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Case Report

A case report of idiopathic intussusception in four-month-old female infant

Ravinder G. Jangampally*, Laharika Y., Sowmya Yerramreddy, Sahitya Chetti, Neha Reddy K. T., Meghana Mummadi

Department of Pediatrics, Yashoda Super Speciality Hospitals, Hitech City, Hyderabad, Telangana, India

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***Correspondence:**
Dr. Ravinder G. Jangampally,
E-mail: ravindergoudjangampally@gmail.com

ABSTRACT

Intussusception stands as one of the primary etiologies of intestinal obstruction during the initial two years of life. In majority of instances, an underlying cause remains elusive. While barium enema remains the conventional diagnostic and therapeutic modality, the introduction of innovative techniques, such as the utilization of air enema in conjunction with ultrasound-guided hydrostatic reduction, has yielded promising results. A 4-month-old female infant was brought to our department with the symptoms like limb stiffness, upward rolling of the eyes and a single episode of vomiting accompanied by sensation of dullness. The infant did not show any signs of fever, cold, cough or diarrhoea. After performing an abdominal ultrasound, a small segment of telescoping in the epigastric region, along with telescoping of the mesentery and the small bowel was observed, which is indicative of intussusception. An endoscopic hydrostatic reduction procedure was performed, which the infant tolerated well and was discharged from the hospital in a stable condition. An early diagnosis of intussusception and ruling out other possible options, is crucial to prevent further complications and the need for surgical interventions.

Keywords: Intussusception, Four-month-old, Hydrostatic reduction, Non-surgical

INTRODUCTION

Intussusception constitutes a medical emergency characterized by bowel obstruction, wherein one segment of the intestine telescopes into the segment distal.[1] Compared to adults, children are more commonly affected by this condition, and it has also been noted that males are more likely to experience intussusception than females.

Intussusception typically begins between 6 to 18 months of age and predominantly affects the small intestine, although it can rarely involve the large intestine.[2] The primary symptoms encompass abdominal pain, which exhibits fluctuations in intensity, along vomiting, bloating and the presence of bloody stools. Additional complications may arise when left untreated, such as intestinal infarction, peritonitis or bowel perforation and might lead to death.[3]

In children, around 75 percent of intussusception cases are classified as idiopathic, where the exact cause is unknown. However, it is recognized that certain episodes may be precipitated by viral infections. The remaining twenty-five percent of cases are related to growths or abnormal structures in the child's intestine, such as polyps and Meckel's diverticulum.[4] It has been demonstrated that using ultrasonography to diagnose intussusception is a dependable and accurate method, offering an advantage over radiological, surgical procedures.[5] Surgery is recommended for intussusception when nonoperative reduction of intussusception fails or if there is a suspicion of bowel necrosis or a perforation or if the patient is very sick.[6] When the child is stable and the intussusception does not resolve on its own, hydrostatic reduction under fluoroscopic guidance has been found to be successful in up to 95% of cases.[7]

This case study describes a 4-month-old female infant who was admitted in our hospital with symptoms suggestive of intussusception. She successfully underwent hydrostatic reduction and was discharged in a stable condition.

CASE REPORT

A 4-month-old infant was brought to our hospital with symptoms of limb stiffness, up rolling of the eyes for around 20 to 30 seconds, sense of dullness and one episode of vomiting. Additionally, there were no complaints of fever, cold, cough, loose stools or involuntary micturition's. Furthermore, there was no documented history of trauma or falls. The infant has been admitted for further evaluation and management in our hospital. Upon physical examination, temperature was 99°F, heart rate 152/min and RR 32/min were noted. The abdomen was tender but soft with bowel sounds. No palpable mass was detected. Her body weight was 5.8 kilograms. Central nervous system (CNS) examination revealed a Glassgow coma scale (GCS) of E4V4M6 signifies slight confusion. The findings of the complete blood profile were within normal limits, indicating the absence of any microbial infection. Ultrasonography of the abdomen revealed no abnormalities or mass lesions and gall bladder was partially distended. The pancreas was assessed, the head and body regions appearing normal while the tail was obscured by bowel gas. The opinion of the neuro physician was sought and the findings of electroencephalogram (EEG) were found normal.

