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A Unusual Case of Acute Abdomenâ

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1. Introduction

The pathological and embryological origin of Meckel's diverticulum was first described in 1809 [1]. The omphalomesenteric duct connects the yolk sac to the midgut of the developing fetus. Meckel's diverticulum occurs when there is a failure of obliteration of this primitive vitelline loop.

Anatomically, it is considered a true diverticulum (containing all layers of the gastrointestinal wall), and is found 2 feet proximal to the ileocecal valve [2]. Histologically, 60% of Meckel's diverticula contain heterotropic mucosa. The most common is gastric mucosa (60%), followed by pancreatic mucosa (5%). Other types of heterotropic mucosa include colonic mucosa, endometriosis, and hepatobiliary tissue. Meckel's diverticula containing heterotropic mucosa are the most likely to become symptomatic, while Meckel's diverticula lined with normal epithelium often remain asymptomatic [3].

It is the most common congenital abnormality of the gastrointestinal tract. The incidence of Meckel's diverticulum varies between 1% and 2% [4]. While it may go asymptomatic and is often discovered incidentally during laparoscopy, laparotomy, autopsy, or small bowel contrast studies, it carries a lifetime risk of complications of 4% [5]. However, this risk is highest in children (4% before 2 years of age), rare after 40 years of age (1%), and nearly 0% after 70 years of age [6].

Possible complications that may arise from Meckel's diverticulum include inflammation, necrosis, perforation, abscesses, or peritonitis. This presentation may mimic appendicitis. Other complications include volvulus, intussusception, malignancy, and hemorrhage [5].

MD is difficult to diagnose, with fewer than 10% of cases being diagnosed preoperatively.

2. Case History

A previously healthy 26-year-old male presented to our Emergency Room (ER) with an 8-day history of abdominal pain that began in the periumbilical area and then became generalized. The pain was

associated with nausea and anorexia. He had never had this type of pain in the past, and there was no history of recent travel. He has no past medical or surgical history.

On examination, he appeared ill, with shallow respirations and signs of dehydration. Vital signs revealed a tachycardia of 140 beats per minute, a fever of 38.9 degrees Celcius, a respiratory rate of 21 breaths per minute, and a blood pressure of 125/79 mmHg. The abdominal exam revealed generalized tenderness, rigidity, negative bowel sounds, and reduced air entry basally in the right lung. These features were suggestive of acute abdomen and peritonitis.

Laboratory tests revealed normal electrolytes and renal function tests, while the white blood cell count was found to be 40.3x10(3)/mcl, hemoglobin was 10.4 gm/dL, and CRP was 137 mg/L. Lipase was also found to be elevated at 580 IU/L. An X-ray abdomen was done, which revealed a large pneumoperitoneum beneath both hemidiaphragms and multiple air-fluid levels within the abdomen (Figure 1).

The patient was diagnosed with a perforated viscus and taken for laparoscopy after resuscitation in the ER. Surgery started as a diagnostic laparoscopy, by insufflation with the Veress needle in Palmer's point. 3 working ports were inserted in a triangular fashion. Inspection revealed a greenish-brownish fluid collection all over the abdomen. Areas of the stomach and duodenum were inspected, and no perfo-

ration was found. A large omental adhesion was seen near the right paracolic gutter with a stool-like material collected in the right iliac fossa and pelvis. Due to severe omental adhesions over the right side of the abdomen and a dilated bowel, a decision was taken to convert to an exploratory laparotomy with a midline incision. The diseased and adherent omentum was dissected and resected. Careful release of the adherent bowel in the right iliac fossa revealed a perforated Meckel's diverticulum almost 70 cm from the ileocecal junction. The perforation was at the base of the diverticulum, with stool coming out of it. Resection and anastomosis of the bowel was done, followed by extensive abdominal lavage and drainage of the abdominal cavity subhepatic and pelvic areas (Figure 2 and 3).

The specimen was sent to histology. The gross histology showed a formalin-fixed small bowel segment with a Meckel diverticulum measuring 12 cm, covered with fatty connective tissue with no mass seen. Microscopic sections studied showed a partially ulcerated ileum mucosa with gastric heterotopia, with all 3 layers of bowel wall present, edematous lamina propria, congested vessels with an intense mixed inflammatory cell infiltration consisting of neutrophils, plasma cells, macrophages and lymphocytes present with extension into adherent fatty connective tissue.

Post-operative recovery was not smooth. Within the first 5 days, the patient began to develop a fever. Physical examination showed abdominal distension and a silent abdomen. X-ray of the chest revealed a right-sided pleural effusion, and blood culture isolated heavy Enterococcus faecium with multi-drug resistance (Figure 4).

A right-sided chest tube was inserted, revealing serosanguinous fluid (more than 450 ml) at the initial insertion (Figure 5).

A CT scan was done showing right-sided effusion with multiple pockets of collections between the bowel loops and within the pelvis.

