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STRANGULATED MECKEL'S DIVERTICULUM-A RARE PRESENTATION OF AN UMBILICAL LITTRE'S HERNIA

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ABSTRACT

Meckel's Diverticulum is the most commonly diagnosed congenital anomaly of the intestine and is a form of embryonic remnant with incomplete omphalomesenteric canal obliteration. Herniation of this leads to a Littre's hernia and in itself is a very rare phenomenon. Here we present a case of strangulated Meckel's diverticulum in an umbilical hernia manifesting as an acute abdomen with shock. The patient was taken up for exploratory laparotomy and the intestine was found to be viable which improved with oxygen and humidification. The defect was extended and the contents were reduced with primary closure of the defect. The postoperative period was uneventful and the patient was discharged after complete intestinal recovery.

KEYWORDS: - ***Littre's hernia, Umbilical hernia, Strangulation, Resection and Anastomosis.***

INTRODUCTION

Meckel's diverticulum affects approximately 0.3-3% of the population with a male predominance of 2:1. It is a true diverticulum with full-thickness histology and is mainly located on the antimesenteric side of the ileum. It is usually located 30-90 cm from the ileocecal junction [1]. Majority of them remain asymptomatic and are usually detected incidentally during surgical procedures or radiological scans. They usually remain asymptomatic until they contain ectopic heterotopic tissues. This makes the diverticulum functional and warrants treatment. However, the protrusion of a Meckel's diverticulum through a ventral abdominal wall hernia is an exceptionally rare scenario. To the best of our knowledge, it has been reported only twice in the past. Our case would be the third case in the medical tapestry and would thus increase the awareness of clinicians for this rare entity.

CASE PRESENTATION

An 85-year-old male, with no known cause of any medical comorbidities, presented with complaints of a slow progressive swelling in the umbilicus for 1 month. The swelling was associated with abdominal pain, vomiting, and obstipation for 2-3 days. The abdominal pain was moderate in intensity in the umbilical region, colicky in type and worsened on food intake. The patient had 7-8 bilious vomiting episodes per day with 200 ml in each episode, containing food particles, and was not blood-stained. The patient had a complete loss of appetite with obstipation for the same period of 2-3 days. When examined, he was poorly built with mild pallor. The patient's vital signs were unstable with a pulse rate of 120 beats per minute. The patient had severe hypotension of 60/40 mm Hg and was started on inotropes. Initial blood gas examination revealed uncompensated metabolic acidosis with high anion gap lactic acidemia. The examination of the other systems was within normal limits. The abdominal examination was suggestive of a 3.2 cm umbilical defect with herniated irreducible small bowel with no cough impulse. Auscultation revealed no bowel sounds in the herniated content. Rectal examination showed collapsed rectum with no faecal staining. The patient had mild pallor with haemoglobin of 8.4 g/dl with normal liver and kidney function tests. The blood count showed a slight leucocytosis in 12340 cells with a differential count suggestive of a left shift. Abdominal x-ray was suggestive of dilated small bowel loops (Figure *1*).

An ultra-sonogram of the abdomen suggested a 3.2 cm defect in the anterior abdominal wall. There was herniation of omentum and intestinal loops with intact vascularity and minimal cough impulse. The patient was admitted as a case of strangulated umbilical hernia. The patient was hemodynamically compromised with radiology showing no peristalsis and massive dilatation of the small bowel loops. Therefore an impending state of gangrene or perforation was anticipated and the patient was taken up for emergency exploratory laparotomy. Appropriate fluid stimulation and inotropic support were administered to the patient together with systemic antibiotics. Laparotomy revealed extensive

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adhesions between the prolapsed contents and the edge of the defect in the abdominal wall. The herniated loops were released from each other. The constrictive ring at the site was dissected off the hernia sac and was extended 2 cm to a total of 5 cm. The viability of the strangulated content was confirmed after 10 minutes of 100% hyper oxygenation and warm salinization. Herniated loops were identified as ileal loops with an improving viable strangulated Meckel's diverticulum (Figure *2*).