On the second day, there was a sudden onset of fever and on examination a firm abdomen with palpable intestinal loops were revealed. Ultrasound of the abdomen and pelvis (bed side) was performed and was observed that a small segment of telescoping was present in the epigastric area, where there was a telescoping of the mesentery and the small bowel. The vascularity was preserved throughout (Figure 1). The findings were indicative of intussusception, with the presence of mild free fluid in both the abdomen and pelvis. It was observed that the amount of free fluid in the abdomen was periodically increasing and there was a slight increase in the thickness of the bowel wall. Radiographic findings revealed significant gas filled bowel loops (Figure 2). There was one episode of blood stools, which was jell like. In response to vomiting and red stool, additional surgeon was consulted and on his advice the patient underwent contrast computed tomography (CT) scan of the abdomen. The CT findings revealed persistent ileocolic intussusception without any evidence of bowel gangrene (Figure 3). Consequently, an endoscopic hydrostatic reduction procedure was performed on 3rd day of admission. The child was kept on nothing by mouth (NBM) after the fever subsided. The child's condition was stable with greenish stools and a soft abdomen. Again, the child experienced another episode of red stool and on examination a palpable mass was identified in the epigastric region. Consequently, an additional ultrasound was performed residual intussusception is noted in the epigastric and right lumbar region (Figure 4). Dilated loop measures about 2.8 cm in diameter. Rest of the bowel is normal with no evidence of any dilatation. Mild free intraperitoneal fluid is also observed. As a result, a second attempt of colonoscopic hydrostatic reduction was performed on the fifth day and the intussusception found decreased significantly (Figure 5). Following the procedure, the infant's fever subsided and the child was shifted to the pediatric intensive care unit (PICU) for further monitoring. Throughout the hospital stay, the infant remained on nothing by mouth (NBM). The infant was treated with antibiotics and antacids during her stay. The infant gradually began to tolerate oral feeds and after two days of observation in the ward, the infant was able to achieve full feeds and was discharged in stable condition.

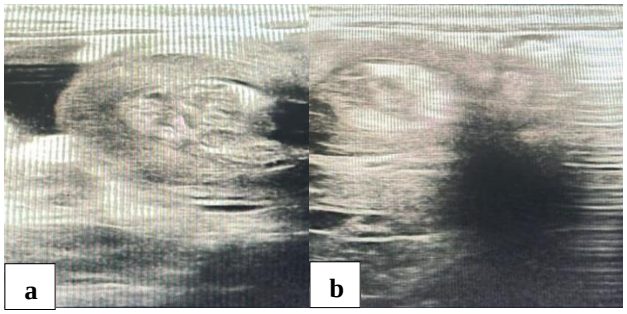

Figure 1 (a and b): Ultrasonography image representing a small segment of telescoping noted in the epigastric region (adjacent to the stomach) with telescoping of mesentery and small bowel.

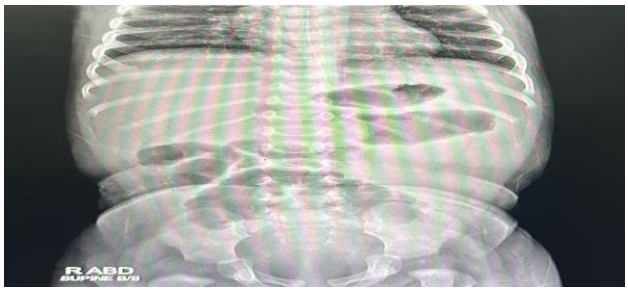

Figure 2: Radiograph images showing gas filled small bowel loops.

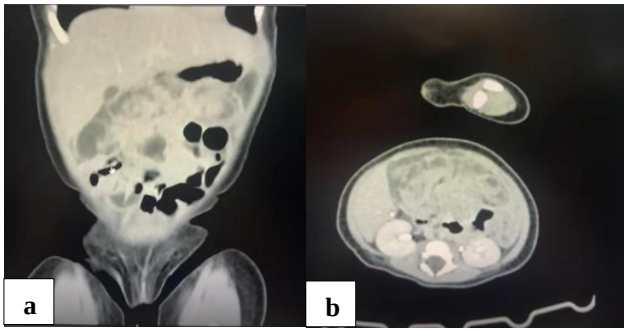

Figure 3 (a and b): CT images of the baby revealing persistent ileocolic intussusception without any evidence of bowel gangrene.

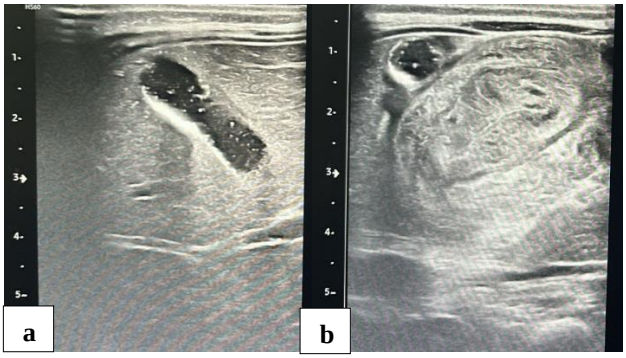

Figure 4 (a and b): Ultrasonography image revealing residual ileocolic intussusception with mild peritonitis in the epigastric and right lumbar regions.