A decision was taken to undergo a second-look laparotomy, which revealed dusky-looking terminal ileum with very friable tissue. A right hemicolectomy was done, with extensive lavage. Histopathology later revealed acute on chronic inflammation with a foreign body reaction in the right colon and terminal ileum, and reactive lymphadenitis in the mesenteric lymph nodes (Figure 6).

Post-operative recovery was slow, but the patient improved gradually and was discharged 4 weeks after admission.

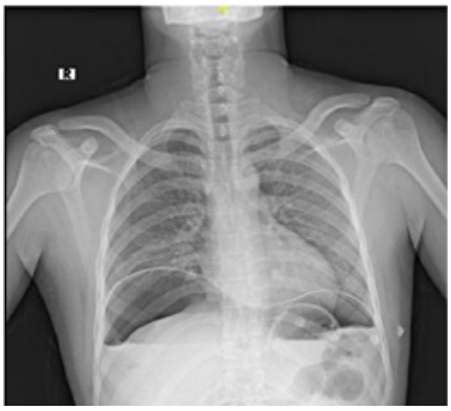

Figure 1: Chest X-ray revealing massive bilateral air under the diaphragm

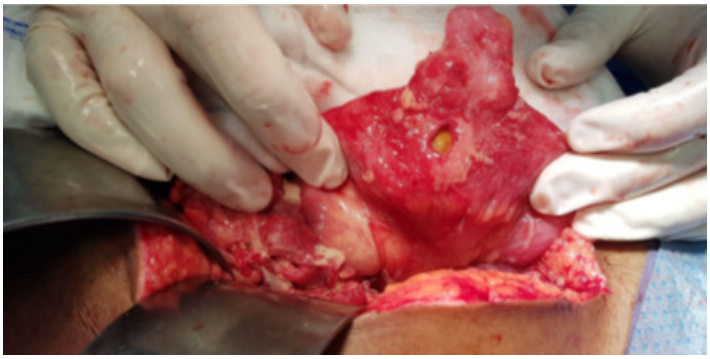

Figure 2: Perforated Meckel's diverticulum at the base

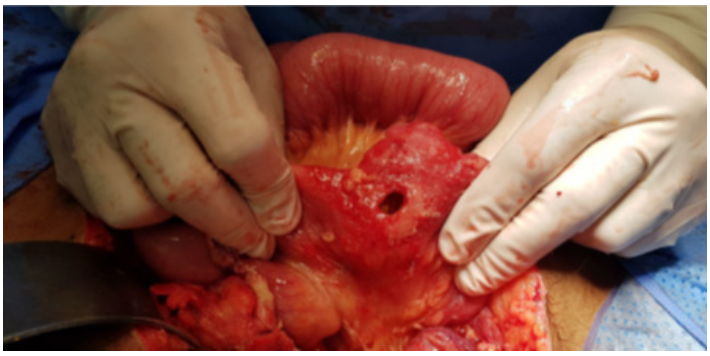

Figure 3: Perforated Meckel's diverticulum at the base

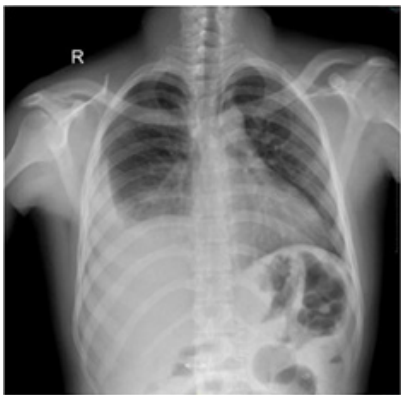

Figure 4: Chest X-ray showing a right-sided pleural effusion

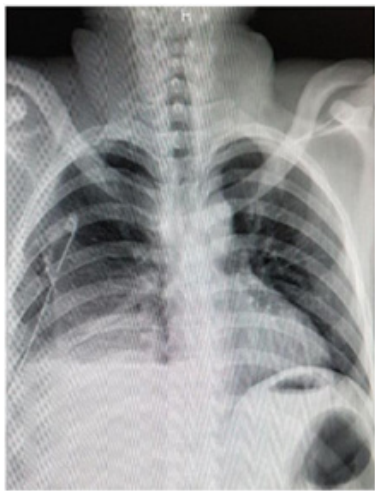

Figure 5: Chest X-ray after chest tube insertion

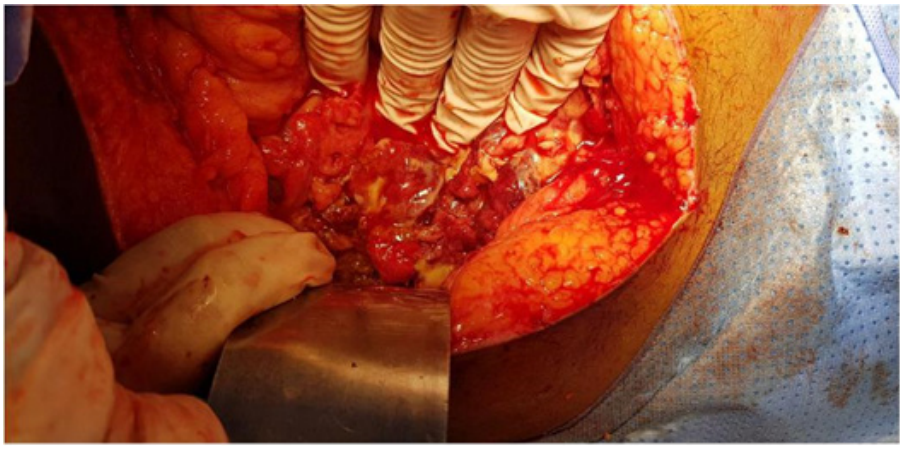

Figure 6: Dusky and friable ileal tissue on second-look laparotomy

3. Discussion

Meckel's diverticulum can present in many ways. The most common presentations of Meckel's diverticulum include hematochezia, intestinal obstruction, and acute abdomen (mimicking acute appendicitis) [7].

Lower gastrointestinal bleeds from Meckel's diverticulum are often secondary to ulceration from gastric heterotropic mucosa. Intestinal obstruction can be from internal volvulus or intussusception, due to the diverticulum functioning as a lead-point. There may be an association between acute bleeding from Meckel's and NSAID use [8].

In our case, the patient experienced diverticulitis and inflammation, likely from ulceration of the heterotropic gastric mucosa. However, perforation is rare and was reported to be responsible for only 0.5% of cases of symptomatic MD [9].

Most adult patients with Meckel's diverticulitis are diagnosed and treated for appendicitis preoperatively. More than 50% of presentations of Meckel's diverticulitis in children are intestinal obstruction or lower gastrointestinal bleeds, while adults more commonly present with diverticulitis or intestinal obstruction [10]. Diverticula that are long and narrow are more likely to result in obstruction or inflammation.

Diagnosis of Meckel's diverticulum is usually carried out with a technetium-99 scan, which detects heterotropic mucosa. Ultrasound is often used to diagnose symptomatic Meckel's diverticulum in children [7]. However, most cases of Meckel's diverticulum are diagnosed intra-operatively, as was ours. This is due to the non-specific imaging features associated with Meckel's diverticulitis. On CT scan, the diverticulum often appears to be similar to intestinal loops [3].

