydroaerial levels is evidenced, compatible with a picture of intestinal obstruction (Figure 2).

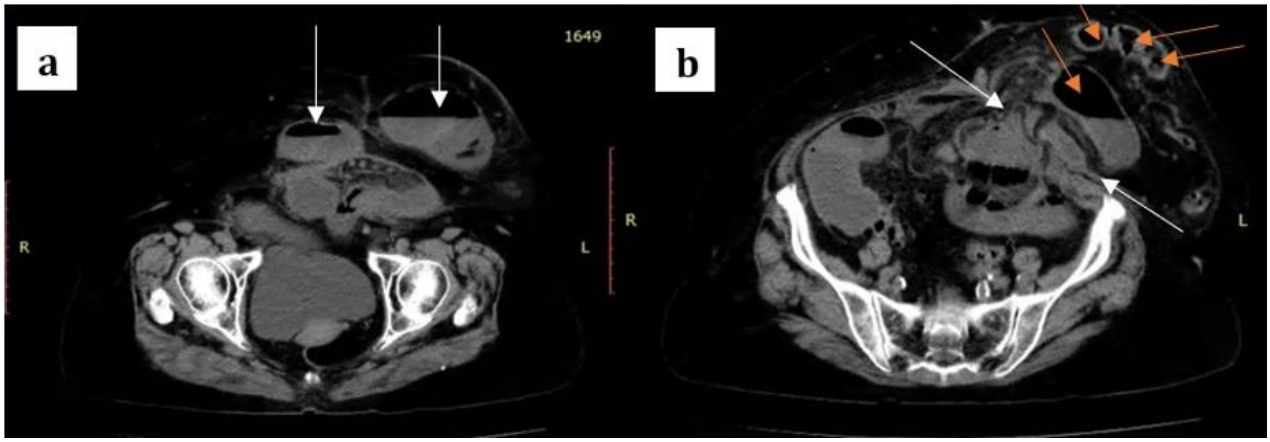

Figure 2: Axial section of abdomino-pelvic tomography without contrast. a: white arrow indicating the hydroaereal levels. b: white arrows indicate the eventration defect and orange arrows highlight the intestinal loops within the sac.

The patient underwent surgery, revealing a 3.94" x 3.94" aponeurotic defect and a 11.81" multilobulated sac in the mesogastrium containing small bowel loops and the transverse colon (Figure 3), a second 3.15" x3.15" sac in the hypogastrium contained perisac Pluid (Figure 4) and a Meckel's diverticulum, Pirmly adhered to the anterior peritoneal sac, located 11.81" from the ileocecal valve. Showed irreversible ischemic changes and necrosis, with wine-colored Pluid inside (Figure 5). The remaining Pindings were within normal limits.

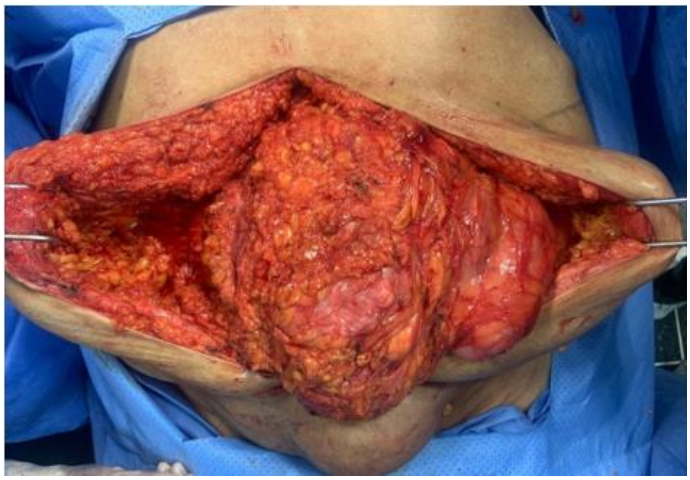

Figure 3: The large eventration sac is observed, after dissection of the myocutaneous Plaps to proceed to the delimitation of the aponeurotic defect.

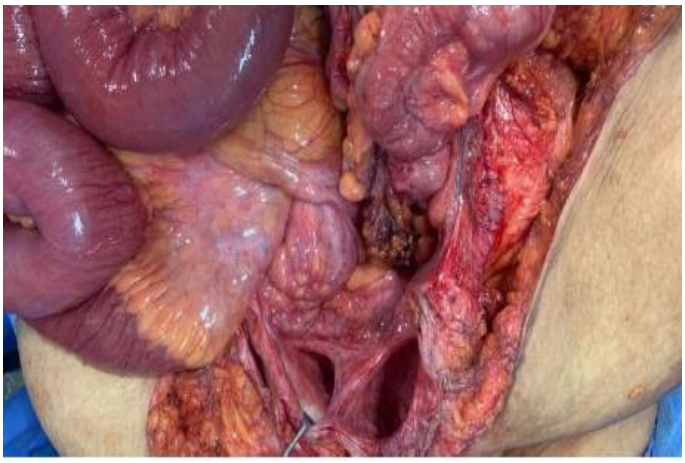

Figure 4: After the opening of the large sac, the contents of the multiple sacculations with a great variety of visceral-visceral and viscero-parietal adhesions are shown.

