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Authors

Quon, Michael G.

Kaushal, Rajinder

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CLINICAL VIGNETTE

Meckel's Diverticulum Causing Intussusception in an Adult

Michael G. Quon, M.D.; and Rajinder Kaushal, M.D.

Intussusception is the telescoping of a segment of gastrointestinal tract with an adjacent segment of bowel. Intussusception is common in children, the etiology is usually idiopathic and treatment is usually with a contrast enema and antibiotics. This usually resolves the problem 80% of the time.¹ Intussusception in adults is not common but has been well described.¹⁻⁴ The etiology is usually a benign or malignant lesion and definitive treatment is determined by surgery.

Meckel's diverticulum is the most common congenital anomaly of the GI tract. The diverticulum contains all layers of the small bowel, and it is located on the anti-mesenteric side of the small bowel and is usually in the mid to distal ileum.

Symptomatic Meckel's diverticulum is more common in children but they can rarely present in adults.⁵ Clinical symptoms are either bleeding or obstruction. Cases of Meckel's diverticulum in an adult resulting in intussusception has previously been described.⁶

Case Presentation

A 47-year-old Caucasian male presents with a 1-month history of intermittent abdominal pain localized to left upper quadrant area. CT scan of abdomen and pelvis showed what appeared to a lipoma in the distal small bowel resulting in an intussusception but no obstruction. Subsequent colonoscopy with the scope 10-15 cm into the ileum found only 5 small hyperplastic polyps, which were removed from the descending colon. He also had moderate internal hemorrhoids.

Due to his persistent symptoms of intermittent LUQ pain, he had EGD showing mild gastritis, hiatal hernia, and mild esophagitis. Small bowel series showed a filling defect in the distal ileum. A repeat CT scan showed what appeared to be distal ileal lipoma causing intussusception. Camera capsule study showed a mass in the ileum consistent with a tumor.

After 3 months, the patient developed worsened LUQ abdominal pain and underwent laparoscopic exploration. His obstruction was due to intussusception of a segment distal small bowel. The small bowel was eviscerated and a large mass was identified at the lead point area of intussusception and was resected laparoscopically. Surgical pathology showed a intussusceptic Meckel's diverticulum. The Meckel's diverticulum had ulceration, inflammation, and ischemic changes with focal antral type gastric metaplasia. The Meckel's diverticulum measured 6 x 4.3 x 1.4 cm. Post-operatively, the patient did well and recovered without complications.

Discussion

Intussusception in adults is not as frequent as in children. The diagnosis in children is well recognized and usually idiopathic. However, the diagnosis of intussusception in adult can be delayed.

The diagnosis of intussusception can usually be made by CT scan with classic appearance of bowel within bowel. On longitudinal view, intussusception appears as a sausage-like mass, but on cross sectional view, it appears as a target lesion.⁷

The lead point of the intussusception is usually the small intestine (enteroenteric) in more than 90% cases, colocolic in 6%, ileocecal 5%, and gastroenteric in 2%.^{1,2,8} Most cases of enteroenteric adult intussusception are due to tumor, polyp, stricture, or lipoma.^{6,9} Adult intussusception typically results in bowel obstruction or bleeding. Both require surgical resection. Specific etiologies of enteroenteric intussusception include adenomas, lipomas, neurofibromas, scleroderma, Peutz-Jehger syndrome, malignant neoplasm, metastatic melanoma, lymphoma, adhesions, local inflammation, Crohn's disease, cecal cancer, and Meckel's intussusception.¹⁰

In human embryo genesis, the yolk sac is connected to the primitive tubular gut by the vitelline duct or so called omphalomesenteric duct.¹¹ The duct closes off by the 7th week of fetal life, and failure to close can lead to various defects including enteroumbilical fistula, a fibrous cord connecting the ileum to the umbilicus, an umbilical sinus, and Meckel's diverticulum.⁵ The most common of the defects is the Meckel's diverticulum, an outpouching coming off the ileum.

Meckel's diverticulum is usually silent but can become symptomatic typically in children. Adults with symptomatic Meckel's diverticulum can present with bleeding or obstruction. Meckel's diverticulum can have ectopic gastric tissue that results in bleeding or the lesion can be large enough to cause obstruction.

Due to our patient's vague abdominal pain, the diagnosis of intussusception was delayed for one month before a CT scan was done. Two more months passed before his intermittent abdominal pain worsened to require surgery. Surgery established the diagnosis of intussusception due to an obstructing Meckel's diverticulum.

Review of the literature found intussusception due to Meckel's diverticulum uncommon in adults. A case series from Mayo Clinic from 1955 to 1978 found 48 cases of intussusception in

adults from 17 to 91 years old.⁶ These included 3 cases with Meckel's diverticulum, without ages or details of presentation.

We identified three case reports with adult Meckel's diverticulum. A 42-year-old man presented to his PCP with a 3-day history of melena and was found to be iron deficient with a Hgb 8.6.³ EGD showed minimal esophagitis and the patient had a normal barium enema. The patient was treated with iron; subsequently, a barium small bowel follow-through showed a distorted terminal ileum. CT scan showed an abnormal area of thickened ileum with a target appearance consistent with a ileo-ileal intussusception. He was taken to surgery and found to have Meckel's diverticulum that was resected. The oldest reported case of intussusception and Meckel's diverticulum is in a 78-year-old man.¹² He presented with iron deficiency and subsequently developed rectal bleeding. At surgery, an invaginated (intussuscepted) Meckel's diverticulum was resected. In another case, a 35-year-old female presented with rectal bleeding and was found on colonoscopy to have blood and mucus throughout the colon.¹³ A fist-sized polypoid lesion found 30 cm into the terminal ileum. The endoscopist tried to remove the lesion endoscopically without success. Post procedure, patient developed severe periumbilical pain, and exploratory laparotomy resected of the distal small bowel showing intussuscepted Meckel's diverticulum.

Our case differs with the presenting symptom of abdominal pain due to an obstructing Meckel's diverticulum without bleeding. We found one case report⁸ of a 41-year-old man presenting with fevers, nausea with vomiting, and periumbilical pain for 3 days. CT showed a target lesion near the terminal ileum. He had an exploratory laparotomy and was found to have a Meckel's diverticulum.

In summary, adult intussusception is not common and there are multiple causes. Adult intussusception due to Meckel's diverticulum is extremely rare and presents most of the time as a GI bleed, but they can present with abdominal pain due to a bowel obstruction. The diagnosis is made during surgery.

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