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CASE REPORT

Meckel's Diverticulitis Causing Acute Intestinal Obstruction in Rural Area: a Rare Case Report

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ABSTRACT

Aim: To study acute intestinal obstruction as complication of Meckel's diverticulitis in rural area. **Case Presentation:** A 13-year-old boy presented with diffuse abdominal pain, nausea, vomiting, and abdominal distension persisting for four days. The abdominal X-ray revealed dilated bowel loops and air-fluid levels, indicating obstruction. During exploratory laparotomy, a mesodiverticular band compressing the ileum was identified, along with a perforated Meckel's diverticulum approximately 100 cm proximal to the ileocecal junction. The trapped intestinal loop was released, and the diverticulum was resected. The procedure included peritoneal lavage and drain placement. The patient was closely monitored postoperatively, with further management tailored according to clinical progress and histopathological findings. **Conclusion:** This case underscores the importance of early diagnosis and individualized surgical strategies in complicated Meckel's diverticulum, particularly in resource-limited settings. Open laparotomy remains the preferred method for severe cases involving perforation or obstruction

Keywords: abdominal pain, intestinal obstruction, laparotomy, meckel's diverticulum, pediatrics.

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INTRODUCTION

Meckel's diverticulum, a congenital pouch resulting from incomplete obliteration of the vitelline duct, affects 1-3% of the population. Although most cases are asymptomatic, complications such as diverticulitis, bleeding, and obstruction can occur. Meckel's diverticulitis, in particular, presents with symptoms mimicking acute appendicitis, including abdominal pain and tenderness, complicating early diagnosis.[1,2] The condition can lead to intestinal obstruction, often due to mesodiverticular bands trapping intestinal loops, or perforation from ectopic gastric tissue secreting acid. Such cases may necessitate prompt surgical intervention to avoid life-threatening outcomes.[3] Identifying and treating Meckel's diverticulitis poses significant challenges in rural areas, where diagnostic resources are limited. This report aims to highlight the diagnostic difficulties and emphasize the importance of timely surgical management for Meckel's diverticulitis-induced obstruction. The rarity of symptomatic cases, especially those involving acute obstruction, underscores the clinical significance of this report.[2] This case report highlights the importance of early recognition and surgical management of complicated Meckel's diverticulitis to improve outcomes, particularly in resource-limited environments.

CASE PRESENTATION

A 13-year-old boy presented to the Emergency Department (ED) with complaints of abdominal pain involving the entire abdomen, which had persisted for the past four days. The patient also reported experiencing nausea and vomiting every time he attempted

to eat or drink. Additionally, the boy described a sensation of bloating, and upon physical examination, his abdomen appeared distended and palpably firm. The abdominal X-ray revealed the presence of dilated bowel loops and air-fluid levels on the upright view, indicating the presence of intestinal obstruction (Figure 1). The surgical procedure began with the administration of general anesthesia, and the patient was placed in the supine position. An exploratory laparotomy was performed, revealing a diffuse cloudy fluid throughout the abdominal cavity, indicating contamination. The small intestine appeared to be inflamed. A thorough inspection of the small intestine was conducted, starting from the proximal section at the duodenojejunal junction to the distal ileum (Figure 2).

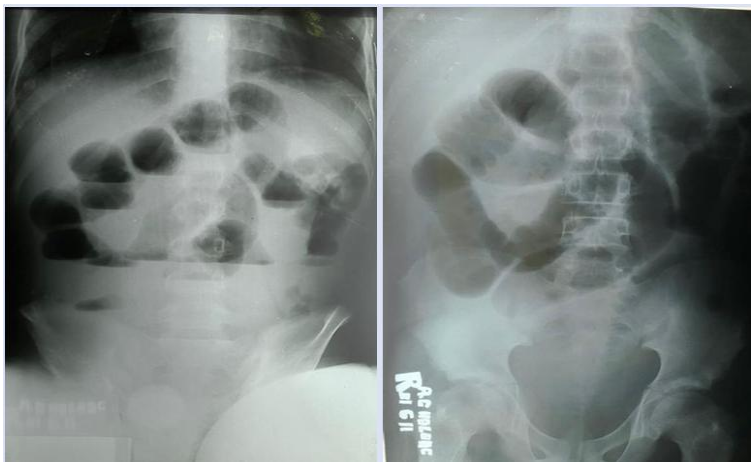

Figure 1. The abdominal X-ray revealed dilated bowel loops and air-fluid levels on the upright view, suggestive of intestinal obstruction, with findings consistent with a diagnosis of Meckel's diverticulosis

First Step: Further exploration, a segment of the distal ileum was found compressed by a mesodiverticular band, affecting approximately 60 cm of the intestinal tract from the proximal to the distal end of the ileum. The obstruction was caused by the entrapment of an intestinal loop within the mesodiverticular band (Figure 2).

Second Step: Releasing the trapped ileal loop by carefully dissecting and freeing the mesodiverticular band from the mesentery. Once the band was removed, the ileal loop was liberated from the diverticulum. The perforated Meckel's diverticulum was subsequently resected to prevent further complications.

Third Step: Intestinal decompression was performed to relieve any remaining obstruction or pressure within the bowel.

Fourth Step: The abdominal incision was closed securely, and the procedure was completed without any immediate complications. The patient will be monitored closely for post-operative recovery, and further management will depend on the histopathological findings and clinical progress.

