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Small Bowel Intussusception: A Dangerous Sequela of Bariatric Surgery

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A 31-year-old woman who had successfully undergone bariatric surgery (gastric bypass with Roux-en-Y anastamosis) three years earlier presented with complaints of acute epigastric abdominal pain, nausea, and vomiting. Computed tomography (CT) showed small bowel intussusception, and the patient was taken to the operating room. A mass the size and shape of a football was found; the mass consisted of the proximal limb of the Roux-en-Y intussuscepted in a retrograde manner. The bowel was gently reduced, deemed viable, and the Roux-en-Y anastamosis was revised with resection of the lead point. We urge the surgeon to be highly suspicious of acute bowel obstruction in the post-bariatric surgery population and believe that CT is essential in evaluating these patients. We further recommend resection of the lead point to avoid repeat bouts of intussusception from the same focal etiology.

Case Report

A 31-year-old woman presented with an acute onset of epigastric abdominal pain accompanied with nausea and vomiting. The pain had awoken her from her sleep. She denied fever or chills, had passed a bowel movement in the previous 24 hours, and had not sustained trauma. The past medical history revealed a Roux-en-Y gastric bypass operation for weight reduction approximately three years ago, followed by weight loss. On physical examination, there was a significant amount of tenderness appreciated in the epigastric region with minimal radiation. Laboratory tests, including a battery of electrolytes, liver function tests, and a complete blood count, revealed only mild hypokalemia (3.3 meq/L (normal range 3.5-5.3 meq/L)). Her white blood cell count was normal. An abdominal radiograph (Figure 1) and a CT scan (Figure 2) were obtained.

The abdominal radiograph (Figure 1) revealed marked dilated loops of bowel with scattered air-fluid levels that heightened the suspicion of an impending bowel obstruction. A CT scan (Figure 2) of the abdomen and pelvis with oral contrast and intravenous was obtained. CT showed marked dilatated stomach, duodenum and proximal jejunum, with non-dilated distal jejunum, ileum, and colon; these findings were indicative of proximal small bowel ob-

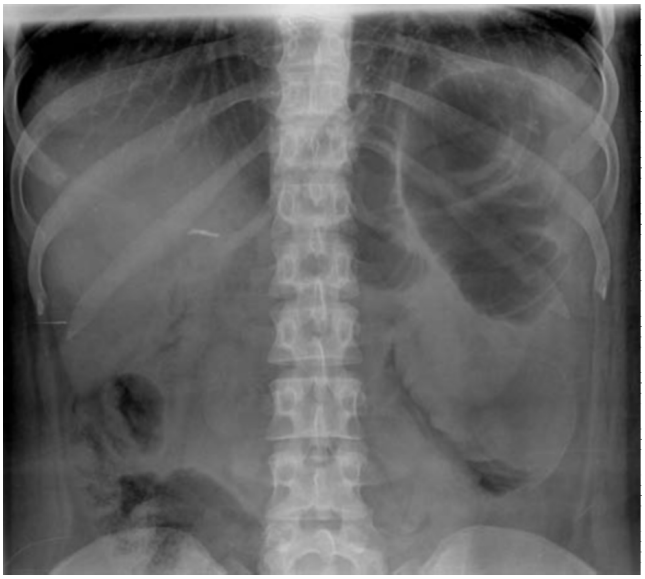

Figure 1. Abdominal radiograph showing dilated small bowel.

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Abbreviations: CT, computed tomography

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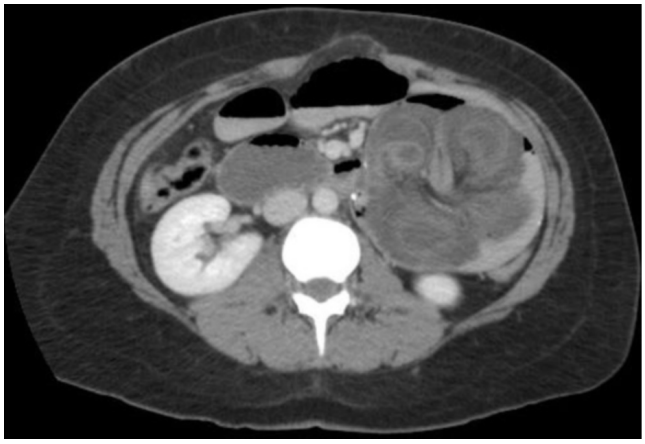

Figure 2. CT scan of the abdomen showing "target lesions" in the left lower quadrant, diagnostic of intussusception.

struction. In addition, there were "target lesions" identified in the left lower abdomen diagnostic of intussusception. The decision was made to take the patient to the operating room.

