

## Meckel's Diverticulitis as Differential Diagnosis of Acute Appendicitis

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### Abstract

### Case Report

Meckel's diverticulum is benign and mostly asymptomatic. It is the most common congenital abnormality of the small intestine that results from incomplete closure of the vitelline (omphalo-mesenteric) duct. This true diverticulum, which is commonly found on the anti-mesenteric border of the ileum. Diagnosis challenges arise when it became inflamed or presented in following ways: a) hemorrhage (caused by ectopic pepsin-and hydrochloric acid-secreting gastric mucosa), b) intestinal obstruction (secondary to intussusceptions or volvulus), c) presence of diverticulum in the hernia sac (Littre's hernia). We report a case of a 47-year-old male who was admitted under the surgical unit at King Fahad Hospital Hofuf with suspicion of appendicitis that turned out to be a Meckel's diverticulitis, a rare presentation of an acute abdomen.

**Keywords:** Meckel's diverticulitis, acute appendicitis, acute abdomen.

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## INTRODUCTION

Meckel's diverticulum is the most common gastrointestinal tract congenital anomaly. It results from incomplete obliteration of the vitelline duct leading to the formation of a true diverticulum of the small intestine [1]. Meckel's diverticula are uncommon and often clinically silent, particularly in the adult. Asymptomatic Meckel's diverticulum may be discovered during abdominal exploration for the evaluation of unrelated pathology. Less commonly, they are found incidentally on diagnostic imaging. When symptomatic, Meckel's diverticulum may present with abdominal pain or symptoms of gastrointestinal bleeding or bowel obstruction.

## CASE PRESENTATION

A 47 years old Indian male presented with one day history of severe abdominal pain in the right lower quadrant of the abdomen. which is stabbing in nature, increased gradually with time, with no aggravating or relieving factors. There was no nausea or vomiting, no bleeding per rectum, no features of intestinal obstruction, no lower urinary tract symptoms and normal bowel habits.

There was no significant past surgical history, or any history of chronic illness, no family history of inflammatory bowel disease and no history of chronic medication use.

### Physical Examination

He was alert, conscious but febrile with a temperature of 38.4°C, tachycardic with a pulse rate of 120 beats per minute, tachypneic with a respiratory rate of 19 per minute and blood pressure of 120/70 mmHg.

His abdomen was not distended but there was significant tenderness and guarding in right lower quadrant with intact hernial orifices.

### Labs

Initial blood tests revealed raised inflammatory markers with white blood cells count of  $19.65 \times 10^9/L$ . renal function test, liver function test, glucose and serum amylase were all within normal limits. Erect chest x ray show no pneumoperitoneum.

### Management

Patient was kept NPO with intravenous fluid, antibiotic and analgesia.

Consent was taken and prepared for the operation of open appendectomy and proceed as needed.

## Operation

Lanz incision was done, intra-operatively the appendix was found normal with no feature of inflammation and cecum and terminal Ilium was normal, after exploring the proximal Ilium Meckel's diverticulum was found. it was inflamed but not perforated or gangrenous and the base was healthy (Figure-1).



**Fig-1**

## Intraoperative Picture of the Meckel's Diverticulum

The Meckel's diverticulum was removed with wedge resection (Figure-2), anti mesenteric border of small bowel closed transversely using 3/0 PDS continuous full thickness in two layers suturing technique. Appendectomy also done then mobbing the small bowel with dry abdominal gauze, a drain placed, and abdominal incision closed by mass closure technique using vicryl 0 and interrupted Nylon 2/0 suture for the skin.



**Fig-2**

## A Picture Showing the Resected Meckel's Diverticulum

There were no intra operative complications and Patient recovered spontaneously from anesthesia.

## Post-Operative Progress

Inflammatory markers were declined. He was afebrile, started on oral diet first day post operative, white blood cells count on third day post operative became  $8.74 \times 10^9/L$ . patients discharged on third day post-operative with good vital signs and no complain with oral analgesia and antibiotic. The histopathology showed diverticulum with profuse acute active inflammatory exudates involving all layers of the wall. The neck of diverticulum showed normal layers with no feature of inflammations.

