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Case Report

Non-steroidal anti-inflammatory drug-induced perforation of Meckel's diverticulum

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ABSTRACT

Meckel's diverticulum (MD) is commonest congenital gastrointestinal anomaly, the common complications associated with MD are hemorrhage, ulceration, intestinal obstruction, diverticulitis, umbilical anomalies, and neoplasm. Perforation of Meckel's diverticulum is a rare entity and there's very less documentation regarding the incidence of Meckel's perforation. MD perforation is usually a life-threatening complication and is associated with high mortality, perforation is usually due to diverticulitis, peptic ulcer disease occurring in the ectopic gastric mucosa which might be present in MD. NSAID intake associated with Merkel's perforation has been documented in a few studies. NSAID intake and gastric perforation have been well established but a relation between NSAIDs and heterotrophic gastric mucosa of MD has not been documented. With NSAIDs use becoming very common it is, therefore, important to document this association.

Keywords: Acute abdomen, Meckel's diverticulum, Perforation peritonitis

INTRODUCTION

Fabricius Hildanus described Meckel's diverticulum (MD) in the 16th century and it is named after Friedrich Meckel who defined its origin and type of diverticulum in the 19th century. Meckel's diverticulum is a true diverticulum and it arises from the antimesenteric side of the distal ileum. It is a remnant of the persistent omphalomesenteric duct. It is the commonest gastrointestinal tract anomaly. Meckel's diverticulum is often quoted with 'rule of 2'- 2% of the population, the usual location is terminal 2 feet terminal ileum, found commonly in children less than 2 years, it has 2 types of mucosa, twice as common in males.

MD in most individuals is asymptomatic and is symptomatic in only 2-4% population, the array of symptoms ranges from gastrointestinal bleeding, intussusception, neoplasm, inflammation, and rarely perforation.[1] Meckel's perforation due to heterotrophic gastric mucosa has been documented in very few case reports, here we report a case of Meckel's perforation due to NSAID intake.

CASE REPORT

A 50-year-old lady presented in the emergency OPD of Sir Sunderlal Hospital, BHU with chief complaints of pain abdomen since 2 days associated with non-passage of flatus and stool since 2 days. The pain was acute in onset, generalized, and associated with abdominal distension. The patient also complained of non-passage of flatus and stool since 2 days. Patient gave a history of NSAID intake for her right knee joint pain for 6 months.

At the time of presentation, the patient was dehydrated with cold, clammy limbs, and feeble pulse, and a blood pressure of 88/60mm Hg. After initial resuscitation patient's vitals improved and patient underwent an X-ray

abdomen erect which revealed dilated small bowel loops and free air under right dome of the diaphragm (Figure 1). Her Hb was 12.9 g/dl, TLC was 21600/mm^3, platelet count 230 k, blood urea 42.0 mg/dl, and serum creatinine 1.0 mg/dl.

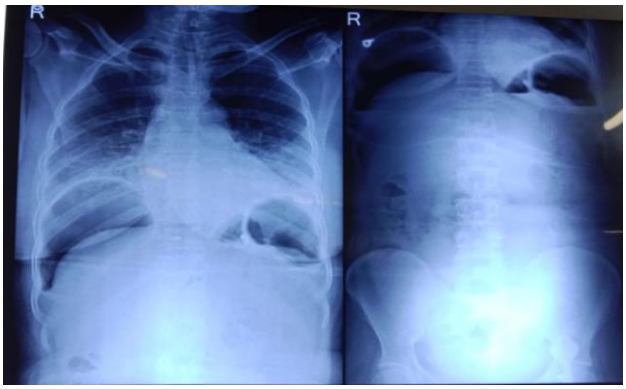

Figure 1: X-ray abdomen erect showing free air under right dome of diaphragm.

In view of unstable vitals and a diagnosis of peptic/enteric perforation made on X-ray abdomen, the patient underwent exploratory laparotomy.