An exploratory laparotomy was performed and upon entering the peritoneal cavity a large 'football' shaped mass was found. There was a large amount of intussuscepted small bowel that had telescoped into the confluence point of the Roux-en-Y anastomosis. The intussusception was retrograde with the efferent limb constituting the intussusceptum. The efferent limb was successfully reduced from the intussuscipiens, which was the anastamotic site between the Roux limb and the afferent limb. The intussusceptum consisted of three feet of jejunum and was deemed viable. A decision was made to revise the Roux-en-Y anastomosis to eliminate any future bouts of intussusception from that particular lead point. The patient recovered uneventfully.

Discussion

There exist several etiologies of small bowel obstruction following previous surgery, ranging from adhesions, which are the most prominent, to volvulus, internal hernias, neoplasms, strictures and intussusception. Intussusception accounts for approximately one percent of all cases of small bowel obstruction in adults. With the popularity of bariatric surgery there have been multiple reports of intestinal intussusception following jejunoileal bypass, Roux-en-Y gastrectomy and Billroth II gastrectomy.[1-6] These patients may present with a variety of symptoms. Epigastric abdominal pain, postprandial pain, bleeding per rectum and leukocytosis are often associated with intussusception but are by no means pathognomonic.

There exist several different theories describing the etiology of small bowel intussusception. Goverman et al were amongst the first to report retrograde jejunogastric intussusception.[7] They cited the work of Nguyen and Kelly who postulated that ectopic pacemakers in the Roux limb propelled pacesetter potentials in a retrograde manner as the potential etiology constituting retrograde intussusception.[8,9] A subsequent study was undertaken by Hocking et al in which abdominal intestinal motility was documented using intraluminal manometry on a patient suffering from recurrent bouts of intussusception. The ectopic pacemaker potential at the distal jejunojejunostomy site constituted the anti-peristaltic contractions at the distal end propelling distal bowel in a retrograde manner.[10] This was in sharp contrast to the etiology of jejunoileal bypass intussusceptions, which the intussusceptions are not only antegrade, but are exacerbated by improper fixation at the proximal end of the bypassed ileum.[7,11] Other potential etiologies include staple or suture approximations, post operative adhesions or even electrolyte imbalances.[12-14]

Management of post-surgical intussusception in adults entails reduction and resection of the diseased segment of bowel. Resection en bloc, without reduction, with reconstruction, may also be performed. Should reduction be attempted to minimize the amount of resection, it must be performed cautiously as the intussuscepted bowel is often compromised and prone to easy perforation. Even with successful reduction, segmental bowel resection must be undertaken to remove the lead point, otherwise the patient remains predisposed to a subsequent bout of intussusception.

The patient presented had recovered successfully from her bariatric operation and had lost 130 pounds. At presentation her complaints of abdominal pain, nausea and vomiting coupled with the physical examination and pertinent radiology facilitated the decision to surgically explore the patient, even though her white blood cell count was normal. With the Roux-en-Y gastric bypass patient, it is imperative that the clinician hold a high index of suspicion in regards to surgical problems, particularly acute bowel obstruction. The ever-looming risk of bowel necrosis, potential for short bowel syndrome, or overwhelming sepsis, are particularly noted in the post bariatric surgical population. This patient benefited from early operative intervention; her clinical condition was not allowed to deteriorate, and only minimal bowel was resected in the course of definitive treatment. In cases like these, we cannot overemphasize the importance of CT in confirming our decision to proceed operatively.

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