



BOTTOM LINE RECOMMENDATIONS:

Intussusception

Intussusception is a process in which there is an invagination of the intestine into a subsequent segment, most commonly involving the ileocecal valve. This process occludes blood supply to the bowel and can progress from tissue ischemia to necrosis/perforation.

Intussusception is the most common abdominal emergency of early childhood and is usually idiopathic. The vast majority of cases (80%) occur in children less than 2 years, with the most frequent age range being 5-10 months. There is a small but appreciable increased risk of intussusception in the 7 days following rotavirus administration.

PRESENTATION

- Sudden onset of intermittent waves of severe abdominal pain and pallor that cause the child to cry inconsolably and draw their legs into their abdomen.
 - » Episodes of pain typically occur every 15 to 20 minutes, with slight discomfort between episodes.
- Vomiting may occur during (or after) the painful episodes, which may progress to bilious emesis with time.
 - » Because of this, early intussusception may be confused with acute gastroenteritis.
- Intussusception may present as lethargy or altered mental status, especially in young Infants.
 - » This presentation may be confused with sepsis.
- A **late** finding of intussusception is a mixture of blood and mucous in the stool that gives the appearance of "currant jelly".
- Blood is a **late** finding of intussusception and is not a diagnostic requirement.
- In **rare** cases, a "sausage-shaped" abdominal mass may be palpable in the right abdomen.

INVESTIGATION

Laboratory evaluations are **not** routinely indicated or helpful in the diagnosis or management of intussusception.

1. **Ultrasonography** is the preferred method to diagnose intussusception and is the first-line diagnostic tool that physicians should utilize.
 - » The classic finding will be a "target" or "bulls-eye" lesion caused by layers of intestine within intestine.
 - » Experienced institutions have a sensitivity and specificity that approaches 100%.
 - » Bedside ultrasound can be used to identify intussusception, but only with specific training. If the diagnosis is still likely after a negative bedside ultrasound, a formal ultrasound should be obtained.
2. **Abdominal radiographs** are less sensitive and specific than ultrasonography and should not be used routinely to confirm or rule out the diagnosis.
 - » If radiographs are obtained, intussusception should be considered if there is an absence of colonic gas or a "target sign" overlying the right kidney.



MANAGEMENT

1. CORRECT HEMODYNAMIC INSTABILITY

- » For patients with **hypovolemic shock from vomiting** or **septic shock secondary to perforation**:
 - administer aggressive fluid resuscitation as per PALS guidelines
- » For patient with **peritonitis or other signs of perforation**:
 - administer empiric antimicrobials

2. PROCEED TO NON-OPERATIVE REDUCTION BY AIR ENEMA IF PATIENT IS STABLE WITHOUT SIGNS OF BOWEL PERFORATION

- » Air-enemas are preferred to hydrostatic treatments.
 - if using hydrostatic technique, a water-soluble agent is preferred over barium.
- » Pre-reduction antibiotics are of **little** value.
- » Before pneumatic or hydrostatic enema, the stomach should be decompressed and a surgery team should be readily available, as perforation can result as a complication of reduction (<1% of patients).
- » Ultrasound or fluoroscopic guidance should be utilized to confirm successful reduction and have similar success rates (80 to 90%).

3. IF NON-OPERATIVE REDUCTION FAILS TO REDUCE THE INTUSSUSCEPTION, ARRANGE FOR A SURGICAL TEAM

- » Transfer is indicated if the treating facility lacks a surgical team or radiologist with ultrasonography available.

POST-REDUCTION

AFTER SUCCESSFUL REDUCTION

- » Recurrence occurs ~ 10% of the time but early recurrence (in the first 4-6 hours) is in the range of ~2%.
- » Manage non-operatively if there is no evidence of bowel necrosis.
- » Admission is recommended for any patient with suspicion of bowel necrosis or unable to tolerate oral intake following the procedure.

IF THERE IS A RECURRENCE

- » Management is the same, with non-operative reduction being favored.
- » Patients who have a recurrence are more likely to have a pathological lead point.

The purpose of this document is to provide healthcare professionals with key facts and recommendations for the diagnosis and treatment of intussusception in children. This summary was produced by the TREKK content advisors for intussusception, Dr. Blake Bulloch and Dr. Zebulon Timmons of the Phoenix Children's Hospital, and uses the best available knowledge at the time of publication. However, healthcare professionals should continue to use their own judgment and take into consideration context, resources and other relevant factors.

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This summary is based on:

- 1) Beres AL, Baird R. [An institutional analysis and systemic review with meta-analysis of pneumatic versus hydrostatic reduction for pediatric intussusception.](#) *Surgery*. 2013 Aug; 154(2): 328-34.
- 2) Chien M, Willyerd FA, Mandeville K, et al. [Management of the child after enema-reduced intussusception: hospital or home?](#) *J Emerg Med*. 2013 Jan; 44(1):53-7.
- 3) Gray MP, Li SH, Hoffmann RG, et al. [Recurrence rates after intussusception enema reduction: a meta-analysis.](#) *Pediatrics*. 2014 Jul; 134(2): 110-9.
- 4) Soares-Weiser K, Maclehorse H, Bergman H, et al. [Vaccines for preventing rotavirus diarrhea: vaccines in use.](#) *Cochrane Database Syst Rev*. 2012 Nov 14; 11:CD008521
- 5) Weihmiller SN, Buonomo C, Bachur R. [Risk stratification of children being evaluated for intussusception.](#) *Pediatrics*, 2011 Feb; 127(2): e296-303.

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