


Research Article

Food Bolus Ileus as a Cause of High-Grade Bowel Obstruction: A Case Report

Jin Kook Kang, MD^{1,2*} Zhifei Sun, MD¹

Abstract

Small bowel obstruction is often caused by previous surgical scar or cancer. High grade bowel obstruction secondary to food bolus impaction is very rare especially in a young patient who has otherwise no medical or surgical history. We are presenting a unique case in a young male who presented with acute abdomen with initial CT scan suggestive of Meckel's diverticulitis. During exploratory laparotomy, patient was found to have a severe degree of bowel obstruction with one definitive transition point caused by food bolus impaction. Food bolus ileus is a rare cause of bowel obstruction requiring surgical intervention. However, definitive intervention should not be delayed when patients present with concerning clinical signs.

Introduction

Small bowel obstruction is a common disease that represents 12 to 16% of surgical admissions and more than 300,000 operations annually in the United States [1]. Most common cause is adhesions from prior abdominal surgery. Other common causes include incarcerated hernias, neoplastic processes, and inflammatory bowel diseases. Small bowel obstruction from impacted food bolus is a rare but well documented phenomenon [2]. We present an interesting case of high-grade small bowel obstruction caused by food bolus impaction in a young, healthy patient whose CT scan initially suggested small bowel obstruction from Meckel's diverticulitis.

Case Report

A 22-year-old male with no past medical or surgical history presented to our emergency department with a 15-hour history of sharp periumbilical abdominal pain associated with nausea and vomiting after eating a cucumber for dinner. He had passed a small amount of flatus since the pain started. His last bowel movement was one day prior to presentation. He had no medication history or known drug allergies. He endorsed occasional cigarette, marijuana, and alcohol use. He's a visiting student from Germany. He did not have specific diet restrictions and denied any changes of diet recently.

His initial vital signs upon presentation were stable with temperature 36.5°C, blood pressure 151/83mmHg, heart rate 77, and oxygen saturation 100% on room air. His labs on admission were remarkable for white blood cell count of 19.4K/uL, hemoglobin of 17.9mg/dL, and calcium level of 10.8mg/dL. Lactic acid level was normal at 1.8mmol/L. Abdominal exam showed soft, mildly distended, and mildly tender to palpation predominantly in periumbilical and right hemiabdomen. Abdominal CT scan with only IV contrast showed progressive distention of small bowel up to 4.5cm in

Affiliation:

¹Department of Surgery, MedStar Georgetown University Medical Center, Washington, DC, USA

²Department of Surgery, MedStar Washington Hospital Center, Washington, DC, USA

*Corresponding author:

Jin Kook Kang, Department of Surgery, MedStar Georgetown University Medical Center, Washington, DC, USA

Citation: Jin Kook Kang, Zhifei Sun. Food Bolus Ileus as a cause of High-Grade Bowel Obstruction: A Case Report. *Journal of Surgery and Research*. 6 (2023): 137-139.

Received: February 15, 2023

Accepted: February 23, 2023

Published: March 27, 2023

diameter and stasis of the intraluminal content at the level of the transition point in the left pelvis (Figure 1). A segment of small bowel at the level of transition point had thickened wall with mesenteric edema that appeared to be blind ending, which raised a suspicion for Meckel's diverticulitis (Figure 2). Given patient's overall clinical presentation and CT findings, we decided to perform a diagnostic laparoscopy.

During the case, there was a clear transition point from dilated bowel to normal small bowel in the jejunum. Upon palpation, there was a nodular appearance in the bowel and adjacent mesentery appeared to have some desmoplastic reaction. Unlike CT finding, there was no evidence of Meckel's diverticulum or associated inflammation (Figure 3). Bowels appeared viable. Decision was made to perform small bowel resection and primary anastomosis in case of a mass lesion. Upon enterotomy, it was noted to have significant amount of digested materials in the small bowel lumen. We resected the involved segment of small bowel and performed primary anastomosis with GIA stapler. Resected small bowel was sent to pathology lab for detailed review. Common enterotomy was closed with a TA stapler and reinforced with absorbable sutures in Lembert fashion. Entire small bowels

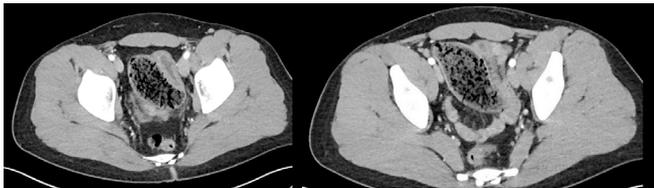


Figure 1: Abdominal CT scan with findings of stasis of intraluminal content



Figure 2: Abdominal CT with findings of segment of small bowel with blind ending



Figure 3: Intraoperative picture demonstrating a clear transition point but no Meckel's diverticulum

were examined and showed no other abnormalities. 19Fr drain was placed. Fascia and skin were subsequently closed. Patient had an uneventful hospital course and was discharged on post-operative day 6. Pathology of the specimen showed submucosal edema without necrosis or hemorrhage. There was no evidence of neoplasm or other significant abnormalities including Meckel's diverticulum. Peri-intestinal lymph nodes were normal.