It was located on the anti-mesenteric side of the ileum at a distance of 45cm from the ileocecal junction. The contents were pushed back into the abdomen. Primary closure of the abdomen was performed with a plan to schedule a meshplasty as a second surgery after stabilization. Postoperatively, the patient was started on orals on the second day when he passed flatus and was slowly escalated to a normal diet by the 4th day. The patient improved symptomatically without any post-surgical complications and was discharged on postoperative day 8.

DISCUSSION

Meckel's diverticulum is the most common intestinal abnormality that manifests in the innate period. It affects about 0.3-3% of the population [2]. Alexis Littre first reported it in 1700 as a case of a herniated Meckel diverticulum following which it received the term of Littre's hernia [2]. It is a full-thickness diverticulum involving all the layers of the abdomen and generally follows the rule of 2. It is usually seen on the anti-mesenteric side of the small intestine. It is usually located anatomically at 30-90 cm from the ileocecal junction. It has a male preponderance of 2: 1 and a length of approximately 2 inches or less [1]. These patients are usually asymptomatic until they achieve functional status with the presence of heterotopic ectopic intestinal mucosa, resulting in complications. Generally discovered during surgical procedures and radiological examinations, symptomatic cases constitute a reference minority of all cases. It usually masquerades in the form of acute abdomen [3]. It is predominantly seen in paediatric cases below the age of 2 years which amounts to a staggering proportion of 50% [4].

Presentations may vary in the form of bleeding which is the most common in functional types. Intestinal obstruction is the second most common adult scenario. In addition, it might also go for acute diverticulitis, incarcerations, strangulations, and perforations with its predominance reported primarily for functional types [3]. Anatomical obstruction is usually caused by the omphalomesenteric bands, diverticulitis, intussusception, and volvulus in paediatric cases [4]. On the other side, rare cases of internal herniation and prolapse through an abdominal wall defect have been reported in adults [5]. It has been reported that Meckel's diverticulum is inguinal 50% of the times, femoral 20%, omphalic 20%, and others adding up to less than 10% which includes the umbilical types [6]. Littre's hernia is itself is a rare entity and to become complicated in the form of incarceration or strangulation is even rarer.

Preoperative diagnosis is usually impossible as most of the cases are incidental detections. Nevertheless, ultrasound or computed tomography of the abdomen shows secondary changes [7]. In addition, nuclear scanning with a 99m pertechnetate scan can reveal a Meckel's with heterotopic ectopic mucosa within. However, in case of complications, a prep scan with CECT may help with the diagnosis, as documented in the cases of incarcerated Littre's hernia [2]. In our case, as the patient presented to us in a state of hypotensive shock with lactic acidemia, it favoured progressive intestinal gangrene. Initial abdominal X-ray was suggestive of acute obstruction. The patient was immediately shifted for emergency laparotomy and a preoperative confirmation scan was not deemed necessary at that point of time.

The management of an incidentally detected Littre's is debatable as demonstrated by Soltero and Bill. They suggested that prophylactic removal of an asymptomatic diverticulum can rarely be justified [8]. However, a symptomatic Littre in the form of incarceration or strangulation must be treated as quickly as possible. The usual treatment for strangulated Littre's is a wedge resection or intestinal segmental resection followed by primary anastomosis [9]. However, a non-operational management trial can be administered to the intestine if intraoperative 100% hyper oxygenation and warming improves vitality and perfusion to the affected segment.

In our case, the strangulation was on the brink of impending gangrene and the patient had lactic acidosis. However, the bowel perfusion improved after the above-said manoeuvres, and hence no resection was done. The bowel was reduced back into the abdomen. The abdominal defect can be primarily closed with or without an on-lay meshplasty. In case of incarceration and strangulation or the presence of significant peritoneal contamination, meshplasty is relatively contraindicated [10]. A mesh can significantly increase the rates of intra-abdominal sepsis and is hence avoided. If the hernia recurs or if a second surgery is required, the abdominal wall defect can be repaired with mesh.

CONCLUSIONS

In a nutshell, we present one of the rarest cases of Littre's hernia presenting in an umbilical herniation. Although most cases are random, asymptomatic and do not justify intervention, clinicians should maintain a high risk of suspicion for an apt diagnosis. It's a common masquerader in the spectrum of acute abdomen. Henceforth a rapid diagnosis and optimal surgical intervention in a complicated Littre is expected and leads to a favourable outcome.