It is still unclear whether a Meckel's diverticulum found incidentally should be resected. Recent literature suggests resection in patients with high risk factors [11]. In symptomatic cases, resection of the diverticulum with primary closure of the small intestine should be carried out. All ectopic mucosa must be resected. However, in complicated cases of Meckel's diverticulum, an ileal resection should be done [12].

4. Conclusion

In conclusion, the association of Meckel's diverticulitis with perforation and peritonitis was a rare and potentially fatal complication in our patient. Due to the diagnostic difficulties associated with MD, it is a very commonly missed diagnosis. Suspicion for perforated Meckel's diverticulitis should always be high in patients with acute abdomen, particularly once the more common causes have been ruled out. The delayed presentation was a major factor in the severe complications and turbulent post-operative course in our patient.

References

1. Yorganci K, et al. Perforation of Acute Calculous Meckel's Diverticulitis: A Rare Cause of Acute Abdomen in Elderly. Acta Chirurgica Belgica. 2000; 100(5): 226–227.
2. Holcomb George. A Fifty Year Experience with Meckel's Diverticulum. Journal of Pediatric Surgery. 1983; 18 (4): 523.
3. Lai ATY. Perforation of Meckel's Diverticulum by a Fish Bone Presenting as Acute Appendicitis: A Case Report. Hong Kong Journal of Emergency Medicine. 2017; 24: 96-9.
4. Mathuram Thiyagarajan, Umasankar, et al. Perforated Meckel's Diverticulum Lithiasis: An Unusual Cause of Peritonitis. Case Reports in Surgery. 2013; 1-3.
5. Ding Yinlu, et al. Laparoscopic Management of Perforated Meckel's Diverticulum in Adults. International Journal of Medical Sciences. 2012; 9(3): 243–247.
6. Soltero Michael J, Alexander H Bill. The Natural History of Meckel's Diverticulum and Its Relation to Incidental Removal. The American Journal of Surgery. 1976; 132: 168–173.
7. Stallion Anthony, Jerry M Shuck. Meckel's Diverticulum. Surgical Treatment: Evidence-Based and Problem-Oriented. 2001.
8. Khosa JK, Kimble RM. Bleeding Postoperatively from a Meckel Diverticulum, Secondary to NSAIDs: A Cautionary Note. Pediatric Surgery International. 2006; 23 (2): 203-4.
9. Ferguson H, et al. Perforation of Meckel's Diverticulum Secondary to a Large Faecolith. Case Reports. 2010; 29: 1.

10. Dumper Jaymi, et al. Complications of Meckel's Diverticula in Adults. Canadian Journal of Surgery. 2006.

11. Rahmat Shermeen, et al. Does an Incidental Meckel's Diverticulum Warrant Resection? Cureus. 2020.

12. Holland AJA. Diverticulectomy Is Inadequate Treatment for Short Meckel's Diverticulum with Heterotopic Mucosa. Journal of Pediatric Surgery. 2005; 40(7): 1215.