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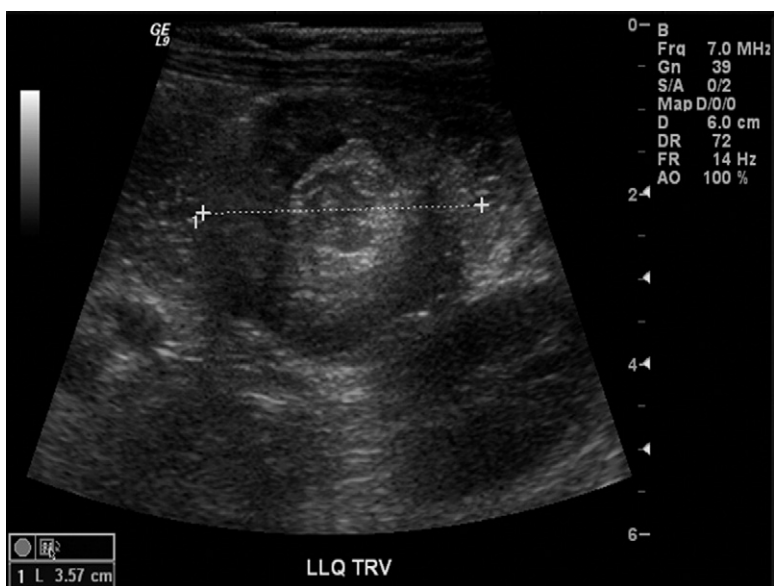


Figure. Cross-sectional ultrasonographic view showing a “target” or “donut” sign. Used with permission of William Kerns, II, MD, Department of Emergency Medicine, Carolinas Medical Center, Charlotte, NC.

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An 18-month-old boy presented with 2 days of abdominal pain, bilious vomiting, and bloody diarrhea. On examination, the child appeared ill, cried intermittently because of pain, and was tachycardic (pulse rate 120 beats/min). The abdomen was nondistended. Bowel sounds were present. He exhibited intermittent tenderness without peritonitis. Stool was grossly bloody. Laboratory studies only showed borderline low serum bicarbonate level (17 mmol/L; normal 17 to 29 mmol/L). Ultrasonography was performed.

*For the diagnosis and teaching points, see page e2.
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DIAGNOSIS:

Intussusception. The ultrasonography demonstrated a “target sign,” consistent with the suspected clinical diagnosis of intussusception. A subsequent air-contrast enema confirmed the diagnosis but failed to reduce the intussusception. Laparotomy was performed in which manual reduction also failed and ileocecal resection was required. Pathology analysis found 2 ulcers that likely served as lead points for intussusception. Recovery was uncomplicated.

Intussusception occurs when a portion of the intestine telescopes into an adjacent segment. It is the most common cause of intestinal obstruction between 3 months and 6 years of age. Air-contrast enema is the criterion standard diagnostic test and initial therapy. However, ultrasonography is an increasingly important diagnostic tool that may prove useful in suspected intussusception. Ultrasonographic findings may include the “target” or “donut” sign, produced from a cross-sectional view of telescoping bowel (Figure). A prospective study (n=83) compared ultrasonography to enema and showed that ultrasonography had 100% sensitivity, 88% specificity, and 100% negative predictive value.¹ Therefore, initial ultrasonographic imaging may serve as a rapid, noninvasive screening test that avoids radiation exposure while maintaining a high level of diagnostic accuracy.

REFERENCE

1. Verschelden P, Filiatrault D, Garel L, et al. Intussusception in children: reliability of US diagnosis—a prospective study. *Radiology.* 1992;184:741-744.