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Case Report

Silent Meckel's diverticulum in an acute abdomen of adolescence

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ABSTRACT

Meckel's diverticulum is common congenital abnormality which is common in less than 2 years of age, mostly asymptomatic and may complications such as intestinal blockage, gastrointestinal bleeding, and perforation. It may rarely present with gangrenous Meckel's diverticulum. A 13-year-old child brought with complaint abdominal pain for a month and abdominal distention, vomiting, fever for two days. No history of bleeding per rectum. On clinical examination, child febrile with tenderness in the lower abdomen and guarding in the right iliac fossa. Blood workup was normal. A CECT scan of whole abdomen revealed an enlarged appendix filled with fluid, and possible perforation tip of appendix. The imaging findings indicated a possible case of acute appendicitis, with signs of perforation and the presence of an abscess or collection near the appendix. The child underwent a laparoscopic appendectomy. Intraoperatively, it was found that the appendix was inflamed and had adhesions to the small bowel, abdominal wall, sigmoid colon, and urinary bladder. A bowel walk revealed dilated loops of the small bowel, and approximately three feet from the junction of the small and large intestines, a gangrenous Meckel's diverticulum was found. Consequently, a laparoscopic-assisted Meckel's resection and ileoileal anastomosis were performed. After surgical procedure, child improved symptomatically. Diverticulitis has multi facet clinical presentation and it can also occur along with other gastrointestinal conditions. Hence approaching any gastrointestinal condition, also should have suspicion on diverticulitis to avoid the complications of diverticulitis.

Keywords: Meckel's diverticulum in adolescence, Gangrenous Meckel's, Appendicitis and gangrenous Meckel's diverticulum

INTRODUCTION

Meckel's diverticulum is a common congenital abnormality of gastrointestinal tract. It occurs when there is incomplete obliteration of omphalomesesntric duct during embryogenesis. This condition is prevalent about 2% of general population and it is mostly asymptomatic.[1] Inflammation of the diverticulum typically manifests in older children. Meckel's Diverticulum is often accompanied by complications such as intestinal obstruction, diverticulitis, gastrointestinal bleeding, perforation and rare presentation like gangrenous Meckel's diverticulum. The complication may mimic other disease process and mask its clinical picture.[2,3]

CASE REPORT

A 13-year-old child presented with a complaint of on and off abdominal pain for a month. Abdominal distention, bilious vomiting, fever for the past two days. During the clinical examination, the child was febrile. On clinical examination, tenderness in the lower abdomen and guarding specifically in the right iliac fossa was noted. Complete blood count, renal function and liver function were normal. To further investigate the condition, a CECT scan of whole abdomen was done, which revealed an enlarged appendix filled with fluid, and there were suspicions of a possible perforation in the lateral wall of the tip of appendix (Figure 1).

The imaging findings indicated a possible case of acute appendicitis, with signs of perforation and the presence of an abscess or collection near the appendix. The small bowel appeared to be clumped together and displaced towards the right side, with the caecum pulled up. The child underwent a laparoscopic appendectomy. During the procedure, it was found that the appendix was inflamed and had adhesions to the small bowel, abdominal wall, sigmoid colon, and urinary bladder. A bowel walk examination revealed dilated loops of the small bowel, and approximately three feet from the junction of the small and large intestines, a gangrenous Meckel's diverticulum was found. Consequently, a laparoscopic-assisted Meckel's resection and ileoileal anastomosis were performed. The surgical procedure proceeded without any complications.

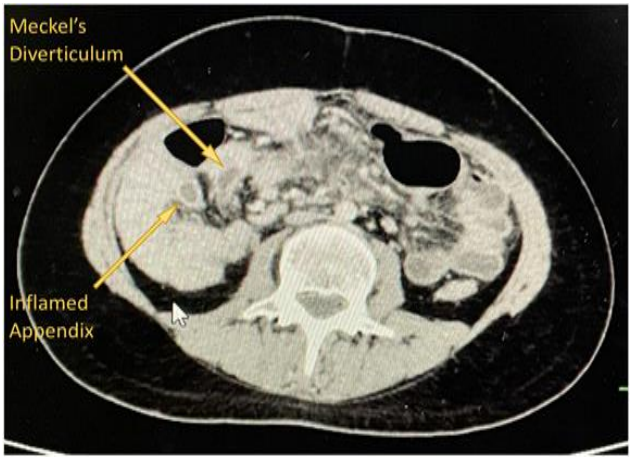

Figure 1: CECT of abdomen.