On exploration, approx. 500 cc of contaminated intestinal fluid was aspirated, and multiple peritoneal lavages were done, small bowel loops were inflamed due to peritonitis, and at around 2 feet proximal to the ileocecal region a diverticulum was found on the antimesenteric side of the ileum with a 1.5×1.5 cm perforation at the base of the diverticulum (Figure 2).

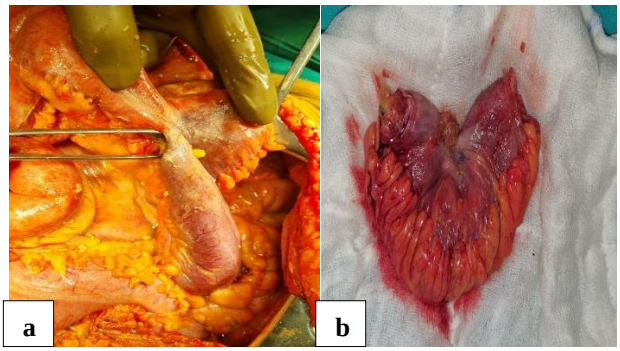

Figure 2: (a) A diverticulum was seen on the antimesenteric border with 1.5×1.5 cm perforation, and (b) resected specimen of Meckel's diverticulum.

Histopathology of the resected specimen revealed ectopic gastric mucosa at the base of the diverticulum.

In view of inflamed bowel loops and the hemodynamic instability of the patient, resection of about 12 cm of the ileal loop including the diverticulum was done along with the creation of a double barrel ileostomy. Following surgery, the patient was shifted to ICU for post-operative management

DISCUSSION

Meckel's diverticulum is a true diverticulum as it contains all layers of the bowel and is the most common congenital anomaly of the gastrointestinal tract. The common complication associated are diverticulitis, obstruction due to adhesions or intussusception, and perforation.[1] It is also a common site for ulceration due to the presence of ectopic gastric mucosa or rarely pancreatic tissue.

Apart from native intestinal mucosa, heterotrophic mucosa can be found inside Meckel's, such as gastric, duodenal, colonic, and pancreatic (rarely) mucosa1. Heterotrophic tissue is seen in 15%-50% of cases.[2] MD can present at any age, but is more common in children and rarely in adults. In adults, preoperative diagnosis is difficult and it in most cases mimics acute appendicitis.[3] The rule of 2s is characteristically described for MD; 2% of the population, mostly presenting in children aged less than 2, terminal 2 feet of ileum, length of ≤2 inches, having heterotrophic mucosa (two types), twice frequent in men.

The most common presentation of MD is an obstruction (lead point for intussusception), hemorrhage, and inflammation. In case of inflammation, there is a risk of perforated Meckel's. Perforated MD is uncommon and presents as acute abdomen, which is often diagnosed as acute appendicitis. The perforation of Meckel's can be attributed to the presence of peptic ulcer in ectopic gastric mucosa, in a few cases reports these ulcers have been correlated to NSAID intake.[4] MD ulceration is more common in males due to higher levels of gastrin and subsequent gastric acid hypersecretion.[5] NSAIDs inhibit COX-1 and thus reduce prostaglandin secretion, this makes gastric mucosa susceptible to mucosal injury.[6]

In our case, we have a history of 6 months long duration of intake of NSAID. Post-operative histopathology revealed the presence of ulcerated gastric mucosa. Correlating these two findings it is reasonable to presume that intake of NSAID led to ulceration at the base of the MD which culminated in a life-threatening perforation. The association between use of NSAID and gastric ulceration is well known. Reports of NSAID-causing ulceration leading to perforation are rare and not well documented.

CONCLUSION

Perforated Mackel's diverticulum is a rare presentation, it is important to keep it in mind as a differential diagnosis as its complication leads to high mortality and morbidity. There have been very few studies that have correlated chronic NSAID intake with Meckel's perforation. The aim of surgery is to maintain bowel continuity but in cases of bowel edema and inflammation as in our case, an ileostomy can be carried out.

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