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Case report

Lower GI Surgery

Ileoileal intussusception due to Meckel's diverticulum: an uncommon aetiology

BM Singhal*, S Kaval, S Sagar, V Kumar

Abstract

Introduction

Intussusception is a major cause of acute intestinal obstruction in children. Most cases of intussusception (90%) are considered idiopathic and only about 6% of cases have a pathological lead point. Majority of the paediatric cases (95%) are ileocolic type and Meckel's diverticulum is considered a rare cause.

Case Report

We are presenting an unusual case of ileoileal intussusception due to inverted Meckel's diverticulum in an 18-month-old male child.

Discussion

The classic clinical triad of intussusception is colicky abdominal pain, vomiting and bloody (red currant jelly) stools; however, it is found in only 20% of patients. Contrast enema has diagnostic as well as significant therapeutic value, having reduction rate of intussusception between 70% and 90%. Surgical intervention is indicated if intussusception is not reduced by an enema or if features of bowel ischaemia, perforation, shock and peritonitis are evident. Delay in seeking medical advice or delay in diagnosis may lead to ischaemic necrosis and perforation of involved bowel.

Conclusion

Meckel's diverticulum may act as a lead point lesion for childhood intussusceptions. Delay in seeking medical advice or delay in diagnosis may lead to ischaemic necrosis and perforation of the involved bowel.

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Introduction

Intussusception is a common cause of abdominal pain and bowel obstruction in children. Most cases of intussusception (90%) are considered idiopathic in origin, as they are not associated with any lead point pathology[1]. Only about 6% of cases have been found to be associated with a pathological defect, which is primarily a Meckel's diverticulum[2].

Meckel's diverticulum is the most common congenital abnormality of gastrointestinal tract occurring in 1%–2% of the population and represents an incomplete involution of the omphalomesenteric duct[3,4]. It is usually asymptomatic throughout life and clinically present only when complications arise. Intestinal obstruction due to Meckel's diverticulum is the second most common presentation in children[5]. Various mechanisms causing intestinal obstruction in association with Meckel's diverticulum are volvulus of the small intestine around congenital omphalomesenteric and mesodiverticular bands, intussusception, due to incarceration within a hernia sac (Littre hernia), stricture secondary to chronic diverticulitis, foreign body, Meckel's diverticulum lithiasis or neoplasm[6,7]. The incidence of intussusception due to Meckel's diverticulum accounts for only 4% of all cases of intussusceptions and it is mostly seen in children of >2 years of age and adults[8]. It occurs due to inversion of Meckel's diverticulum into the bowel lumen, which serves as a lead point lesion for ileoileal or ileocolic intussusception[5]. This paper reports a case of an uncommon aetiology of ileoileal intussusception due to Meckel's diverticulum.

Case Report

An 18-month-old male child visited emergency department of our institution with a history of on and off colicky pain in the abdomen and blood in stools for the past 24 hours. Episodes of pain used to last for a few minutes and were occasionally associated with vomiting. The child was being treated conservatively at home and he was refusing any feed for the same duration. He had developed abdominal distention in the last 6 hours and became listless. There was no history of respiratory infection, diarrhoea or trauma.

On examination, the child was lethargic and dehydrated with a heart rate of 128 beats/min and blood pressure of 80/60 mmHg. He presented gross distension with profound tenderness all over the abdomen suggestive of peritonitis. Owing to distension, no mass or organomegaly was palpable. There was polymorphonuclear leucocytosis on haematological investigations, but other parameters were normal. Plain X-ray of the abdomen revealed free gas in the peritoneal cavity with multiple air fluid levels. Abdominal sonography confirmed these findings and additionally suggested the possibility of intussusception. After resuscitation, the child was taken for emergency laparotomy.

During surgery, on opening the abdomen, there was a large amount of haemorrhagic fluid in the peritoneal cavity with a gangrenous ileoileal intussusception. This intussusception was approximately 5 cm of ileum invaginating into the distal segment of the ileum, approximately 25 cm from the ileocolic junction (Figure 1). On reduction, we found a Meckel's

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Figure 1: Ileoileal intussusception with gangrene.

diverticulum at approximately 30 cm from the IC junction, acting as a lead point lesion for this intussusception (Figure 2). Whole intussuscepted segment of the ileum was gangrenous, so the gangrenous bowel was resected and continuity was restored by ileoileal anastomosis. Oral intake of food was started on the third post-operative day. The rest of the post-operative period was uneventful, and the child was discharged on the eighth post-operative day.

Discussion

Intussusception is one of the most frequent causes of bowel obstruction in the paediatric population with reported incidence of 1.5–4 cases per 1000 live births[9]. Intussusception is usually seen in children aged between 3 months and 3 years and 80% of them occur before the age of 2 years[10]. The majority of the paediatric cases (95%) are of ileocolic type and Meckel's diverticulum is considered a rare cause[4,8].

