

ABDOMINAL PAIN - MECKEL'S DIVERTICULUM

Patients with Meckel's diverticulum can present with acute abdominal pain, typically due to inflammation. They can also present with GI bleeding and bowel obstruction, and should be considered in the differential diagnosis for these clinical problems.

Meckel's diverticulum was first reported by Johann Friedrich Meckel the Younger in 1809. In the developing embryo, there is an internal and external portion of the yolk sac. The external portion, known as the omphalomesenteric and vitelline structures, are expected to involute. If they fail to involute, one of a spectrum of disorders can occur, with Meckel's diverticulum one of the most common. A Meckel's diverticulum is a true diverticulum containing all layers of the intestinal wall. It is found on the antimesenteric border of the small bowel, within two feet of the ileocecal valve.

Meckel's diverticulum occurs in 1-3% of the population with a slight male predominance. They are symptomatic in 2-6%. Most patients become symptomatic in childhood, but a Meckel's diverticulum can also present in adult patients. It can present with inflammation, bowel obstruction, or GI bleeding.

Inflammation

A Meckel's diverticulum can become inflamed in much the same way an appendix does, with luminal obstruction leading to bacterial overgrowth, gangrene, and perforation. Symptoms typically include abdominal pain in the right lower quadrant or periumbilical area, fever, nausea, and vomiting. Physical exam may reveal tenderness in the right lower quadrant, periumbilical or suprapubic area, with peritoneal signs. WBC may be elevated or show a neutrophil predominance on differential. Ultrasound of the appendix might show an inflamed tubular structure, thought to be the appendix. It may also show a normal appendix but fail to demonstrate the Meckel's diverticulum. CT scan can be done to demonstrate the inflamed Meckel's diverticulum. Treatment is with broad spectrum antibiotics and excision of the Meckel's diverticulum.

Bowel Obstruction

A small bowel obstruction can occur due to intussusception with the Meckel's diverticulum serving as the lead point. It can also occur due to volvulus or internal hernia around a band holding the Meckel's diverticulum to the abdominal wall. Clinical presentation would be that of small bowel obstruction: abdominal pain, nausea, vomiting, very likely bilious vomiting, abdominal distention, and obstipation. Any patient who has never had abdominal surgery, particularly a child, who presents with bowel obstruction, should have exploration, either laparoscopic or open laparotomy. In addition, patients should have bowel decompression with a nasogastric tube, fluid resuscitation, and correction of electrolyte abnormalities.

GI Bleeding

A Meckel's diverticulum can have two forms of ectopic mucosa: gastric and pancreatic. Gastric mucosa, due to the production of acid, can cause ulceration of the intestinal mucosa and subsequent bleeding. The bleeding is typically painless and occurs per rectum. It can be diagnosed with technetium 99m scan (Meckel's Scan). The sensitivity is high at 95%. However, specificity is variable between 25%-97%. Treatment of a Meckel's diverticulum causing bleeding is evaluation of degree of bleeding (CBC, PT/PTT), resuscitation, and operative excision of the Meckel's diverticulum, with most surgeons recommending resection of a segment of small bowel with anastomosis, to ensure that all of the ectopic mucosa, and the ulceration are removed.

Asymptomatic Meckel's Diverticulum

The resection of an incidentally found Meckel's diverticulum, when exploring a patient for another reason, is controversial. Anywhere between 2% and 6% will become symptomatic. The risk and benefits should be weighed for each patient when deciding whether or not to resect an asymptomatic, incidentally found Meckel's diverticulum.

Rule of Two's

The following facts about Meckel's diverticulum can be remembered using the rule of two's.

- Occurs in 2% of the population
- Is located within 2 feet of the ileocecal valve
- Is typically 2 cm long
- Has two types of mucosa
- Is symptomatic in approximately 2% of patients

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