Meckel's Diverticulum with Mesodiverticular Band : An Unusual Presentation

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Introduction

Meckel's diverticulum is an uncommon cause of intestinal obstruction in adult life. Rarely Meckel's diverticulum is complicated by a mesodiverticular band, which is believed to be a remnant of a vitelline artery leading to intestinal obstruction and gangrene of the gut. This abnormality is associated with high mortality [1].

We present two cases of Meckel's diverticulum and mesodiverticular band that presented as acute intestinal obstruction in young adults and were managed successfully. The cases highlight the dilemma faced in diagnosis of this rare anatomic anomaly which can result in high mortality.

Case No 1

A 18 year old male patient was admitted with history of pain abdomen and vomiting of three days duration. History of absolute constipation was present for the last two days. There was no antecedent history of similar pain in past.

General examination revealed averagely built young individual in agony with signs of dehydration. Vital parameters were within normal limits. Abdominal examination revealed distended abdomen with muscle guarding and rigidity all over abdomen. Bowel sounds were increased. After radiograph of the chest/ abdomen, a clinical diagnosis of acute intestinal obstruction was confirmed and the patient taken up for exploratory laparotomy. During exploratory laparotomy dilated loops of ileum were noted and a tight mesodiverticular band was seen compressing a ileal segment, resulting in gangrenous change (Fig. 1). The Meckel's diverticulum measured 8 x 2.5 cm in size. The inflamed Meckel's along with the gangrenous segment measuring 50 cm was resected en bloc and continuity restored by end to end anastomosis. The abdomen was closed with drain in the right flank. Patient made uneventful recovery after the surgery and was asymptomatic at last review.

Case No 2

A 24 year old male presented with history of recurrent episodes of ill localized pain abdomen of three days duration. The pain was episodic, severe and colicky in nature with no specific pattern of radiation, aggravating or relieving factors. There was associated retching and nausea. There was no concomitant history of vomiting, distension and obstipation. There was no antecedent history of similar pain in past. General examination was normal. Abdomen was soft, with no localized tenderness, guarding or rigidity. Plain radiograph abdomen and ultrasound of abdomen revealed a normal study. Patient was initially managed with antispasmodic and intravenous fluids. However, in spite of being on this treatment for three days, there was no change in nature of his complaints and repeated abdominal examination revealed no new findings. On 4th day of his stay in hospital, patient had one episode of non-bilious vomiting, developed mild distension of abdomen and tenderness in lower half of abdomen. Plain radiograph abdomen revealed multiple air fluid levels suggestive of small bowel obstruction. Patient was taken up for exploratory laparotomy. Per operatively, a five inch long, gangrenous Meckel's diverticulum was found attached to mesentery by a mesodiverticular band and twisted upon its pedicle. A two inch segment bridge of terminal ileum was found compressed through this mesodiverticular bridge. The band was divided and the gut de-rotated (Fig. 2). Meckel's diverticulum along with adjacent gangrenous segment of ileum was excised. Primary end to end anastomosis was carried out. Patient had a uneventful postoperative recovery.

Discussion

Meckel's diverticulum, an omphalomesenteric duct remnant, is a congenital out pouching usually located in the distal 100 cm of the ileum. Such diverticulae are present in 1-3% of the general population. Of these, majority are asymptomatic. Complications of Meckel's diverticulum include hemorrhage, intestinal obstruction,

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Fig. 1: (a) Mesodiverticular band (b) Gangrenous gut loop herniating beneath the band

diverticulitis, umbilical discharge, perforation and peritonitis [2]. Meckel's diverticulum is an uncommon cause of intestinal obstruction in adult life [3,4]. Rarely Meckel's diverticulum is complicated by a mesodiverticular band, which is believed to be a remnant of a vitelline artery. When this abnormality causes intestinal obstruction it is associated with high mortality [5]. The mesodiverticular band is an embryologic remnant of the vitelline circulation which carries the arterial supply to the Meckel's diverticulum. In the event of an error of involution, a patent or nonpatent arterial band persists and extends from the mesentery to the apex of the antimesenteric diverticulum. This creates a snare-like opening through which bowel loops may herniate and become obstructed. Clinical and radiological findings of acute, low, small-bowel obstruction are produced by this band [6].

Both the cases reported were young adult males presenting with acute colicky pain abdomen. There was no antecedent history which would have suggested any common etiology leading to acute intestinal obstruction and there was lack of any localizing signs. Consequently, the patients were not diagnosed early and were treated as case of intestinal colic initially. They were taken up for surgery only when they developed frank obstruction. Recently, laparoscopy has been described as a useful diagnostic and therapeutic tool for a patient with a small bowel obstruction with an unclear etiology [7]. Mesodiverticular band remnants causing intestinal obstruction have also been resolved by the laparoscopic approach [8].

Fig. 2: Gut derotated. (a) Gangrenous Meckel's diverticulum (b) Divided portion of the mesodiverticular band

In conclusion, it is this extreme rarity of complication of gut gangrene in a rather uncommon condition of a mesodiverticular band associated with Meckel's diverticulum which leads to failure to recognize it at early stage and results in a regrettably high mortality rate.

Conflicts of Interest

None identified

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