

# Visual Diagnosis in Emergency Medicine

## DEFINITIVE DIAGNOSIS BEFORE LEAVING THE ROOM: POCUS FOR PEDIATRIC INTUSSUSCEPTION

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### INTRODUCTION

We present the case of a 2-year-old female who presented to the emergency department (ED) with colicky abdominal pain and a bloody bowel movement. On initial examination, she was well appearing with a benign abdominal examination. Immediate point of care ultrasound (POCUS) revealed findings of ileocolic intussusception. Within minutes, she was transported to the fluoroscopy suite and underwent successful reduction. Emergency

physicians have demonstrated the ability to make this diagnosis accurately and efficiently (1). Earlier, more efficient diagnosis with incorporation of POCUS should lead to improved outcomes while using fewer health care resources.

### CASE REPORT

A 2-year-old female presented to our ED with intermittent abdominal pain, 1 episode of vomiting, and 1 bloody

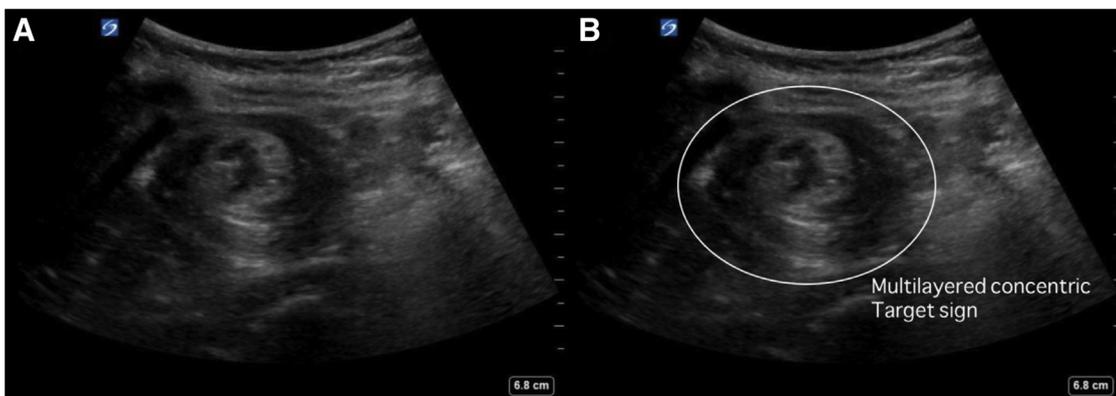
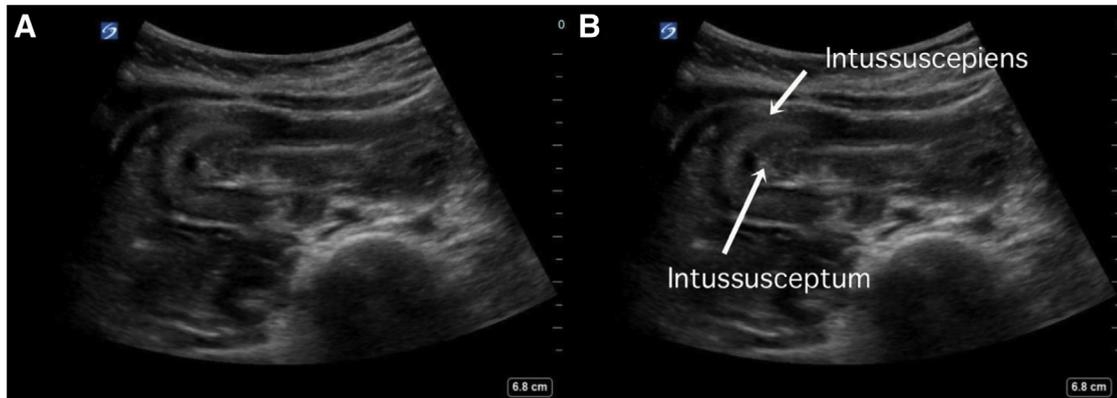


Figure 1. Right lower quadrant (A) shows a cross-sectional view of ileocecal intussusception, circled in (B). A large, circular mass of organized concentric layers of intestine are seen. We have named this the “Cinnamon” bun sign.

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**Figure 2. (A)** Long axis image of ileocecal intussusception. **(B)** Arrows indicating both the surrounding intussuscepiens that envelope the intussusceptum.

bowel movement. Her vital signs were normal. On the initial evaluation, she was in no pain or distress and her abdominal examination was normal. POCUS was performed before leaving the room.

POCUS revealed a large, multilayered target lesion in the right lower quadrant, consistent with intussusception (Figures 1 and 2), displaying what we have termed the “Cinnamon bun sign.” Pediatric surgery and radiology were consulted simultaneously. She was taken for emergent contrast enema and successful reduction of ileocolic intussusception. She was admitted to observation and did well, tolerating a normal diet and having a normal bowel movement the following morning, and she was subsequently discharged.

## DISCUSSION

Intussusception is the most common cause of bowel obstruction in children <6 years of age and patients with intussusception commonly present with intermittent, colicky abdominal pain (2). As in our patient, the child may appear and feel relatively normal between episodes of abdominal pain leading to potential delays or even missed diagnoses (3). POCUS allows for a rapid, low cost, noninvasive diagnosis (3). Graded compression with a curvilinear or linear transducer applied in a systematic fashion to the abdomen should

reveal the classic large, multilayered target sign that we call the Cinnamon bun sign (3). We feel that the organized, concentric multilayered appearance of intussusception in short axis resembles a cinnamon bun. Exploring optimal sonographic windows and applying adequate compression to identify deep landmarks, such as the spine, aorta, kidneys, and iliopsoas muscles, then directing attention superficially for abnormal intestinal structures may assist in making this diagnosis. Emergency physicians have demonstrated the ability to make this diagnosis with accuracy after brief training sessions (1,4). Earlier, more accurate diagnoses should lead to improved outcomes in children presenting with these symptoms while conserving health care resources.

## REFERENCES

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