

Meckel's Diverticular Band Causing Small Bowel Obstruction: A Case Report

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Introduction

Meckel's diverticulum was first described by Fabricius Hildanus in 1598, however its name was derived from the anatomoist Johann Friedrich Meckel who described the embryology and pathology in 1809 [1]. It possesses all three layers of the intestinal wall hence a true diverticula and its blood supply is from the superior mesenteric artery [2]. The most frequent complications are hemorrhage, small bowel obstruction, and diverticulitis [3]. Here a case of small bowel obstruction secondary to Meckel's diverticular band in a young male is described.

Case Report

A 23-year-old gentleman presented to the emergency with severe abdominal pain and vomiting for the past three days which started from the right lower abdomen before becoming generalized. His abdomen was distended and tender to touch which was more in the lower abdomen, with hyperactive bowel sounds and no palpable mass in the abdomen. There was no significant medical or surgical history. His body temperature was 38 degrees Celsius with a pulse rate of 96 per minute, blood pressure 110/80 mmHg. Laboratory findings showed a leukocyte count of 17000/mm³ with neutrophilia. All other laboratory studies like serum electrolytes, blood sugar, and urinalysis were within normal limits. His ultrasound abdomen showed mild fluid in the right iliac fossa and the pelvis with no other pathology and his erect abdominal plain X-ray showed multiple dilated loops of small bowel, with no free air under diaphragm. A diagnosis of mechanical bowel obstruction was made and he was planned to undergo exploratory laparotomy under general anesthesia. A CT scan was not done due to the unavailability of one at our center.

Upon entering the peritoneal cavity via midline incision, dilated small bowel and collapsed large bowel was noted. A mesodiverticular band arising from the antimesenteric border of ileum approximately 60 cms from the ileocecal junction was present, causing a partial closed loop obstruction of 30cms of terminal ileum (Figure 1).



Figure 1: Intraoperative finding of Meckel's Diverticular band with a slightly inflamed appendix alongside.

After releasing the mesodiverticular band, the trapped ileal loop was freed which looked healthy (Figure 2).



Figure 2: Meckel's diverticular band after being released. Dilated proximal small bowel and inflammatory changes in the trapped distal ileal loops and its mesentery can be seen.

The entire small bowel was subsequently delivered and examined for any other pathology. The small bowel was decom-

pressed and the 9cm long Meckel's diverticulum was resected and hand sewn end-to-end anastomosis was done in two layers. The loops of the bowel were then returned into the abdomen in sequence and abdomen closed in layers. The diverticulum was confirmed as Meckel's diverticulum by histological examination. The patient had an uneventful recovery without any complications and was discharged on post-operative day six. He is on regular follow up since, he is asymptomatic and has returned to his normal daily activities.

Discussion

Meckel's diverticulum is the commonest congenital anomaly of the gastrointestinal tract [4]. It originates due to failure of the vitelline duct to completely obliterate and is located at the antimesenteric border of the ileum with an incidence of 1 to 3% [5]. Most Meckel's diverticula are found within 100 cm proximal to the ileocecal valve [6]. It has equal frequency in both sexes, but symptoms from its complications are more common in males. On histologically, heterotopic gastric mucosa (50%) and pancreatic mucosa (5%) is frequently observed in the diverticula. Generally, Meckel's diverticula are incidentally found during surgery performed for other reasons [3].

The most common clinical presentation is gastrointestinal bleeding, which occurs in 25%-50% of the patients. Age wise data reveals that hemorrhage is the most common presentation in children aged 2 years or younger and intestinal obstruction is the second most common presentation [2,7]. In adults, intestinal obstruction is commonest complication [8]. Meckel's diverticulum has a 4-6% lifetime risk to develop a complication [9]. There are various mechanism of intestinal obstruction due to Meckel's diverticulum ranging from volvulus, intussusception, Littré's hernia, mesodiverticular band, stricture, band obstruction, tumors in the diverticulum, phytobezoar formation in the diverticulum [7].

Most of the patients with Meckel's diverticula are asymptomatic, and the diagnosis is difficult to confirm preoperatively. While blood tests can only indicate signs of infection, conventional radiographic examination is of limited value except for diagnosis of obstruction and perforation. With limited utility, sonography can also be used for the diagnosis of Meckel's diverticulum. High-resolution sonography may show a fluid-filled structure in right lower quadrant having the appearance of a blind-ending, thick-walled bowel loop in the experienced hand [10]. On computed tomography, Meckel's diverticulum is difficult to differentiate from normal small bowel loops in uncomplicated cases, but a blind-ending fluid or gas-filled structure in continuity with the small bowel may be revealed if complications are present [11].

Technetium -99m pertechnetate radioisotope scintigraphy where available is utilized for the diagnosis of bleeding Meckel's diverticulum and is presently the investigation of choice for suspected Meckel's diverticular bleed [12]. Colonoscopy and capsule endoscopy has limited role. The treatment of symptomatic Meckel's diverticulum is surgical resection of the diverticulum with resection of adjacent ileum bearing the diverticulum either through a laparotomy or laparoscopic approach. Among the asymptomatic patients, whether all incidental Meckel's diverticula should be resected or not is an unresolved question [13].

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