Discussion

Small bowel obstruction from food bolus impaction is a rarely known phenomenon [2]. According to some reports, it is associated with significant morbidity and mortality up to 5% [3,4]. Some reports suggest 4% of small bowel obstruction is associated with this etiology [5]. This is more frequently observed in elderly patients with no teeth, those who had previous gastric surgery, and small bowel diverticula [6]. History of gastric surgery has been a well known cause of food bolus obstruction as gastric stasis and reduction in acid secretion increases the chance of bezoar formation [7]. Certain food such as persimmons, pineapples, and prickly pears (cactus fruit/figs) are known to be associated with bezoar formation [8]. Some literature suggests one of the most commonly impacted sites is near the ileocecal valve, which is the narrowest part of the small bowel with least peristaltic activities [9], although other sites such as jejunum, sigmoid colon, and rectum can also be involved [10]. There is usually a smooth tapering of collapsed bowel distal to the obstruction.

Clinical diagnosis of small bowel obstruction secondary to food impaction should be made with thorough history and physical, physical exam, and laboratory and imaging findings. One can present with broad symptoms of obstruction including severe abdominal pain with intermittent cramps, nausea, vomiting, diarrhea, constipation, and distended abdomen [10]. High-pitched bowel sounds may or may not be present. Abdominal CT is the best imaging modality as it provides important diagnostic information that is not readily apparent in other radiographs such as abdominal X-ray, barium studies, or ultrasound. One study suggests that CT has a positive predictive value of 20% in diagnosing phytobezoar, demonstrating stool-like mass with a solid rim and heterogenous, “mottled-gas” appearing center that did not take up contrast [10-12]. However, CT may not provide precise etiology of the small bowel obstruction as seen in our presented case.

In case of concerning clinical presentations of high-grade bowel obstruction such as severe abdominal pain, unstable vital signs, and/or abnormal lab findings (leukocytosis, lactic acidosis, etc.), one should not delay exploratory laparotomy for both diagnostic and therapeutic intervention. Operating surgeon may attempt to break up the food bolus and milk down through the ileocecal valve [10]. If this fails, an enterotomy should be made in order to extract the intraluminal contents. Small bowel resection should be considered in the setting of suspicious mass lesion or compromised bowel. Finally, surgeon must examine the entire bowel to evaluate additional sites of obstruction because, if missed, patient may experience worsening obstruction, eventually requiring additional operations [10].

One retrospective study of 31 Chinese patients who had food bolus obstruction showed 42% of the study population had intact gastrointestinal tract (no abdominal surgeries or medical conditions that predispose to gastric stasis such as hypothyroidism or diabetes) [13]. It should be noted that their normal diet consisted of high dietary intake of vegetables and fruits which may increase the risk of bezoar formation. Our case is interesting as patient demonstrated no risk factors such as previous gastric surgery, abnormally high fiber diet, or other medical conditions.

Conclusion

Small bowel obstruction due to food bolus impaction is a rare but well reported disease. Although more frequently associated with previous gastric surgeries, certain diets, and inflammatory bowel disease, it can be manifested in patients with no identifiable risk factors. Correct diagnosis is often made during diagnostic or exploratory laparotomy as CT may not detect exact cause. Surgeons should always keep in mind that food bolus impaction can cause high-grade small bowel obstructions and that surgical intervention should not be delayed in patients with concerning presentations.

Conflicts of interest

Authors disclose no conflicts of interests and sources of funding.

References

1. Maung AA, Johnson DC, Piper GL, et al. Eastern Association for the Surgery of Trauma. Evaluation and management of small-bowel obstruction: an Eastern Association for the Surgery of Trauma practice management guideline. *J Trauma Acute Care Surg* 73 (2012):S362-S369.
2. Davies DG, Lewis RH. Food obstruction of the small intestine: a review of 15 cases. *Br Med J* 2 (1959): 545-548.
3. Schlang HA, McHenry LE. Obstruction of the small bowel by orange in the postgastrectomy patient. *Ann Surg* 159 (1964): 611-622.
4. Van Eeden A, Retief P. Intestinal obstruction and dried peaches. *S Afr Med J*. 64 (1983): 377.
5. Bevan P. Acute intestinal obstruction in the adult. *Br J Hosp Med* 28 (1982): 258-265.
6. Janež J. Bolus ileus-an occasional cause of small bowel obstruction-case report. *International Journal of Research in Medical Sciences* 5 (2017): 5447.
7. Hayes PG, Rotstein OD. Gastrointestinal phytobezoars: presentation and management. *Can J Surg* 29 (1986): 419-420.
8. Manning EP, Vattipally V, Niazi M, Shah A. Phytobezoar-Induced Small Bowel Obstruction in a Young Male with Virgin Abdomen. *J Gastrointest Dig Syst*. 5 (2015): 266.
9. Katzka DA, Jaffe DL. Clinical Challenges and Images in GI. *Gastroenterology* 133 (2007): 176-178.
10. Knott-Craig CJ, Du Toit DF, Van Schalkwyk P, et al. Bolus obstruction of the intestine. Case reports. *S Afr Med J* 67 (1985):1025-1026.
11. Smerieri N, Barbieri I, Fumagalli M, et al. A rare cause of mechanical bowel obstruction: ingested vinyl glove. Unexpected diagnosis at laparoscopy. *Clin Case Rep* 5 (2017): 1026-1027.
12. Bedioui H, Daghfous A, Ayadi M, et al. A report of 15 cases of small-bowel obstruction secondary to phytobezoars: predisposing factors and diagnostic difficulties. *Gastroenterol Clin Biol* 32 (2008): 596-600.
13. Lee JF, Leow CK, Lai PB, et al. Food bolus intestinal obstruction in a Chinese population. *Aust N Z J Surg*. 67 (1997): 866-868.