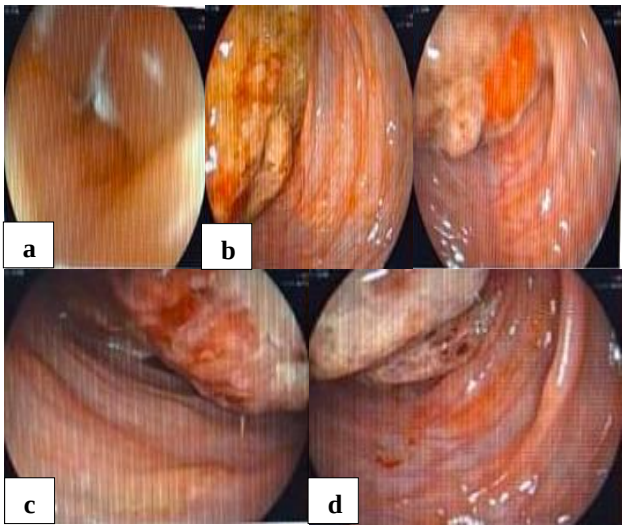

Figure 5: Colonoscopy report showing ileocolonic intussusception reduced up to ascending colon (a) oedema in transverse colon, (b) intussusception, (c) ulcerated congested mucosa, and (d) reduced up to AC (AC mucosa normal).

DISCUSSION

Intussusception is the leading cause of acute intestinal obstruction in infants younger than two years, making up less than 25% of such cases.[8] Nonetheless, the incidence of intussusception decreases significantly with age and children of two years age and older accounting for majority of cases. Furthermore, intussusception exhibits male predominance, with male to female ratio of approximately 4:1.[9] Our case pertains to a 4-month-old female infant, thereby highlighting the rarity of the condition.

It is noteworthy that only 10% of cases of intussusception in children are associated with a pathological cause, indicating that the majority of instances are of an idiopathic nature.[10] Current theories about its etiology focus on diet and infection, with viruses such as rotavirus, herpes virus and adenovirus being identified as the source.[11] Intussusception can be significantly predicted by both bacterial and viral enteritis; however, there are other localized causes that may also play a role in the development of this condition.[12] Since no pathological or dietary problems were associated with our patient, the condition remains idiopathic.

Less than one third of patients experience the classic triad of intussusception, which consists of vomiting, blood stools and abdominal pain.[13] Interestingly 75% of children have two symptoms while 13% will have just one symptom.[14] The clinical features of intussusception may include any one or more among sudden, intermittent abdominal pain (every 10-15 min), palpable abdominal mass usually in the right upper quadrant, the rectal passage of mucus or blood ("currant jelly" stools).[15] Bloody stool, though a key feature of intussusception, was less common than other symptoms. Vomiting is the most common symptom of intussusception, especially in infants. Initially, the vomit contains only food from the stomach, but in the late stage when the bowel is completely obstructed, bile-stained vomiting may be seen.[16] Usually, acute intussusception is presented with vomiting, colicky abdominal pain.[17] Our patient exhibited signs of fever, abdominal discomfort, a single episode of vomiting, and blood stools. On the second day of admission, an increase in fever and a firm abdomen with palpable mass was observed on examination. An incomplete abdomen preparation is not a major factor in the final diagnosis of intussusception. It has an accuracy rate of 25% when it comes to ileocecal intussusception cases. In addition, bowel dilatation, elevated air-fluid levels in the proximal part of bowel and lack of bowel gas in the distal part of bowel are the signs of bowel obstruction at the ileocecal valve.[18] In the present case, the infant exhibited prominent gas filled bowel loops.

As the symptoms of perinatal intussusception can be subtle, abdominal ultrasonography can enhance the early detection of this illness, reducing the rates of morbidity and mortality.[19] Accessibility, affordability, sensitivity, specificity and negative predictive value made it as the best imaging modality available.[20] Even though CT scans aren't frequently used to confirm intussusception, they are still the preferred imaging method when certain abdominal abnormalities are present. the abdomen.[21]

When a child presents with intussusception, a thorough evaluation and suitable resuscitation techniques are necessary because the initial presentation might be ambiguous and mistaken for other serious conditions. One of the non-surgical strategies for treating pediatric intussusception involves air or contrast enema, fluoroscopy-guided air reduction (FGAR) and ultrasound-guided hydrostatic reduction (UGHR).[22] Hydrostatic reduction method effectively resolves the intussusception by applying pressure at the apex of the intussusception to restore it to its original position.[23] Various studies have reported success rates of hydrostatic reduction ranging from 50 to 95% whereas, air enema has achieved success rates as high as 90%, although 10% of patients may experience recurrence of intussusception later.[24] The

success rates diminish with repeated attempts of air enema and surgical intervention may be required to reduce the intussusception. However, delayed presentations can lead to bowel ischemia and necrosis, necessitating the resection of the affected bowel segment.[25] In this case, an endoscopic hydrostatic reduction procedure was conducted, which was a non-surgical method and the condition has not shown any recurrence till date.

CONCLUSION

Diagnosing intussusception can be difficult, especially in younger children whose symptoms are unusual. Given that the current national guidelines recommend introducing solid foods around six months of age, healthcare professionals should proceed with caution when discussing early complementary feeding introduction. This strategy might lower the incidence of intussusception. Nonetheless, better patient outcomes are associated with early detection.

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