

## Case Report

# Internal herniation of bowel through the mesodiverticular band in adults - rare presentation - managed by laparoscopy: report of a case

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**Received:** 14 February 2013

**Accepted:** 26 March 2013

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## ABSTRACT

Meckel's diverticulum is the most common congenital anomaly of gastrointestinal tract. Reporting a case of small bowel obstruction due to internal herniation through the mesodiverticular band, which is a very rare presentation in adults- managed by laparoscopic division of mesodiverticular band. A 35 year old patient, presented to the emergency department with intestinal obstruction. Investigations are suggestive of small bowel obstruction. Diagnostic laparoscopy was done. A meckel's diverticulum with herniation of small bowel through the mesodiverticular band is found. The mesodiverticular band is divided. As the meckel's diverticulum was wide mouthed directiculectomy was not done. It can be managed safely by laparoscopy and with less incidence of complications. Morbidity is minimal and rapid return of intestinal function can be achieved.

**Keywords:** Meckel's diverticulum, Mesodiverticular band, Internal herniation

## INTRODUCTION

A Meckel's diverticulum, a true congenital diverticulum, is a small bulge in the small intestine present at birth. It is a vestigial remnant of the omphalomesenteric duct (also called the vitelline duct or yolk stalk), and is the most frequent malformation of the gastrointestinal tract. It is present in approximately 2% of the population, with males more frequently experiencing symptoms.

It was first described by Fabricius Hildanus in the sixteenth century and later named after Johann Friedrich Meckel, who described the embryological origin of this type of diverticulum in 1809. Meckel's diverticulum is located in the distal ileum, usually within about 60-100 cm (2 feet) of the ileocecal valve. It is typically 3-5 cm

long, runs antimesenterically and has its own blood supply. It is a remnant of the connection from the yolk-sac to the small intestine present during embryonic development. A memory aid is the rule of 2s: 2% (of the population) - 2 feet (from the ileocecal valve) - 2 inches (in length) - 2% are symptomatic, there are 2 types of common ectopic tissue (gastric and pancreatic), the most common age at clinical presentation is 2, and males are 2 times as likely to be affected. However, the exact values for the above criteria range from 0.2-5 (for example, prevalence is probably 0.2-4%).

It can also be present as an indirect hernia, typically on the right side, where it is known as a "Hernia of Littre". A case report of strangulated umbilical hernia with Meckel's diverticulum has also been published in the literature.

Furthermore, it can be attached to the umbilical region by the vitelline ligament, with the possibility of vitelline cysts, or even a patent vitelline canal forming a vitelline fistula when the umbilical cord is cut. Torsions of intestine around the intestinal stalk may also occur, leading to obstruction, ischemia, and necrosis.

### CASE REPORT

A 35 year old male patient, presented to the emergency department with pain abdomen, vomiting and abdominal distension. There was previous history of recurrent abdominal pain, treated conservatively. There was no history of previous surgeries or any other illness.



**Figure 1: Internal herniation through the mesodiverticular band- laparoscopic view.**



**Figure 2: Laparoscopic view of mesodiverticular band after reduction of herniated bowel.**

Investigations are suggestive of small bowel obstruction. Diagnostic laparoscopy was done. A meckel's diverticulum with herniation of small bowel through the mesodiverticular band is found. The bowel is pulled out

and as it was found out to be normal, it was preserved. The mesodiverticular band is divided with harmonic scalpel (Figure 1, 2). As the meckel's diverticulam was wide mouthed so directiculectomy was not done. The postoperative period was uneventful and the patient discharged on the 3<sup>rd</sup> post-operative day. Patient was followed up to 2 years and this period is uneventful.

### DISCUSSION

The majority of people afflicted with Meckel's diverticulum are asymptomatic. If symptoms do occur, they typically appear before the age of two, but symptomatic Meckel's diverticulum causing intestinal obstruction is very rare in adults. The most common presenting symptom is painless rectal bleeding such as melaena-like black offensive stools, followed by intestinal obstruction<sup>1,2</sup>, volvulus and intussusception. Occasionally Meckel's diverticulitis may present with all the features of acute appendicitis. Also severe pain in the upper abdomen is experienced by the patient along with bloating of the stomach region. At times the symptoms are so painful such that they may cause sleepless nights with extreme pain in the abdominal area.

Meckel diverticulitis is symptomatic in 4-35% of patients. Infants and young children are more likely to present with symptoms. Bowel obstruction- Patients present with bowel obstruction due to volvulus, intussusception, a mesodiverticular band or incarceration of the Meckel diverticulum in a hernia (although the presence of a Meckel diverticulum in a hernia does not actually increase the risk of incarceration). Despite these different causes, the clinical presentation is bowel obstruction. Patients present with constipation, campy abdominal pain, and vomiting, which may be bilious. Plain abdominal radiographs reveal dilated loops of small bowel with air-fluid levels and a paucity of gas distally. This classic presentation of bowel obstruction is all that is necessary to warrant transporting the patient to the operating room for an urgent laparotomy.

A technetium-99m (99mTc) pertechnetate scan is the investigation of choice to diagnose meckel's diverticula. This scan detects gastric mucosa; since approximately 50% of symptomatic patients. Meckel's diverticula have ectopic gastric or pancreatic cells contained within them; this is displayed as a spot on the scan distant from the stomach itself. Patients with these misplaced gastric cells may experience peptic ulcers as a consequence. Other tests such as colonoscopy and screenings for bleeding disorders should be performed, and angiography can assist in determining the location and severity of bleeding. Meckel's occurs more often in males than females.

In patients with bleeding, strangulation of bowel, bowel perforation or bowel obstruction, treatment involves surgical resection of both the Meckel's diverticulum itself along with the adjacent bowel segment.

In patients without any of the fore mentioned complications, treatment involves surgical resection of the Meckel's diverticulum only. Asymptomatic Meckel's diverticulum, some recommend that a search for Meckel's diverticulum in every case of appendectomy/ laparotomy done for acute abdomen should be conducted and if found, Meckler's diverticulectomy or resection should be performed to avoid secondary complications arising from it. In this present case report patient present with symptoms of acute intestinal obstruction with previous history of recurrent attacks of pain abdomen treated conservatively. Diagnostic laparoscopy<sup>3</sup> done identified mesodiverticular band causing small bowel obstruction but bowel viability is maintained. Meckel's diverticulum was wide mouthed so directiculectomy not done. The mesodiverticular band is divided with harmonic scalpel (Figure 1, 2). Post-operative period is uneventful.

### CONCLUSION

An intestinal obstruction because of internal herniation of bowel through the mesodiverticular band formed by

meckel's diverticulam is a rare presentation. It can be managed safely by laparoscopy and with fewer incidences of complications. Morbidity is minimal and rapid return of intestinal function and rapid return of the person to normal activity can be achieved.

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DOI: 10.5455/2320-6012.ijrms20130518

**Cite this article as:** Rao TN, Parvathi T, Suvarchala A. Internal herniation of bowel through the mesodiverticular band in adults - rare presentation - managed by laparoscopy: report of a case. *Int J Res Med Sci* 2013;1:129-31.