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*In an adult, this diagnosis is due to a neoplasm until proven otherwise*

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## Learning Objectives

1. The learner should be able to recognize the constellation of presenting symptoms of intussusception.
2. The learner should know the most likely causes in pediatric and adult populations.
3. The learner should be able to report the steps of diagnosis and management.

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## Case Scenario

A 64-year-old man presents to the emergency department complaining of intense, intermittent abdominal pain for the past 3 days; however, for the last 12 h, the pain has been progressive and constant. He complains of abdominal distension, nausea, and bilious emesis. A CT scan of his abdomen and pelvis is obtained, which shows small bowel dilation and a target sign at the transition point.

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## Epidemiology/Etiology/Pathophysiology

Intussusception is defined as the telescoping of any proximal segment of the gastrointestinal tract within the lumen of an adjacent segment. Secondary to anatomy, this most commonly occurs when a free flowing segment of bowel is juxtaposed with a segment fixed by retroperitoneal attachments or adhesions. This allows the bowel to invaginate into the other during peristalsis and becomes stuck, leading to obstruction, venous stasis, edema, and pain. If intussusception fails to resolve spontaneously, this can progress to bowel ischemia, necrosis, and possible perforation.

This condition occurs due to either primary or secondary causes. In 8–20% of adult presentations, the cause is unknown or idiopathic. In the remainder of cases, the condition develops from a pathologic lesion that provides a lead point for the intussusception. These are defined as secondary causes.

Children most frequently present with the triad of symptoms including crampy abdominal pain, bloody stools, and a tender palpable mass in the abdomen. These findings are typically preceded by a viral prodrome and/or symptoms of gastroenteritis. This leads to lymphadenopathy and swelling of the Peyer's patches found in the distal ileum. Often, Peyer's patches serve as the lead point for intussusception.

In adult populations, they similarly present with the signs and symptoms of bowel obstruction coupled with intermittent crampy abdominal pain. As previously mentioned, the cause is more likely due to distinct pathologic lead points. In adults, the cause is found to be malignant in half of presenting cases [1–3].

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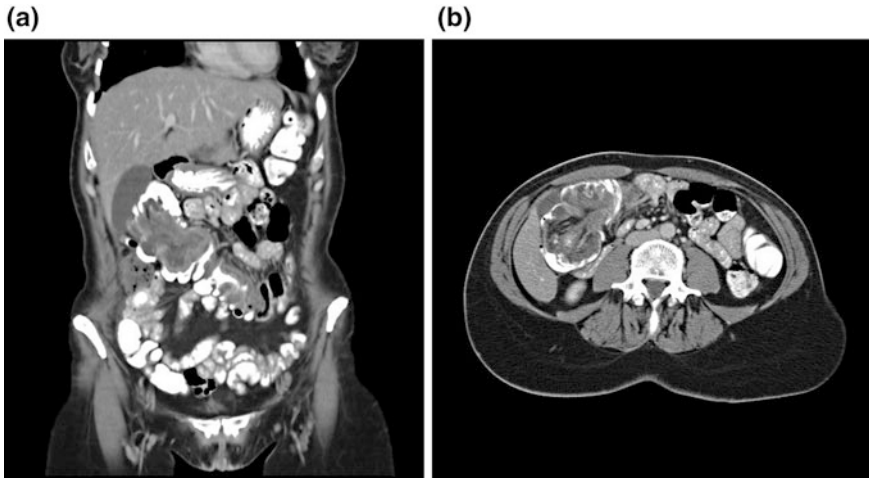
## Differential Diagnosis

The differential diagnosis of intussusception can be due to multiple causes including adhesions, incarcerated hernias, strictures, inflammatory bowel disease, volvulus, ileus, malignancy, gallstone ileus, bowel obstruction, and gastroenteritis.

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## Diagnosis

Patients often present with the symptoms of bowel obstruction with intermittent crampy abdominal pain. In pediatric populations, diagnosis is based on clinical suspicion and, in the absence of peritonitis, radiographic air enema which can be both diagnostic and curative. Additionally, ultrasound can demonstrate the characteristic “target sign” in children most commonly involving the ileocecal valve. In adult



**Fig. 12.1** a, b Intussusception on CT scan. © Dale Dangleben, MD

**Fig. 12.2** Target sign sometimes seen with intussusception. © Dale Dangleben, MD



populations, CT imaging is the diagnostic modality of choice and will often show a “target sign,” which is pathognomonic for intussusception (Figs. 12.1 and 12.2).

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## Complications

If the intussusception is not reduced in a timely fashion, the involved bowel can become ischemic leading to necrosis and perforation.

## Management

The management strategy differs based on the presenting population. In pediatric patients, a radiographic air enema is typically performed. If the intussusception fails to reduce after three attempts, the likelihood of a pathologic lead point is high. Pneumatic decompression should not exceed 120 mm Hg. In cases where there is failure to reduce, the patient is taken to the operating room for exploration either laparoscopically or open based on surgeon familiarity. In adults, the management is operative with surgical resection of the involved segment including the pathologic lead point. The tissue is then sent for pathology to evaluate for underlying malignancy.

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## References

1. Ciftci F. Diagnosis and treatment of intestinal intussusception in adults: a rare experience for surgeons. *Int J Clinic Exp Med*. 2015;8(6):10001–5.
2. Del-Pozo G, Albillos J, Tejedor D, et al. Intussusception in children: current concepts in diagnosis and enema reduction. *Radiographics*. 1999;19(2).
3. Eisen L, Cunningham J, Aufses A. Intussusception in adults: institutional review. 1999; 188(4):390–5.