

Laparoscopic Treatment of Bowel Obstruction Due to a Bezoar in a Meckel's Diverticulum

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ABSTRACT

Background and Objectives: Meckel's diverticulum is a common anomaly of the gastrointestinal tract that may result in gastrointestinal bleeding, diverticulitis, and small bowel obstruction. This report describes the use of laparoscopy to treat a rare complication of Meckel's diverticulum—small bowel obstruction due to phytobezoar impaction. More generally, it provides an example of the feasibility and utility of a laparoscopic approach to small bowel obstructions of unknown causes.

Methods: A 34-year-old male presented to the emergency department complaining of episodic abdominal pain and vomiting. He had no history of abdominal surgery. His vital signs were stable, and his abdomen was distended, but only mildly tender. He had no abdominal wall hernias on examination. Imaging was consistent with small bowel obstruction. He was brought to the operating room where laparoscopy revealed a Meckel's diverticulum with an impacted phytobezoar as the source of obstruction. The diverticulum was resected and the phytobezoar removed laparoscopically.

Results: The patient recovered well and was discharged home on the third postoperative day, tolerating a regular diet.

Conclusions: Phytobezoar impaction in a Meckel's diverticulum causing small bowel obstruction is a rare event. It can be effectively treated laparoscopically. This case provides an example of the potential utility of laparoscopy in treating small bowel obstructions of unclear etiology.

Key Words: Laparoscopy, Bowel obstruction, Meckel's diverticulum, Bezoar.

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INTRODUCTION

Meckel's diverticulum is a common congenital anomaly of the gastrointestinal tract occurring in 2% of the population.¹ Phytobezoar impaction in a Meckel's diverticulum is a rare cause of small bowel obstruction (SBO), with approximately 9 cases reported in the English literature.^{2–8} We report the first known laparoscopic treatment of this condition.

CASE REPORT

A 34-year-old male presented to the emergency department complaining of episodic abdominal pain and vomiting over 24 hours. He had no history of abdominal surgery. His vital signs were stable, and his abdomen was distended, but only mildly tender. He had no abdominal wall hernias on examination. Computed tomography (CT) revealed a long segment of solid material in the small bowel as an area of bowel obstruction (**Figure 1**). He was brought to the operating room where laparoscopy revealed a Meckel's diverticulum with an impacted phytobezoar as the source of obstruction. His umbilical trocar site was extended to a 3-cm midline incision to allow for externalization of the diverticulum and expulsion of the phytobezoar mass (**Figure 2**). A 4-cm small bowel resection incorporating the base of the diverticulum was performed and the phytobezoar expressed (**Figure 2**). The patient made an uneventful recovery and was discharged home on postoperative day 3. Pathology revealed Meckel's diverticulum without ectopic mucosa. Even in retrospect, it was not possible to identify any unusual dietary habits that may have predisposed him to phytobezoar formation. Although it was not recognized preoperatively, on postoperative review of the CT scan, the Meckel's diverticulum could be identified (**Figure 1**). One year after surgery, the patient is tolerating a regular diet and has had no evidence of recurrent SBO.

DISCUSSION

Meckel's diverticulum is a relatively common anomaly of the gastrointestinal tract, occurring in an estimated 2% of the population, but it is an uncommon cause of SBO. Bowel obstructions from Meckel's diverticula most com-



Figure 1. Computed tomography scan showing Meckel's diverticulum (circle) and dilated proximal small bowel (arrows). Both are filled with impacted vegetable matter.

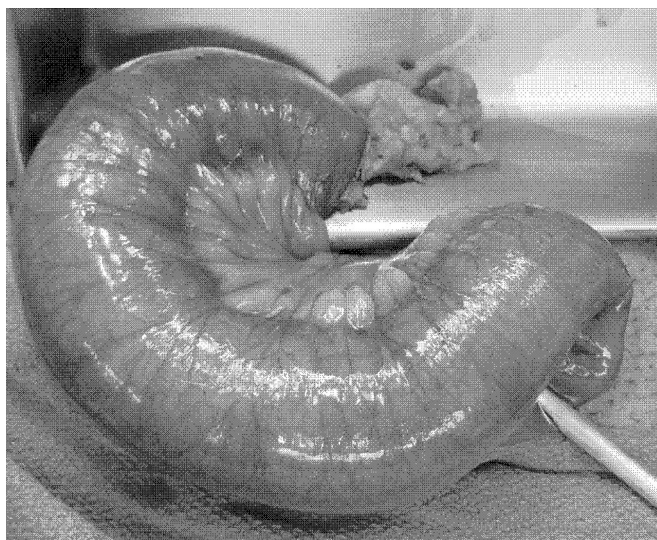


Figure 2. Phytobezoar being expressed from proximal small bowel.

monly occur due to intussusception, volvulus around an associated omphalomesenteric band, or inflammatory adhesion, or incarceration of the diverticulum within a hernia.¹ Phytobezoar impaction in a Meckel's diverticulum is more rare with only 9 reported cases in the English liter-

ature.²⁻⁸ None of these cases were treated laparoscopically. We did feel the need to extend one of our port sites to 3cm to allow the impacted vegetable matter to be completely expressed from either end of the transected bowel (**Figure 2**), though the resection was performed intracorporeally.

Although the patient was accurately diagnosed with SBO and surgically explored on that basis, the precise diagnosis of phytobezoar impaction in a Meckel's diverticulum was not made preoperatively. Some authors have noted the utility of CT for making this diagnosis, while others have not found CT to be effective.²⁻⁴ This case shows that abdominal CT has the potential to identify phytobezoar impaction in Meckel's diverticulum, but that it may nonetheless be a difficult radiographic diagnosis. In this case, vegetable matter filled the diverticulum, a short segment of distal bowel, and a longer segment of proximal bowel, giving a Y-configuration. This configuration has been previously described, though it may have contributed to the difficulty of making a preoperative radiologic diagnosis, because the diverticulum was not located precisely at the most distal point of obstruction.⁵ In other cases, the bezoar has been entirely proximal to the origin of the Meckel's diverticulum.⁷ While other obstructing phytobezoars identified in a Meckel's diverticulum have been associated with high fiber or vegetarian diets, no such association was present in this case.^{4,7,8} None of the other commonly noted risk factors for bezoar formation, such as prior gastric surgery, gastrointestinal motility disorders, or poor dentition, were present.⁹

While a single case report cannot demonstrate that our patient's outcome was better than it would have been using the standard open approach that has previously been used to address this problem, this report at least demonstrates the technical feasibility of a laparoscopic approach. Potential advantages of laparoscopy include decreased postoperative pain, quicker return of bowel function compared to laparotomy, and less adhesion formation. One retrospective study¹⁰ has indicated that laparoscopy may be superior to laparotomy for surgical treatment of SBO caused by bezoar. Whether these potential advantages become manifest in the laparoscopic treatment of SBO in general must be evaluated in the context of randomized clinical trials.¹¹ While this case report cannot demonstrate these advantages or allow wide generalization about the role of laparoscopy in the treatment of SBO, it nevertheless provides an example of the potential utility of laparoscopy as an approach to SBOs with unknown causes, and illustrates the flexibility of the technique in adapting to unusual findings.

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