**Follow Up:** After 2 weeks patient looks well with no complain, wound healed well with no post-operative complications.

## DISCUSSION

Our case shows that Meckel's diverticulitis can not be role out in a patient presenting with classical symptoms and signs of acute appendicitis and we have to consider the possibility of its occurrence.

Meckel's diverticulum is rare and accounts for only 2% of the general population. Meckel's diverticulitis is one of the recognized complications of the condition and is clinically indistinguishable from appendicitis, except that the pain and tenderness typically localized at the peri-umbilical region. Progress of the diverticulitis may lead to perforation and peritonitis. A fistula between Meckel's diverticulum and the appendix has also been reported [2].

A Meckel's diverticulum is commonly discovered at operation. Resection of incidental Meckel's found during laparotomy is controversial in children and adults. It is generally recommended that asymptomatic Meckel's to be resected in children during laparotomy [3, 4] given an increased lifelong risk for complications [5]. However, this approach remains debatable in adult patients. The argument was that the likelihood of Meckel's diverticulum becoming symptomatic in an adult is 2% or less and that postoperative morbidity secondary to intestinal obstruction and infection from prophylactic resection confers no potential benefit in prevention of disease [6]. Many surgeons advocate that incidentally found normal-appearing Meckel's diverticulum should not be resected unless if there is a palpable abnormality (suggestive of the presence of ectopic mucosa), a long diverticulum (>4 cm) and a narrow neck or base of diverticulum (<2 cm wide). Elective prophylactic resection of asymptomatic Meckel's diverticulum

identified on imaging is not recommended for both children and adult.

On the other hand, treatment for a symptomatic (bleeding, inflamed) Meckel's diverticulum should be prompt and referred for surgical intervention in all patients (children and adults) to relieve symptoms. The standard surgical approach is to perform a segmental (wedge or v-shaped diverticulectomy) resection of the narrow-based diverticulum or to perform a limited small bowel resection followed by primary end-to-end anastomosis if an inflamed or ulcerated diverticulum is encountered. Although gastrointestinal bleeding from a Meckel's diverticulum is a rare complication, when encountered, a segmental small bowel resection followed by end-to-end ileo-ileal anastomosis rather than simple diverticulectomy is preferred [7]. Proton-pump inhibitor therapy should also be initiated on these patients. Transverse closure of the ileum with hand-sewn technique or using linear stapler across the base of the diverticulum is the ideal method to minimize the risk of subsequent stenosis.

The long-term outcomes with laparoscopy approaches (including laparoscopic diverticulectomy and laparoscopic-assisted trans umbilical Meckel's diverticulectomy) are still lacking [7]. However, many studies have reported that the laparoscopic management of the complicated Meckel's diverticulum is safe, cost effective and efficient, fewer complications and shorter recovery period compared with conventional laparotomy [8, 9].

The learning point of this clinical vignette is that Meckel's diverticulitis is often clinically indistinguishable from appendicitis especially in adult patients. Computed tomography (CT) has become an invaluable tool for the evaluation of abdominal pain. CT scanning is useful in demonstrating acutely inflamed diverticula, typically identified as a blind pouch off the distal small intestine and associated with bowel wall thickening and in detecting the presence of enterocolic and enterovesical fistulas.

## CONCLUSION

Open or laparoscopic diverticulectomy in managing complicated Meckel's diverticulum is safe although the latter approach depends on local technical

expertise and facilities. Conservative management of an incidental Meckel's is a reasonable surgical approach.

## RECOMMENDATION

Radiological investigation for acute abdomen (CT scan) can prevent accidentally finding of Meckel's diverticulitis during operation as differential diagnosis of acute appendicitis and allow surgeon to make proper decision pre operative regarding approach and type of operation.

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