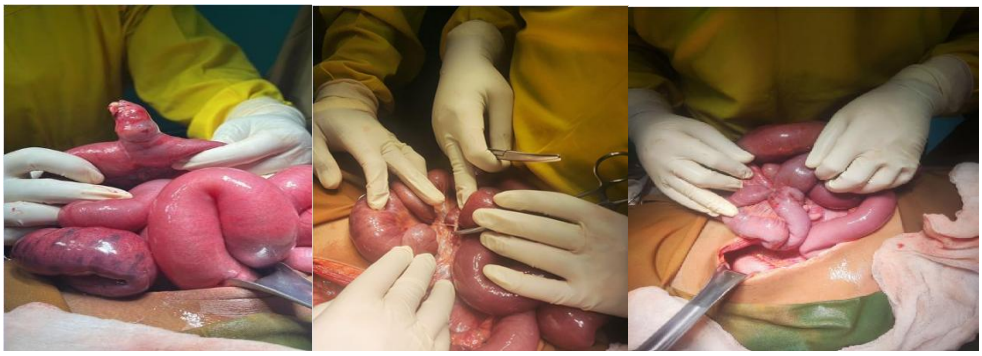

Figure 2. The surgical procedure in a case of Meckel's diverticulum

DISCUSSION

In managing symptomatic Meckel's diverticulum, particularly with obstruction or perforation, the surgical approach plays a pivotal role. In this case, the surgical team performed an exploratory laparotomy, which allowed a thorough examination of the abdominal cavity and identification of both the mesodiverticular band and the perforated diverticulum. This approach contrasts with laparoscopic surgery, which is increasingly favored for uncomplicated Meckel's diverticulum due to its reduced recovery time, smaller incisions, and lower risk of infection. However, in cases involving severe inflammation, perforation, or complex adhesions, open surgery remains the preferred option to ensure better visualization and control.[1,2]

This case report highlights important distinctions in surgical management compared to other documented cases. Skarpas et al. (2020) reported a case where laparoscopic surgery successfully managed small bowel obstruction caused by Meckel's diverticulum. However, laparoscopic techniques are not always applicable, particularly in resource-limited settings like rural hospitals, where diagnostic tools such as CT scans or laparoscopic equipment may not be available. In such scenarios, open surgery remains the gold standard, as seen in this report. Moreover, Huang et al[1]emphasized the role of early diagnosis and minimally invasive procedures in reducing complications.

The present case, however, illustrates the challenges faced in rural settings, where delayed presentation and limited access to advanced imaging can complicate management and necessitate more invasive interventions. The presence of both intestinal obstruction and perforation in this case underscores the importance of prompt surgical exploration, as non-surgical management in similar scenarios could lead to severe outcomes like sepsis or bowel ischemia. The surgical management of complicated Meckel's diverticulum requires precise decision-making tailored to the patient's condition. In this case, an exploratory laparotomy was essential to release the trapped intestinal loop caused by a mesodiverticular band and resect the perforated diverticulum.[4]

Open surgery was chosen due to the presence of perforation and extensive inflammation, a decision supported by recent literature that emphasizes laparotomy for cases involving gangrenous or ulcerated tissue.[5,6]

CONCLUSION

This case demonstrates the importance of individualized surgical strategies for complicated Meckel's diverticulum. Open surgery remains the gold standard for cases

with perforation and severe obstruction, ensuring thorough treatment and reducing the risk of recurrence. Laparoscopic methods, although beneficial for selected cases, are not always appropriate, particularly in emergencies with extensive complications. Early intervention and appropriate surgical planning are critical to improving patient outcomes, especially in resource-limited environments where advanced diagnostic tools may not be available.

DECLARATIONS

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REFERENCES

1. Huang CC, Lai MW, Hwang FM, Yeh YC, Chen SY, Kong MS, *et al*. Diverse presentations in pediatric Meckel's diverticulum: a review of 100 cases. *Pediatr Neonatol*. 2014;55(5):369–375.
2. Skarpas A, Siaperas P, Zoikas A, Griva E, Kyriazis I, Velimezis G, *et al*. Meckel's Diverticulitis. A rare cause of small bowel obstruction. *J Surg Case Rep*. 2020;2020(9):rjaa339.
3. Teng WW, Yeap BT, Azizan N, Hayati F, Chuah JA. Gangrenous giant Meckel's diverticulitis masquerading acute appendicitis: a surgical conundrum. *ANZ J Surg*. 2019;89(9):E379–380.
4. Duan X, Ye G, Bian H, Yang J, Zheng K, Liang C, *et al*. Laparoscopic vs. laparoscopically assisted management of Meckel's diverticulum in children. *Int J Clin Exp Med.* 2015;8(1):94–100.
5. Chan KW, Lee KH, Wong HY, Tsui SY, Wong YS, Pang KY, *et al*. Laparoscopic excision of Meckel's diverticulum in children: what is the current evidence?. *World J Gastroenterol*. 2014;20(41): 15158–15162.
6. Fu T, Xu X, Geng L, Huang Y, Ding G, Ji H. The Clinical Manifestation Variety and Management Choice of Meckel's Diverticulum with Complication: A Single Center Experience. *Gastroenterol Res Pract*. 2021:6640660 .