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FIGURES

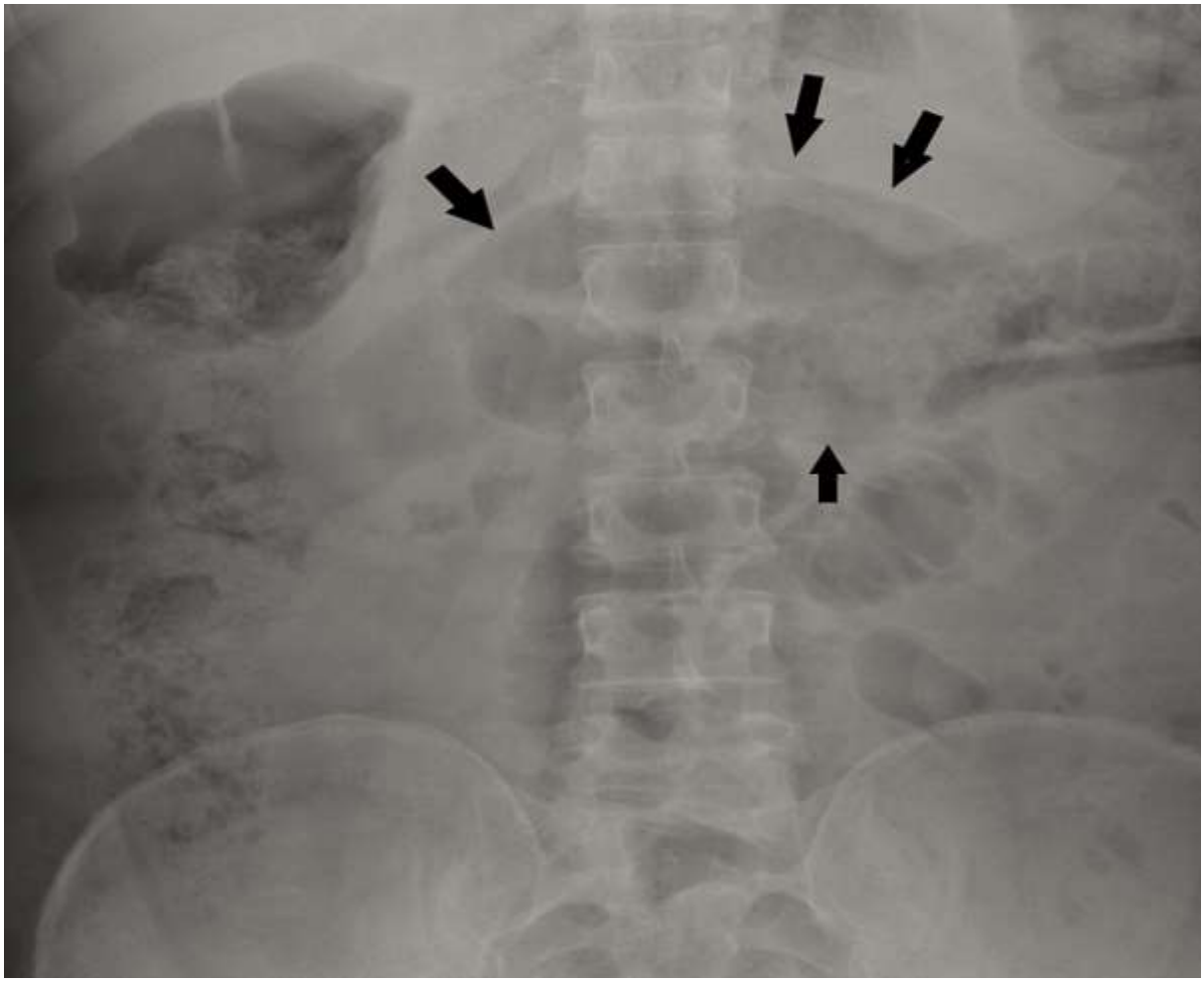

Figure 1: Abdominal X-ray showing dilated small bowel loops (black arrows)

