Meckel's Diverticulitis Masquerading as Acute Pancreatitis: A Diagnostic Dilemma

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Abstract

Meckel's diverticulum is a remnant of the proximal part of the vitellointestinal duct and is the most common congenital anomaly of the gastrointestinal tract. It may either remain asymptomatic or present with myriad of clinical presentations. Gastrointestinal bleeding is the most common presentation in children whereas it is intestinal obstruction in the case of adults. We report a 9-year-old boy who presented with acute onset of periumbilical pain and nonbilious vomiting. His clinical and laboratory parameters were unremarkable, except for serum amylase levels. He was conservatively managed initially as acute pancreatitis with paralytic ileus. However, the child deteriorated in a course of 2 days with bilious vomiting, abdominal distension, and dehydration. Imaging was suggestive of an ileoileal intussusception, and exploratory laparotomy identified Meckel's diverticulum as the lead point for the intussusception. The histopathological examination revealed inflamed heterotopic pancreatic tissue at the apex of the diverticulum thus explaining the elevated amylase levels. This case is reported to highlight the atypical presentation of Meckel's diverticulum and the high clinical suspicion warranted in diagnosing such concomitant intussusception.

Keywords: Heterotopic pancreas, ileoileal intussusception, inverted Meckel's diverticulum, pancreatitis

Introduction

Meckel's diverticulum is the most common congenital anomaly of the gastrointestinal tract occurring in about 2%–4% of the general population. It is usually asymptomatic and manifests with varied clinical presentations when complicated. In children, the most common presentation is gastrointestinal bleeding followed by intestinal obstruction whereas in adults, the most common presentation is intestinal obstruction followed by intussusception, ulceration, fistulae, and tumors. Occasionally, inversion of Meckel's diverticulum into the lumen of bowel accounts to 4% of cases presenting with intussusception. Meckel's diverticulum usually causes ileocolic type of intussusception.[1] We report an ileoileal intussusception in a 9-year-old boy caused by inverted Meckel's diverticulum with heterotopic pancreatic tissue. The atypical presentation and increased amylase levels resulted in clinical dilemma and delay in accurate diagnosis.

Case Report

A 9-year-old boy presented to a primary health-care hospital with acute onset of abdominal pain and multiple episodes of nonbilious vomiting for duration of 2 days. The pain was periumbilical, and there was no associated loose stool, abdominal distension, or fever. He had no significant past medical history or abdominal surgery, and his family history was insignificant. On examination, his vitals were stable, and the abdomen examination was unremarkable. His laboratory parameters were normal except for elevated serum amylase of 1127 units/L. This lead to a provisional diagnosis of acute pancreatitis, and he was managed conservatively. On the 3rd day, the child deteriorated with abdominal distension, bilious vomiting and was referred to our institution for further management.

The child on admission was dehydrated and febrile with a temperature of 102F. His vitals were stable except for tachycardia with a pulse rate of 120/min. The abdomen was distended with visible distended bowel loops, and there was

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Quick Response Code:

Website: www.ijccm.org

DOI: 10.4103/ijccm.IJCCM_317_17

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How to cite this article: Darlington CD, Anitha GF. Meckel's diverticulitis masquerading as acute pancreatitis: A diagnostic dilemma. Indian J Crit Care Med 2017;21:789-92.

tenderness and minimal guarding in the epigastrium. Bowel sounds were exaggerated. There was no history of passing red currant jelly stools. Blood investigations showed elevated total leucocyte count of 16,000 cells/mm^3. Serum amylase was 1078 units/L. Plain X-ray abdomen showed dilated small bowel loops and there was no pneumoperitoneum. Ultrasonogram of the abdomen revealed multiple distended small bowel loops, with target sign suggestive of ileoileal intussusception [Figure 1]. The lead point of intussusception could not be identified. Pancreas could not be visualized due to bowel shadow. Due to the ileoileal nature of intussusception, the child was posted for emergency laparotomy, after obtaining informed consent.

A midline vertical laparotomy was performed. The small bowel was grossly dilated up to proximal ileum, and around 20 cm of distal ileum proximal to the ileocecal junction appeared healthy. The proximal ileum was found to be intussuscepting into distal ileum [Figure 2]. A gentle attempt to milk the intussusceptum out of the intussuscipiens bowel failed. Hence, the involved ileum along with the intussusception was resected, and an ileostomy was performed, due to the poor general condition of the child. The lesser sac was entered, and the pancreas was found to be normal. On gross examination of the resected specimen, a Meckel's diverticulum was found to be the lead point of intussusception. The diverticulum had inverted into bowel lumen, leading onto intussusception [Figures 3 and 4]. On everting the diverticulum, the apex showed yellow inflamed globular tissue of size 3 cm [Figure 5]. The specimen on histopathological examination confirmed the diagnosis of Meckel's diverticulitis causing ileoileal intussusception. The yellow tissue in the apex of the diverticulum was reported to be inflamed heterotopic pancreatic tissue, thereby explaining the high serum amylase level. The ileostomy was closed at a later date.

