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Jejunojejunal Intussusception Following Roux-en-Y Gastric Bypass

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Introduction

Open Roux-en-Y gastric bypass is the most common procedure performed for morbid obesity in the United States with an estimated 180,000 procedures performed in 2006. Pondos et al report that the most frequent perioperative complications are wound infections while the most frequent late complication is an incisional hernia. Other common complications include anastomotic leaks, enteric fistula, gastric outlet obstruction and small bowel obstructions. Rarely in the literature has intussusception been described following open Roux-en-Y gastric bypass. The emergency physician should be aware of both the common and rare complications following gastric bypass as more of these patients are encountered every day.

Case

A 41 year old female presented to the emergency department with a one day history of left sided abdominal pain. Over this time period, she describes the pain as waxing and waning associated with non-billious, non-bloody emesis. She reported that her last bowel movement was earlier in the day and was characterized as normal for her. She also reports that the pain has not been associated with food.

Past medical history is significant for depression for which she is taking Wellbutrin and Buspar. Surgical history is significant for an open Roux-en-Y gastric bypass done two years ago associated with a 55 pound weight loss, cholecystectomy, and plastic surgery for excessive skin removal.

Physical examination revealed an obese female in obvious signs of distress secondary to pain. Vital signs included a blood pressure 103/68 mm Hg, heart rate 82, respiratory rate 18 and temperature of 97.8 degrees Fahrenheit. Cardiovascular and pulmonary examinations were within normal limits and without any pertinent findings. Abdominal examination revealed a mid-line scar consistent with open Roux-en-Y gastric bypass. Mildly hypoactive bowel sounds were present in all four quadrants. There was diffuse tenderness to palpation with no rebound, rigidity or guarding. Psoas and obturator signs were both negative.

Routine laboratory revealed a white blood cell count of 8.6 thou/cumm (normal 3.1-8.5), hemoglobin 10.4 gm/dL (normal 11.5-13.0), hematocrit 33.8% (normal 37-47) and platelet count 233 thou/cumm (normal 140-440). Chemistry panels showed a sodium of 138 meQ/L (normal 136-145), potassium

Case

4.2 mEQ/L (normal 3.5-5.3), a chloride 107 mEQ/L (normal 98-107), blood urea nitrogen (BUN) 17, creatine 0.6 and glucose of 94. Abdominal labs revealed a lactate 0.9 mmol/L (normal 0.5-2.1), lipase of 29 (normal <50 U/L), AST 25 (normal 7-40 U/L) and ALT 12 (normal 7-40 U/L). Obstruction series revealed diffuse bowel gas appearance. Computer aided tomography of the abdomen and pelvis revealed a target appearance of bowel in the left upper quadrant consistent with jejunojejunal intussusception with dilated loops of small bowel with mottled gas compatible with a partial bowel obstruction (See Image 1 and 2). The patient was admitted to general surgery and underwent an exploratory laparotomy later that day.

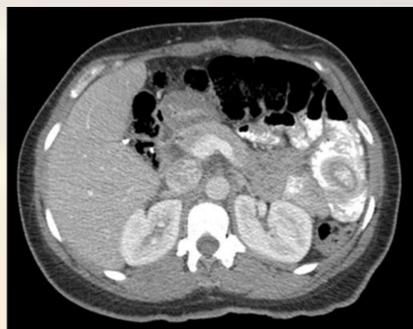


Image 1: CT Coronal Image depicting a classic "target lesion" consistent with intussusception.



Image 2: CT Sagittal image showing small bowel obstruction.

Discussion

Intussusception accounts for 0.06% of all long-term complications following Roux-en-Y gastric bypass and is seen most commonly in women (99%) who have had a drastic weight loss. Retrograde intussusception accounts for 66% of all intussusceptions following and occurs proximally via either the alimentary or the biliopancreatic limb causing a bowel obstruction in the majority of cases.

Several theories have been described in the literature to explain the pathogenesis of intussusceptions following gastric bypass but no clear consensus has been reached.

Hocking et al. suggest that intussusception is related to a motility disorder of the Roux limb. Normally, small bowel initiation occurs in the duodenum and contracts distally at a rate of 6-8 cm per minute at rest but enhanced following the fed state. Transection of the jejunum to construct a Roux limb separates the distal jejunum from the duodenal pacemaker causing a drop in the pacesetter potential distal to the transection. This allows for ectopic pacemakers to arise in the Roux limb which allow both distal and an oral contraction. It is postulated that this causes a high pressure in the Roux limb due to simultaneous peristaltic contractions from both the duodenum and jejunum which can act as a lead point for intussusception to occur.

The classic triad of intussusceptions in children, including abdominal pain, bloody stool and a palpable mass is rarely seen in adults. Abdominal pain is typically constant and associated with nausea and vomiting in almost 75% of cases. Duration of symptoms can last from either an acute setting or to even a few months. Physical examination is typically not helpful. Due to the lack of classic symptoms and physical exam findings basic laboratory data and a CT scan of abdomen and pelvis is always warranted. Typically, CT will reveal dilated bowel loops and air fluid levels. Classically, a "target lesion" is seen in 80% of all patients.

Treatment is usually surgical once the diagnosis is made and conservative management is discouraged due to the possibility of bowel necrosis. Emergency department management should consist of aggressive resuscitative means with intravenous fluids and nasogastric decompression. Surgical treatment is currently controversial. Dallenbach et al. report that the invaginated segment should be resected, however other research shows that the invaginated segment can be manually decompressed. Limited research shows that patients who undergo resection with anastomosis reconstruction have a five fold decrease in the rate of intussusception recurrence.

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