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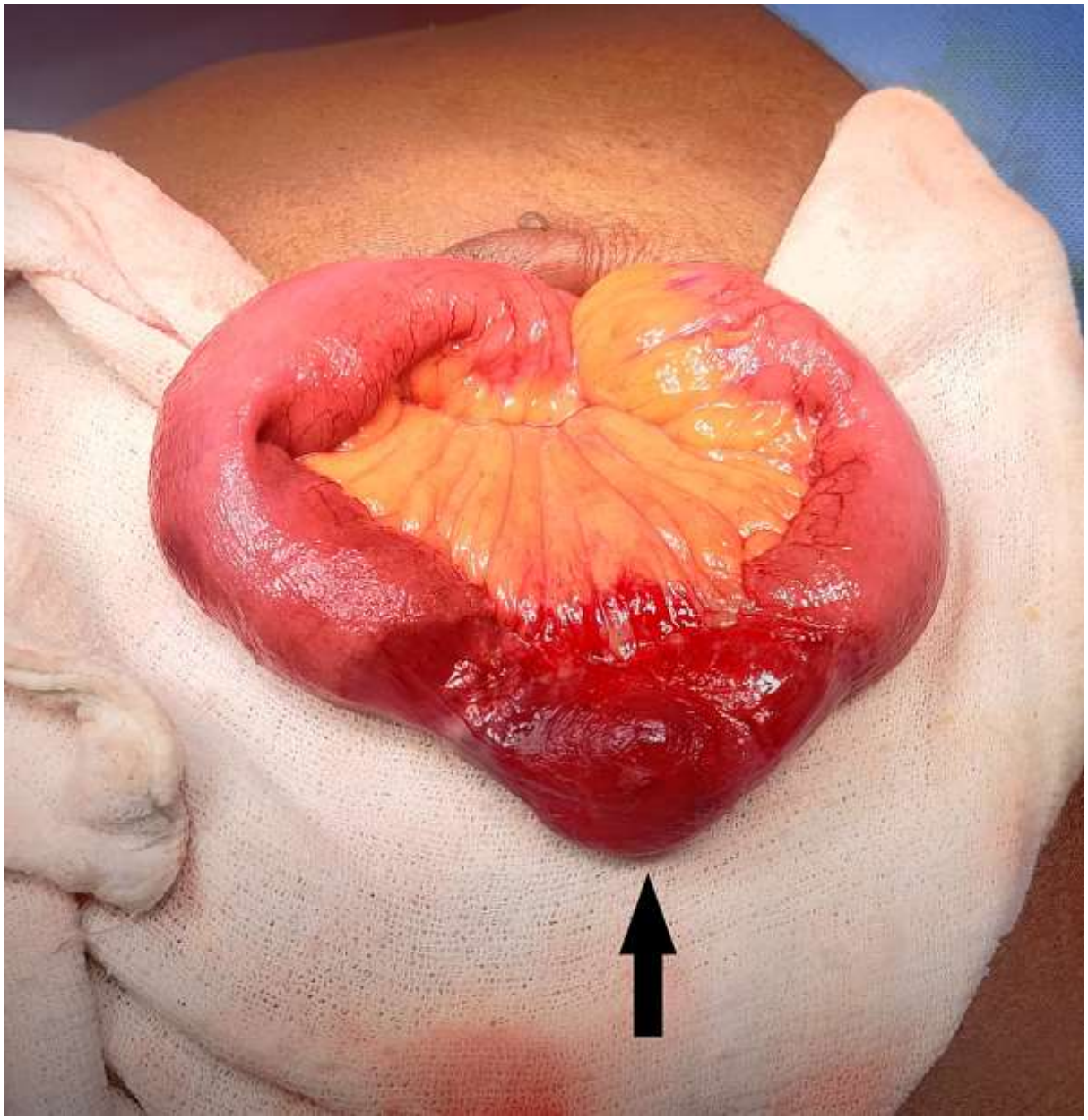

Figure 2: Intraoperative photo showing the strangulated Meckel's diverticulum (black arrow)

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