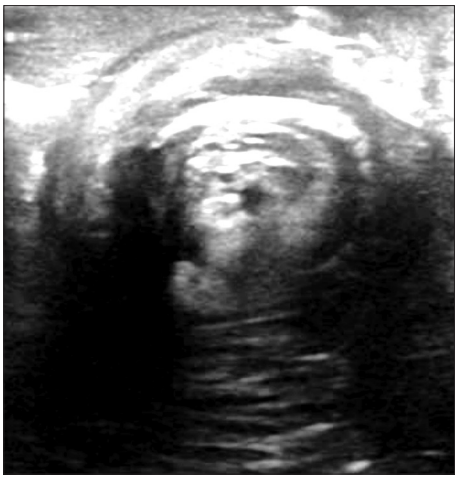

Figure 1: Ultrasonographic image showing the typical "Target sign" of intussusception

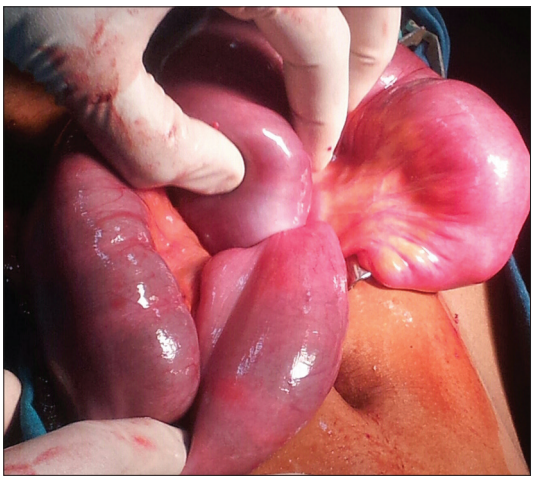

Figure 2: Intraoperative photograph showing the ileoileal intussusception

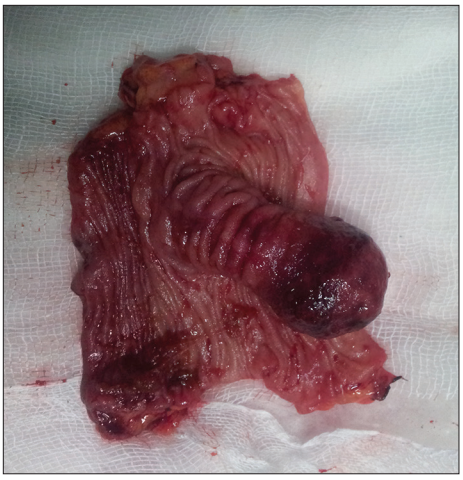

Figure 3: Inverted Meckel's diverticulum as the lead point of intussusception

Discussion

During embryological development, the vitellointestinal duct connects the fetal yolk sac with primitive gut. Failure of obliteration of this duct can lead to various anomalies such as Meckel's diverticulum, omphalomesenteric fistula, umbilical cyst, and umbilical sinus. When the proximal part of vitellointestinal duct remains unobliterated, Meckel's diverticulum, the most common congenital anomaly of the intestine, results. It is a true diverticulum, as it contains all the layers of the gut with separate blood supply. It occurs in the antimesenteric border of Ileum and follows the 'rule of 2' - occurs in 2% of the population, usually discovered before 2 years of age, is 2 inches long and occupies the ileum within 2 feet from ileocaecal junction.[2]

Meckel's diverticulum may remain asymptomatic or can present with complications, especially in children. The most common presentation in children is gastrointestinal bleeding, followed by intestinal obstruction. However, in adults, intestinal obstruction due to Meckel's diverticulum is the most common presentation. Various atypical presentations such as diverticulitis, perforation, and rarely, fistulae and tumors have also been reported.[3] In a study by Rattan *et al*.,

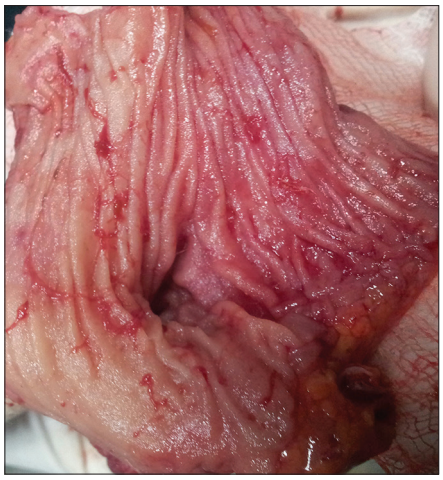

Figure 4: Base of the Meckel's diverticulum as seen from the luminal aspect of ileum

