

Congenital Mesenteric Defect: An Uncommon Cause of Bowel Obstruction

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Abstract

Congenital mesenteric defects can lead to internal hernias which may result in a bowel obstruction. They are very rare among the adult population, comprising only 0.2%-0.9% incidence rate of all small bowel obstructions. A 40 year old woman presented to the Emergency Department with abdominal pain. Computed tomography scan was obtained and showed a small bowel obstruction. After failed conservative management with bowel rest and nasogastric tube decompression, the patient underwent diagnostic laparoscopy. An internal hernia was identified through a congenital mesenteric defect at the level of the sigmoid colon. The hernia was reduced and the defect closed. When a patient presents with abdominal pain the diagnosis of a congenital mesenteric defect with internal hernia should be considered with subsequent emergent surgical exploration.

Introduction

Mesenteric defects with internal hernia can be either congenital or acquired. While congenital mesenteric defects with internal hernia are common in the pediatric population, it is extremely rare in adults.¹ Acquired mesenteric defects can be iatrogenic or from instances of abdominal trauma. Patients with a history of prior blunt abdominal trauma may present with late complications of a gangrenous ischemic small bowel caused by a missed diagnosis of a mesenteric injury.² Congenital transmesenteric internal hernia is a rare condition that can present with recurrent abdominal pain and clinical symptoms of acute intestinal obstruction. Preoperative diagnosis is very rare in most circumstances even with modern diagnostic modalities. There are currently only a few case reports of congenital transmesenteric defects leading to bowel obstructions and no standard practice or guidelines exist to help aid in treatment of such conditions. Without prompt diagnosis and treatment, patients can suffer significant morbidity and even death.

Congenital or acquired defects of the mesentery with internal hernia can present as small bowel obstruction and lead to incarceration or strangulation of the bowel. Mesenteric defects are usually 2-3 cm in diameter. In many instances, patients are evaluated by multiple providers at different facilities without the defect ever being diagnosed. In one example, an unexpected death of a child was reported due to a congenital internal hernia.³ Preoperative diagnosis has continued to be difficult even with the use of modern imaging techniques such as the computed tomography (CT) scan. CT scans are able to identify a transition point of bowel obstruction but frequently miss the mesenteric defect as the cause of obstruction as reported in previous cases.⁴ Close monitoring of the patient's general condition in cases of non-specific abdominal pain is essential to identify the rare deteriorating patient where surgical intervention is necessary.¹ In

this manuscript, we discuss how early intervention and surgical correction of congenital internal hernias significantly decrease the otherwise high morbidity and mortality rates.⁵

Case Report

A forty year old Japanese woman presented with one day history of vague atypical epigastric, periumbilical, and hypogastric cramping, non-radiating pain with associated nausea and three episodes of non-bloody, non-bilious emesis. She denied associated fevers or chills. Her white blood cell count was elevated at 19,000/uL. Her abdomen was distended and only mildly tender to palpation without peritoneal signs. CT scan was obtained as shown in Figure 1. She was admitted for conservative management with bowel rest and a nasogastric tube was placed for decompression. In the subsequent 48 hours, her abdomen remained distended and her pain did not resolve so she was taken to the operating room for diagnostic laparoscopy.

Although the patient had a history of both a pancreatectomy and splenectomy, laparoscopy did not reveal post-surgical adhesions near her prior sub-xiphoid incision as the cause of her obstruction. Instead she was found to have a congenital internal hernia at the level of the mesosigmoid colon mesentery that was not near her prior operative site. The serosa of the mesentery revealed an internal herniation of about 1 foot of small bowel that had herniated through this 2 cm opening. The patient's bowel did not appear strangulated and the bowel contents were easily reduced. The defect in the mesentery was then closed primarily. The patient had an uncomplicated recovery and was discharged on postoperative day seven.

Discussion

An internal hernia causing a small bowel obstruction is rare with studies reporting an incidence of one to five percent.⁶ Internal hernias are more common in the pediatric population and seldom seen among adults. In children, internal hernias are usually congenital whereas in adults they are usually iatrogenic or caused by trauma. Of the few cases reported in the literature with congenital mesenteric defect and associated internal hernia, all of the hernias were diagnosed during surgery. Of these, one mesenteric defect was reported after an unexplained death.⁷ The most common location of defects was reported to be in the distal ileum.² In the above example involving a Japanese female patient, the mesenteric defect was found at the level of the sigmoid mesocolon. Her operation and post-operative course went well but this is not always the case. CT scan is



Figure 1. Mildly dilated thin-walled small bowel in the mid-abdomen and pelvis. The white arrow shows the transition point where bowel is herniating through the bowel mesentery.

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not effective at identifying congenital internal hernias. Most cases are suspected clinically and found during surgery or upon autopsy.⁸ We recommend a thorough knowledge of internal hernias for all physicians. Internal hernia should be part of the differential diagnosis for all patients with small bowel obstructions. Furthermore, we believe that during surgery it may be necessary to enlarge the defect to reduce the hernia and the defect should be completely closed during this process to prevent recurrent herniation.

Conclusion

When patients present with abdominal pain, the diagnosis of a congenital mesenteric defect with internal hernia should be considered with subsequent emergent surgical exploration.

Conflict of Interest

None of the authors identify any conflict of interest.