The classic clinical triad of intussusception is colicky abdominal pain, vomiting and bloody (red currant jelly) stools; however, it is found in only 20% of patients[11]. In ileocolic type, abdominal examination may reveal a sausage-shaped mass in the right upper quadrant along with empty right iliac fossa. Clinical presentation in paediatric intussusception may range from painless intussusception to constipation, vomiting, dehydration, diarrhoea, intestinal prolapse, sepsis, shock, syncope and altered mental status (lethargy or irritability)[10]. Intussusception is likely to be fatal in 2–5 days, of onset of symptoms, if left untreated.

Plain X-ray of the abdomen is usually the first investigation done in cases of suspected intestinal obstruction. However, its sensitivity is only 45% for the diagnosis of intussusception[12]. Classic plain radiograph findings for intussusceptions are absence of air in the ascending colon, a soft tissue density in the upper abdomen, target sign or crescent sign[10]. Abdominal sonography is a fast non-invasive test with high sensitivity (98–100%) and specificity (88–100%) if performed by skilled personnels[13]. Classical findings on sonography include the target lesion or doughnut sign on transverse view and pseudokidney sign on longitudinal view. Although considered the investigation of choice in adults (sensitivity and specificity in the range of 88–100%), computed tomography is usually not indicated in children due to radiation exposure and sedation-associated risk[8,14].

Air, water-soluble or barium contrast enemas are diagnostic approaches with significant therapeutic value, with reduction rate between 70% and 90%. At present, air contrast enema is considered as the gold standard for paediatric intussusceptions, as barium enema has a risk of perforation with chemical peritonitis and shock[8,15]. Barium enema is contraindicated in suspected bowel ischaemia with necrosis, severe shock, sepsis or extreme age[10].

Surgical intervention is indicated if intussusception is not reduced by an enema or if features of bowel ischaemia, perforation, shock and peritonitis are evident.

Conclusion

Meckel's diverticulum may act as a lead point lesion for childhood intussusceptions. Delay in seeking medical advice or delay in diagnosis may lead to ischaemic necrosis and perforation of the involved bowel.

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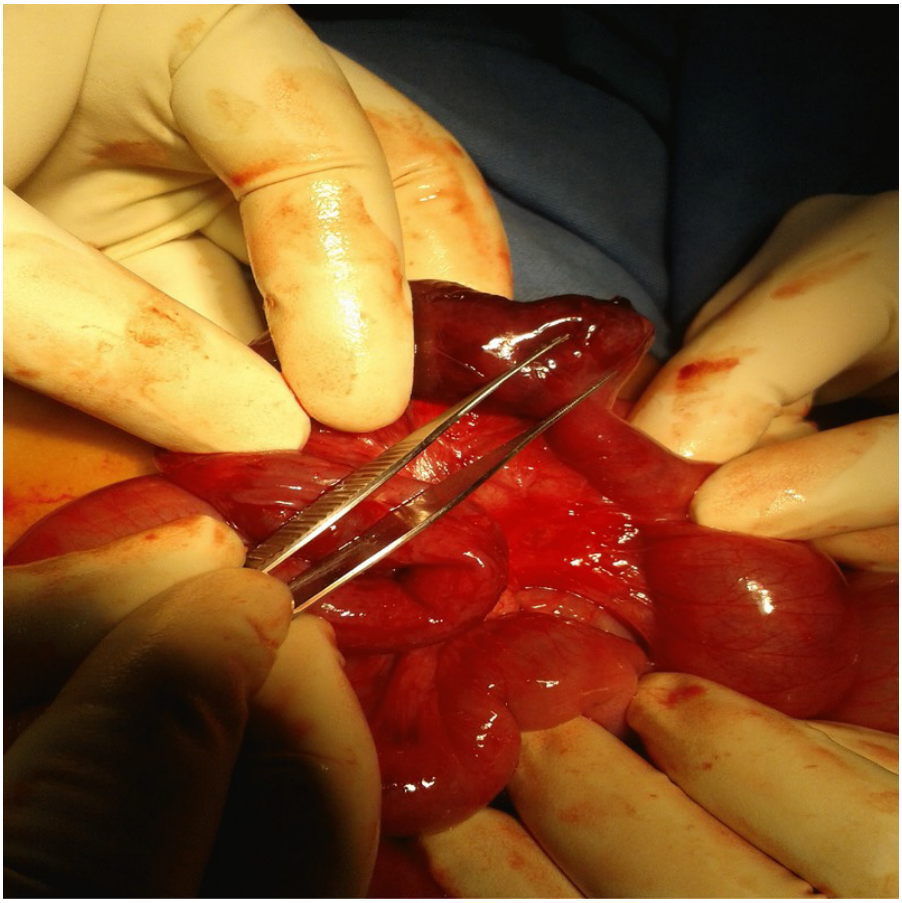

Figure 2: Gangrenous Meckel's diverticulum, which acts as lead point lesion for the intussusception.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review from the Editor-in-Chief of this journal.

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