

Giant Meckel's diverticula with necrosis due to axial torsion

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Abstract

This article presents the case of a 73 year old patient who was admitted to the hospital with acute abdominal pain. A midline laparotomy was performed in which a giant Meckel's Diverticulum was found. It was complicated by necrosis of the diverticular tissue due to axial torsion over its base. This is one of the rarest complications reported in the literature.

Key words

Meckel's Diverticulum, axial torsion, necrosis

INTRODUCTION

Meckel Diverticula are some of the most common anatomical abnormalities of the gastrointestinal tract. They are characterized by the partial (incomplete) blockage of the omphalomesenteric duct in the embryonic phase. Incidence of Meckel Diverticula is approximately 2%. It is usually asymptomatic, merely an incidental finding of laparotomies and autopsies (1), but about 4% of those who suffer this malformation may develop complications. The most common of these are hemorrhaging, obstruction and inflammation (2,3). These normally take place at the anti-mesenteric border within 100 centimeters of the ileocecal valve. In 50% of the cases there is gastric, pancreatic, or colonic heterotopic tissue (4,5). Gangrene is one of the rarer complications, and it is more so when it is secondary to axial torsion along the neck.

CASE REPORT

A 73 year-old male patient was referred after 4 days of abdominal pain. Beginning in the epigastrium it extended

to the right iliac fossa. The patient had suffered from fever, emesis, nausea, hyporexia, absence of bowel movements and flatulence. When admitted, the patient's condition was suboptimal. However he was hemodynamically stable and afebrile. A physical examination was conducted which found considerable abdominal distension, tympany, significant reduction of peristalsis, and signs of peritoneal irritation. A complete blood count reported 16,720 leucocytes and 87% neutrophilia. Abdominal echography showed great distension of intestinal loops with interloop fluid. Acute abdomen was diagnosed, and the patient was taken to the operating room for an emergency laparotomy. The exploration found generalized peritonitis, adynamic ileus, significant intestinal loop distension, and a 12cm x 13cm diverticulum deviated on its own axis at the pedicle connecting to the ileus completely necrosed to approximately 80cm of the ileocecal valve. An intestinal resection and anastomosis were conducted cleaning and removing multiple peritoneal adhesences. Complete closure of the layers of the cavity was not possible, so the patient was left with a Bogotá bag. The patient was subjected to 3 more peritoneal cleanings, and underwent irregular evolution due to

symptoms of postsurgical ileus. Finally, 20 days later, the patient was released. The patient was able to walk, tolerated oral intake, had regular bowel movements, and had no signs of systematic inflammatory response. The pathology reported was Meckel Diverticulum with intestinal mucus and absence of heterotopic tissue.



Figure 1. Meckel Diverticulum entirely necrosed by axial torsion.

DISCUSSION

The Meckel Diverticulum is a true diverticulum because it contains all the layers of the intestinal wall. Normally measuring between 3cm and 6cm (5), Meckel Diverticula are called giant when they are longer than 5cm (2). Men are apparently more prone to suffer complications, which occur twice as often among male patients as among female patients (6). 50% of these complications are observed in people under the age of ten (5), and it seems as though incidence diminishes with age (7, 8). However, some cases have been observed in patients over 80 years old, most of them with hemorrhaging in the lower digestive tracts and with symptoms of intestinal obstruction.

Hemorrhaging of lower digestive tracts is the most common complication, occurring in 25 to 50 percent of cases. It is related to the gastric mucus of the diverticulum which produces peptic acid disease in the mucus of the surrounding ileus (11). Bleeding generally is asymptomatic and is more frequent in children (11).

After hemorrhaging, intestinal obstruction is the most frequent clinical occurrence (25%-40%), especially in adults. It is usually due to invagination or volvulus around connections to the abdominal walls.

Diverticulitis is found in 20% of these cases whether they have been perforated or not. The length of the diverticulum is related to the probability of its base narrowing and being obstructed. The inflammation may develop because of foreign objects, such as fish spines, biliary stones, enterocytes, and projectiles. There has been inflammation reported that was caused by the presence of a phytobezoar (5, 6, 12).

One the rarer complications is axial torsion along the thin base which obstructs the blood flow of the diverticulum leading to ischemia and necrosis of the tissue. There are very few cases like this reported in the literature (6,13,14). Another rare complication is necrosis because of enterocolitis.

Meckel Diverticula are treated surgically. The diverticulum is extracted or the intestinal wall of the ileus that contains it is resected with terminal anastomosis of the intestine (5). The latter procedure is preferred when inflammation is severe, there is perforation, or there are tumors present.

Diverticulectomies induced by complications have a 2% mortality rate and a 12% morbidity rate 7% of these cases result in long term complications. Incidental findings of diverticula have just a 1% mortality rate, a 2% morbidity rate and long term complications occur in only 2% of these cases. These figures support performance of the procedure whenever the finding is incidental (5, 15).

Diagnosis of this disorder is difficult. Fewer than 10% of cases are diagnosed prior to surgery (5). They are generally confused with acute appendicitis. CAT scans and sonograms provide little help in making this assessment. The use of TECNECIO 99 for contrast captured by the gastric mucus is common for the study of rectal bleeding. It has 85% sensitivity and 95% specificity for children, but only 46% sensitivity for adults (5).

The case reported here, although bizarre because of the complications described and the age of the patient, is a reminder that Meckel Diverticulum is a pathology that should be considered whenever one encounters a patient with acute abdomen, regardless of diagnostic difficulty.

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