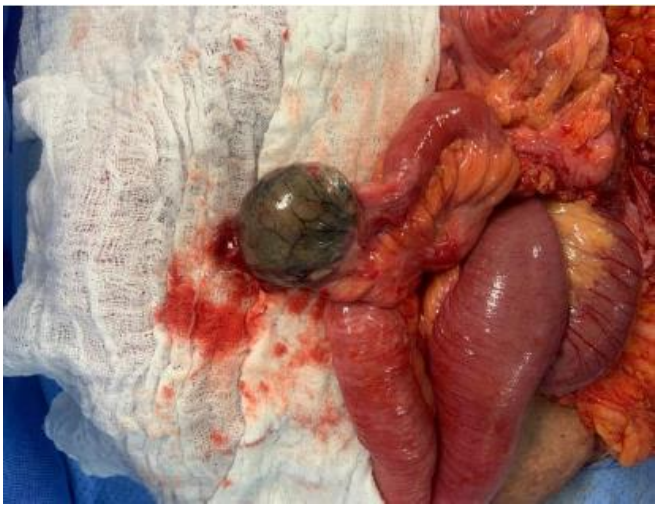

Figure 5: Ischemic and necrotic Meckel's diverticulum.

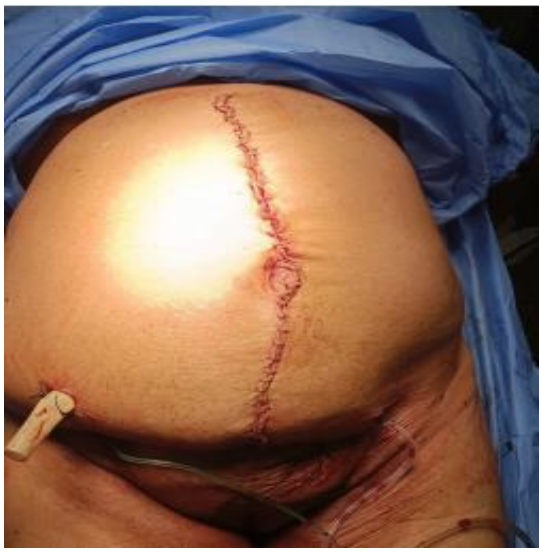

Figure 6: Immediate postoperative period where drains are evidenced for monitoring.

The diverticulum was resected, and end-to-end biplane anastomosis was performed. The posterior wall was sutured with 2-0 chromic catgut in a continuous manner, reinforced by interrupted stitches with 3-0 Vicryl. The anterior wall was sutured with Lembert stitches. The abdominal wall defect was closed using the Albanese technique, and the aponeurosis was sutured with small-bite PDS 0 stitches to ensure cavity integrity and proper anatomical restoration. Drains were placed for postoperative monitoring (Figure 6).

The patient was discharged 5 days later. Follow-up at three months showed satisfactory recovery without complications.

Discussion

Meckel's diverticulum is a congenital anomaly with a low prevalence of 1% to 2%, which is caused by the lack of complete or partial involution of the omphalomesenteric duct [11], is a rare disease to diagnose in adults [12]. Symptoms are often vague and overlap with other acute abdominal emergencies. Therefore, diagnosis can be difPicult and represent a clinical problem [13].

The presence of a Meckel's diverticulum through a natural oriPice of the abdominal wall is widely described in the literature as Littré's hernia, however, it is not described in the same way when it occurs in an incisional hernia, although rare cases of laparoscopic port, internal, epigastric and Spiegel's hernias containing Meckel's diverticulum have been reported[14]. It may be associated with incarceration, inPlammation or necrosis [15,16].

Intestinal obstruction corresponds to the second most frequent complication, with an incidence of 20-40%, affecting the adult population more frequently[14] and the most common cause is ileocolic intussusception [16,17].

According to previous studies, preoperative computed tomography diagnosis is only 50% of symptomatic Meckel's diverticulum cases [13].

One of the rarest complications reported is axial torsion of a Meckel's diverticulum that can lead to compromised blood supply and subsequent gangrene [18], as happened in this case.

As described in the literature, the existing consensus for the treatment of complicated MD is surgical resolution, which can vary depending on the integrity of the base of the diverticulum and the adjacent ileum [13]. In our case a diverticulectomy was performed, where there were no complications and the clinical evolution was excellent.

As previously mentioned, it is a rare condition in adults and even rarer when located in a prior surgical incision. An exhaustive review was performed, and no reports were found of complicated Meckel's diverticulum in eventrations or previous incisions, making the presentation of this case extraordinary and valuable for future researchers.

Conflict of interest and financial support or sponsorship:
As the authors, we declare that we have no conPlicts of interest and have not received any Pinancial support or sponsorship from any organization for this work.

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