Four-month-old infant with intussusception presenting as altered mental status

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Abstract

Objective: To remind pediatric care providers that an altered mental status can be the only presenting symptom for intussusception, a life-threatening diagnosis.

Method: A case report that presents a unique presentation of intussusception: a 4-month old boy with neurological findings after a reported head injury.

Conclusion: Diagnosis of intussusception in the pediatric population is highly dependent on its classical presenting signs and symptoms: sudden severe colicky abdominal pain, vomiting, and an abdominal mass in children between 3 months and 6 years of age. Consider that an altered mental status can be the only presenting symptom.

Keywords

Altered mental status, accidental trauma, intussusception

Introduction

Intussusception is the telescoping of bowel into the segment distal to it. It is the most common abdominal emergency in children less than 2 years of age. It is rare before 3 months, and 80% of cases occur before 2 years of age. The incidence is 1–4/1000 live births with a 3:1 male-to-female ratio. The classic presentation is a sudden onset of colicky abdominal pain that recurs. The patients usually hold their legs and flex their knees. Bloody stools and an abdominal mass are the other usual signs. If left untreated, it may lead to intestinal infarction, peritonitis, perforation, and death.1 Diagnosis is usually made by sonography. If the intussusception does not self-resolve and the child is stable, hydrostatic reduction under fluoroscopy is effective in up to 95% of cases. Surgery is indicated when the nonoperative reduction is incomplete, if perforation or bowel necrosis is suspected, or if the patient is acutely ill.

Case report

Tampa General Hospital does not require ethics approval for reporting individual cases. Parents provided written informed consent for the patient’s medical information and images to be included in this article.

A 4-month-old boy presented to our outpatient office for follow-up after having been taken to the local emergency department (ED) the previous day for evaluation after falling off a bed, approximately 3 ft high, onto tiled floor. He cried immediately, and there was no loss of consciousness.

In our office, the parents reported a significant change from baseline since leaving the ED. He had had non-bloody, non-bilious emesis with all feeds, decreased appetite, fussiness, and decreased interaction with the family. Parents denied any fever, diarrhea, shortness of breath, or rashes. His past medical history was significant for term birth without complications. He was diagnosed with ABO incompatibility which did not require phototherapy. He had a Plastibell circumcision while in the nursery that healed well. He was on no medications, had no allergies, and had received his 2-month immunizations. His development was age appropriate, he had not required any hospitalizations, and he lived at home with his mother, father,
and 6-year-old sister; his grandmother was presently sick with influenza.

The infant’s physical examination revealed a temperature of 98°F, pulse 140, respiratory rate of 40, and a weight loss of 250 g since the previous day. He appeared acutely ill. His skin was warm with no rashes or lesions. His head was normocephalic and atraumatic, the anterior fontanel was open and soft, and the pupils were equal and reactive to light. His lungs were clear to auscultation bilaterally, and there was no increased work of breathing. His cardiac examination showed a regular heart rate with no murmurs and brisk distal pulses. His abdomen was soft, mildly distended, not tender, without masses, and had positive bowel sounds. His neurologic examination showed a lethargic infant who responded to painful stimuli by moaning.

He was transferred directly to the ED. Point-of-care glucose, complete blood count (CBC), comprehensive metabolic panel (CMP), urine analysis (UA), lipase, and influenza antigen tests were normal. A head computed tomography (CT) without contrast was within normal limits. A spinal tap showed protein of 20, glucose of 66, 90 red blood cells, and 1 nucleated cell. Directogens for *Haemophilus influenzae*, *Streptococcus pneumoniae*, *Neisseria meningitides*, and *Escherichia coli* were negative.

During the spinal tap, the patient provided an additional, unexpected sample that pointed the team in the direction of the correct diagnosis: a small, bloody stool. An abdominal sonogram (Figures 1 and 2) confirmed the diagnosis of intussusception.

An air contrast enema failed to reduce the intussusception. He underwent an exploratory laparotomy for intussusception reduction and appendectomy, which were successful. He was admitted to the pediatric intensive care unit (PICU) postoperatively, and his altered mental status resolved in the immediate postoperative period. He was discharged home after 2 days with regular, well-formed stools, was tolerating feeds, and had an improved activity level. Follow-up visits showed adequate intake, output, and weight gain.

**Discussion**

Our patient posed an interesting diagnostic dilemma. When presented with an infant with altered mental status, a gastroenterological diagnosis was not our primary consideration. The infant’s neurologic deterioration and the coincidental head injury led us to focus on intracranial pathology. He had none of the classic symptoms. The emesis was intuitively attributed to whatever was causing the altered consciousness. Beyond some abdominal distention, there was no classic mass identified. Our patient did not have abdominal pain, and there were no bloody stools prior to the ED evaluation.

Of the cases with intussusception, 90% are idiopathic, with no clear trigger. Viral illnesses have been associated with intussusception. Its peak incidence correlates with seasonal variations in viral gastroenteritis, and 30% of cases have a preceding viral illness, be it an upper respiratory infection, acute otitis media, flu-like illness, or gastroenteritis. Both viral and bacterial enteritis are strong predictors of intussusception. Our patient did not have a previous history of either.

A PubMed search revealed eight articles that described an association between altered consciousness and intussusception. In the most recent, Dominguez-Carral et al. reviewed 351 children presenting with intussusception over a 2-year period. Fewer than 3% presented initially with isolated neurologic symptomatology (lethargy being the most common symptom). In the next most recent article, Pumberger et al. described 13 cases of intussusception where changes in mental state preceded the gastrointestinal (GI) symptoms.

We found a total of 12 cases which reported an association between intussusception and altered mental status.
Three articles (Schulte et al.,5 Singer,6 and Braun and Germann-Nicod7) described six cases, which, like our patient, had altered mental state as the initial presentation. Of these six, four were infants. We were not able to determine the other two patient’s ages.

Three articles (Birkhahn et al.,8 Rodriguez-Calzada,9 and Sangermani et al.10) associated altered mental status! as part of the presentation in the other cases, but none had an altered mental state as the initial or main presentation. Five of these were infants. We were not able to discern the age of the sixth patient.

Of the five reported intussusceptions presenting at less than 12 months of age, four presented with altered mental status. None of the patients in the published case reports had a reported closed head trauma to further obfuscate the diagnosis.

Based on this case, we recommend checking a stool for occult blood and an abdominal sonogram in patients with undiagnosed altered mental status. This is especially important in patients less than 12 months of age. We present this case as a cautionary tale for diagnosticians to keep an open mind when dealing with patients with altered consciousness: look beyond the central nervous system. The GI tract would be the next place to investigate.

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