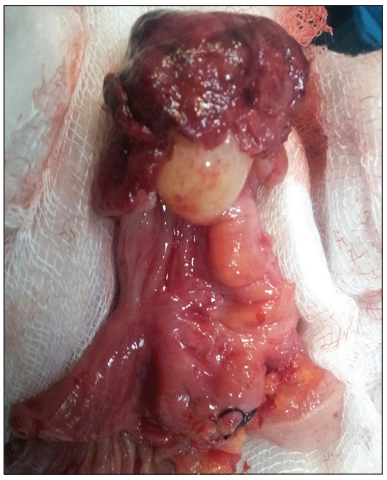

Figure 5: Tip of the Meckel's diverticulum with inflamed heterotopic pancreatic tissue

children of age 1–5 years were most commonly affected by a complicated Meckel's diverticulum. The study showed that 86.1% of the children had intestinal obstruction of which 46.1% were due to intussusception.[2] Inflammation of pancreatic tissue within a Meckel's diverticulum has been rarely reported to cause acute abdominal pain and gastrointestinal bleeding.[4,5]

Intussusception is the telescoping of proximal segment of bowel (intussusceptum) into the lumen of distal segment (intussuscipiens). It is common in children 3 months–6 years of age, which is usually attributed to hypertrophy of the Peyer's patches. Beyond this age group, intussusceptions are caused by specific lead points such as Meckel's diverticulum, carcinoid tumors, and leiomyoma or generalized conditions such as Peutz–Jeghers syndrome, Henoch–Schonlein purpura, neutropenic colitis, and ascariasis. Intestinal obstruction in Meckel's diverticulum is commonly due to congenital mesodiverticular band and rarely due to intussusception. Meckel's diverticulum accounts for 4% of all cases of Intussusception. Intussusception occurs when the diverticulum inverts into the lumen, forming a lead point. The abnormal peristalsis at the base of the diverticulum due to inflamed heterotopic gastric or pancreatic tissue causes the diverticulum to invert.[6] Meckel's diverticulum usually causes ileocolic type of intussusception.[7] Ileoileal intussusception secondary to Meckel's diverticulum, as seen in our case, is very rarely reported.

Vitellointestinal duct contains pluripotent cells, and hence, Meckel's diverticulum can contain heterotopic tissue. Gastric mucosa is the most common heterotopic tissue seen in Meckel's diverticulum, followed by pancreatic tissue. Inflammation of this heterotopic tissue causes gastrointestinal bleeding or abdominal pain. When it contains ectopic pancreatic mucosa, the acute abdominal pain can mimic acute pancreatitis, as in our case.[4,5,8] The acute pancreatitis-like picture with elevated serum amylase levels and epigastric tenderness caused diagnostic dilemma in our case.

Meckel's diverticulum with ileoileal intussusception requires surgical exploration. Intraoperatively, the intussuscepted bowel should be examined for transmural ischemia. If the bowel is not viable, segmental resection of the ileum with Meckel's diverticulum and anastomosis of the bowel ends is the treatment of choice.[1] In our case, resection was done with ileostomy, considering the poor general condition of the child. The ileostomy was electively closed.

Conclusion

This case is presented for its rarity and to emphasize on the atypical presentation of Meckel's diverticulum. The presence of inflamed heterotopic pancreatic tissue can mimic acute pancreatitis. An early accurate diagnosis by early use of imaging and sound clinical decision making is important in such cases to reduce the morbidity and mortality.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

Consent has been obtained from the child's parents and there are no conflicts of interest.

References

1. Bouassida M, Feidi B, Ben Ali M, Chtourou MF, Krifa M, Sassi S, *et al.* Intussusception caused by an inverted Meckel's diverticulum: A rare cause of small bowel obstruction in adults. Pan Afr Med J 2011;10:57.
2. Rattan KN, Singh J, Dalal P, Rattan A. Meckel's diverticulum in

children: Our 12-year experience. Afr J Paediatr Surg 2016;13:170-4.
3. Sagar J, Kumar V, Shah DK. Meckel's diverticulum: A systematic review. J R Soc Med 2006;99:501-5.
4. Zarand A, Bajtai A, Baranyai Z, Dede K, Jakab F. Inflammation of ectopic pancreatic tissue in a Meckel's diverticulum causing acute abdominal symptoms: A case report and review of the literature. Int J Surg Pathol 2011;19:359-63.
5. Kopácová M, Vykouril L, Vacek Z, Tycová V, Bártová J, Rejchrt S, *et al.* Inverted Meckel's diverticulum with ectopic pancreatic tissue as a source of severe gastrointestinal bleeding. J Gastrointest Surg 2010;14:578-81.
6. Ito T, Sato K, Maekawa H, Sakurada M, Orita H, Komatsu Y, *et al.* Adult intussusception caused by an inverted Meckel diverticulum. Case Rep Gastroenterol 2011;5:320-4.
7. Morrison J, Jeanmonod R. Intussusception Secondary to a Meckel's Diverticulum in an Adolescent. Case Reports in Emergency Medicine; 2011. Available from: https://www.hindawi.com/journals/criem/2011/623863/. [Last accessed on 2017 Jul 26].
8. Taylor RH, Owen DA. Acute inflammation of pancreatic tissue in a Meckel's diverticulum. Can J Surg 1982;25:656-7.