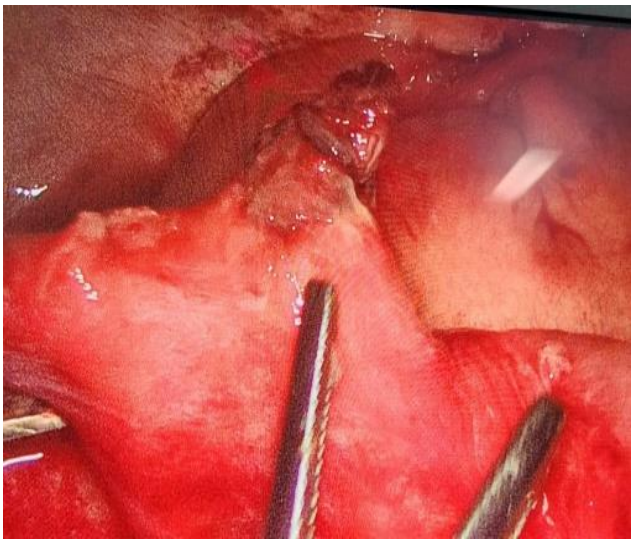

Figure 2: Gangrenous meckels diverticulum.

DISCUSSION

Meckel's diverticulum is the most common congenital malformation of gastro intestinal tract. It follows a rule of 2's. It is prevalent among 2% of population. It lies in the ileum around 2 feet from the ileocecal valve and it is 2 inches long. It has 2 types of the mucosal lining.[4]

The duodenum which contains pancreatic bicarbonate neutralizes the acid secreted by the normal gastric mucosa. In a Meckel diverticulum, the ectopic gastric mucosa secretes an acid which not getting neutralized causing ulceration of the adjacent mucosa leading to painless rectal bleeding.[5] In our patient, the child doesn't have rectal bleeding except for pain in right iliac fossa.

On clinical examination, tenderness with guarding were observed our in the right iliac fossa. A case series reported the presentation of acute appendicitis combined with Meckel's diverticulum without any complication. Hence Preoperative diagnosis of Meckel's diverticulum and its complexity is uncertainty because its clinical signs and complications are similar to those of appendicitis in children.[6] The literature reported the tumor incidence is around 3.2% in Meckel's diverticulum and it is mostly benign.[7]

The onset of complication is maximum before 2 years of age. Around 46.7% were intestinal obstruction, 25.3% were hemorrhage and 19.5% were inflammation. Some rare complication like enterolith formation, axial torsion, Littre's hernia, ulceration and neoplasm.[8] The very rare occurrence of gangrenous Meckel's diverticulum is reported.[9,10] Our patient had gangrenous Meckel's diverticulum which was diagnosed by bowel walk during laparoscopic procedure. Since it has multifaceted clinical presentation, it is always necessary to have high suspicion of Meckel's diverticulum in the pediatric age with symptoms of pain abdomen, intestinal obstruction or gastrointestinal bleeding.

To identify Meckel's diverticulum, a radionuclide study using Technetium-99 pertechnetate is often employed. This diagnostic test is widely used for its effectiveness in detecting this condition. A recent study conducted on children diagnosed with Meckel's diverticulum revealed that CT scans were used 2.3 times more frequently than Meckel's scans to confirm the diagnosis of conditions such as small bowel obstruction, intussusception, and cystic mass. Another option for diagnosis is wireless capsule endoscopy. Management of Meckel's diverticulum involves removing a Meckel's diverticulum: simple resection of the diverticulum followed by closure across the base, or removal of a short section of the ileum containing the diverticulum and subsequent re-anastomosis.[3]

CONCLUSION

A high index of suspicion is needed in approaching a gastrointestinal problem about diverticulitis in pediatric age group. A bowel walk during the procedure will help to identify the common complication and rare presentation like gangrenous Meckel's diverticulum which will help to save the life of the child.

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