Visual Diagnosis in Emergency Medicine

ULTRASOUND DIAGNOSIS OF ADULT INTUSSUSCEPTION

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CASE REPORT

A 37-year-old woman with a history of a Roux-en-Y gastric bypass presented to the Emergency Department (ED) with 2 months of episodic epigastric abdominal pain, which typically resolved spontaneously after several hours. The patient had been evaluated by a gastroenterologist and general surgeon with a prior negative computed tomography (CT) scan, biliary ultrasonography, hepatobiliary iminodiacetic acid scan, esophagastroduodenoscopy, and colonoscopy. In the ED, her vital signs were stable. Physical examination demonstrated tenderness in the epigastrium without guarding or rebound. Bedside biliary ultrasound was negative for gallstones or signs of infection. Point-of-care ultrasound of her left upper quadrant was performed (Figure 1) and a CT scan of the abdomen was performed with intravenous and oral contrast (Figure 2). The patient was taken to the operating room for exploratory laparotomy (Figure 3) within 1 h of the ultrasound and CT scan; it showed a 20-cm small bowel intussusception with a dusky appearance concerning for ischemic bowel. Sixty centimeters of bowel were subsequently resected. There were no

Figure 1. Ultrasound with edematous and dilated intussusceptum (A) and the intussusceptum (B) at the area of the patient’s suture line (S) from her bariatric surgery.

Figure 2. Computed tomography image with “pseudo-kidney” intussusception.
postoperative complications and the patient was discharged home after return of bowel function.

**DISCUSSION**

Intussusception is the telescoping of one segment of bowel into the lumen of an adjacent segment of bowel. Adult intussusception is a rare but emergency condition constituting 5% of all intussusceptions and 1–5% of small bowel obstructions (1–3). Any condition that alters the normal peristalsis of the bowel increases the risk of developing intussusception. Sixty to eighty percent of adult intussusceptions are due to a tumor in the small bowel acting as a lead point for the intussusception to occur (4). Suture lines can also act as a lead point for intussusceptions to occur, as was the case with this patient (3). The diagnosis is challenging to make because the predominant symptoms of abdominal pain and nausea are typically episodic and can spontaneously resolve, leading to delays in presentation as well as negative imaging. CT is the gold standard, with sensitivities of 58–100%, but ultrasound has similar sensitivities, is faster, and has no radiation exposure (5). Physicians should always be cognizant of radiation exposure when ordering diagnostic studies, but this issue is even more relevant in pediatrics. In pediatric patients with presentations concerning for intussusception, ultrasound should be the first-line diagnostic study, given its speed and lack of radiation.

The diagnostic findings consistent with intussusception on ultrasound include the “target” sign in the transverse view or the “pseudo-kidney” sign in the longitudinal view. The “target” sign describes the appearance of the smaller hyperechoic intussusceptum within the dilated hyperechoic intussuscipiens. Figure 1 is an excellent example of the “target” sign, as you can see a circular thick walled structure (A, the intussuscipiens) with B, the intussusceptum, filling the lumen of the dilated bowel (A). In the “pseudo-kidney” sign, the edematous bowel of the intussuscipiens appears like the renal parenchyma and the mesentery-surrounded intussusceptum appears like the renal hilum.

In conclusion, intussusception is an emergency condition with an often-delayed diagnosis due to its episodic nature and deferred imaging. Making the decision to image early, including bedside ultrasound, will lead to rapid diagnosis and prevention of bowel ischemia.

**REFERENCES**