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Documentation of spontaneous reduction of childhood intussusception by ultrasound

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Abstract. Spontaneous reduction of a presumed ileo-colonic intussusception was demonstrated by ultrasound examination followed by a barium enema. No premedication or anesthetic had been given to the child. This case illustrates the possible natural history of intussusception rarely confirmed by imaging studies. Intussusception is the most common abdominal emergency of early childhood [1]. Diagnosis and therapy is usually performed with a contrast enema. If unsuccessful, surgical reduction is indicated. We wish to report a case of spontaneous reduction of a presumed ileocolonic intussusception. This was initially diagnosed by ultrasound examination, but had spontaneously reduced by the time a barium enema was performed.

Case report

Nine-month-old white male was in his usual state of good health until one week prior to the presentation, when he developed a mild cough and rhinorrhea. On the morning of presentation, he awoke in a very irritable state and refused all liquids and foods. He refused to stand and was noted to occasionally pull his legs up to his chest while laying in a supine position. On physical examination, he appeared alert, but very irritable. The abdomen was soft and nondistended. Over the course of the morning, the infant vomited three times. He became increasingly lethargic.

Abdominal examination later on the same morning revealed a right upper-quadrant mass. Abdominal ultrasound confirmed the presence of this mass in the right upper-quadrant, which had the appearance of an intussusception [Fig. 1]. A barium enema was scheduled immediately. Whilst awaiting the study, the baby, who previously had been lying listless in his mother's arms, sat up and began to babble in his usual lively fashion. He was crawling about the waiting room when the pediatric radiologist called him for the barium enema. On physical examination, no abdominal mass could now be palpated and the barium enema was normal [Fig. 2] with no evidence of an intussusception. At clinical follow-up at two years of age, the infant remains normal.

Discussion

The classical clinical picture of intussusception is not always present. In fact, an abdominal mass, intermittent severe abdominal pain, and bloody stool was only found in 43% of one large series of children with intussusception [2]. Other symptoms that may occur include lethargy, vomiting, occult rectal blood, and diarrhea. Faced with this bewildering range of symptoms, the pediatrician would like a safe, easily available diagnostic test. The role of ultrasound is controversial, being recommended by some authors [3], and not recommended by others [1].

Ultrasound is not totally diagnostic of an intussusception. Whilst in the appropriate clinical setting, ultrasound offers confirmation of a clinically suspected diagnosis, identical thickening of the bowel wall can also be identified with lymphoma, Crohn's disease, necrotizing enterocolitis, volvulus and hematoma. The sonolucency identified at ultrasound is though to represent the edematous limbs of infolded loops of the intussusceptum. The identification of concentric rings of sonolucency and echogenicity is another helpful confirmatory sonographic sign of an intussusception.

Spontaneous reduction of an intussusception has been described earlier

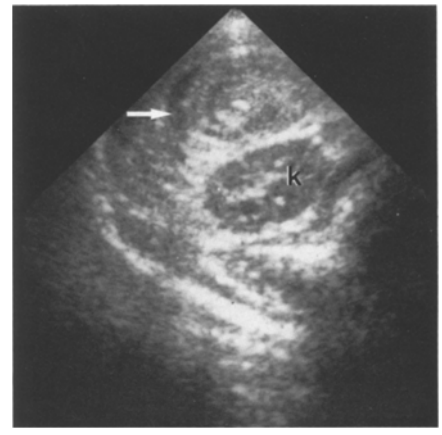

Fig. 1. Sagittal sonogram of right-upper quadrant. Echogenic mass (*arrow*) is identified anterior to the right kidney (*k*). Variable echogenic pattern is thought to be related to the different layers of the intussusceptum

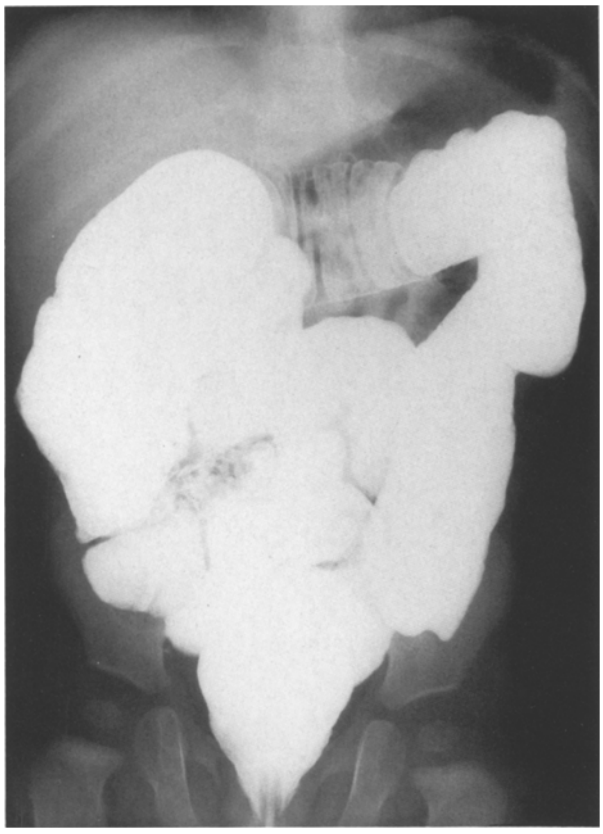

Fig. 2. Barium enema shows reflux into the small bowel with no evidence of an intus-susception or mass

in children who failed hydrostatic reduction with barium, and at operation were not found to have an intussusception [4]. This occurred in 14.4% of all cases of failed hydrostatic reduction, and was presumed to be related to relaxation from the premedication and/or anesthesia. Indeed, several authors have recommended analgesic premedication to improve the successful reduction rate of enema examinations [5]. No medications were given in this case.

Whilst we cannot be absolutely certain of the correct diagnosis, in view of the clinical history and suggestive ultrasound findings, we believe that an intussusception occurred, which spontaneously reduced before an enema could be performed. This was not related to medication, and underlines how dynamic the process of intussusception may occasionally be. We do not recommend any delay once the diagnosis is confirmed by either ultrasound or abdominal x-ray examination, and the child should rapidly proceed to an enema with either barium or air for successful hydrostatic reduction.

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