



An unusual case of intramural Meckel's diverticulum as a lead point for ileoileal intussusception – Laparoscopically assisted management

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ABSTRACT

Intussusception is a frequent cause of intestinal obstruction in children. Ileoileal intussusception is rare and it is secondary to pathological or congenital lead points. We report an unusual case of an intramural Meckel's diverticulum as a lead point for ileoileal intussusception presenting with acute lower intestinal bleeding. Laparoscopically assisted resection of the involved ileum was successfully accomplished.

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Most of the intussusceptions in infants are idiopathic and they occur between 3 months and 3 years. The incidence of the pathology decreases with age while the frequency of lead point (secondary cause) increases [1,2]. Meckel's diverticulum is a common congenital anomaly of the gastrointestinal tract with 5% incidence of complications [2]. Inverted Meckel's diverticulum may act as a lead point for intussusceptions although it is a rare entity in pediatric age [3,4].

This case illustrates the successful use of a laparo-assisted procedure in the management of secondary intussusception.

1. Case report

A 2 year-old boy presented with 24 h history of abdominal pain, vomiting and bloody stool. There was no preceding history of significant illness. The patient was stable. Physical examination revealed mild distension with no tenderness. Abdominal radiograph showed air fluid levels, indicative of bowel obstruction. Ultrasound images gave a suspicion of intussusception (Fig. 1a).

Laboratory investigations revealed neutrophilic leukocytosis and high inflammatory markers. A contrast enema was performed to reduce the intussusception without success. The boy was managed with intravenous fluids, prophylactic antibiotics, analgesics and gastric decompression. We performed a laparoscopic exploration of the abdominal cavity. An ileoileal intussusception was identified and promptly reduced (Fig. 1b).

We decided to explore the bowel searching for lead-points as they were not identified during laparoscopy. The bowel was exteriorized through the umbilical wound. The cause of the intussusception was an intraluminal mass that was palpable at about 40 cm proximal to the ileocecal valve. The involved segment of the ileum was resected (about 5 cm) and an end to end anastomosis was performed. The intraluminal mass seemed a diverticulum covered by heterotopic mucosa (Fig. 2a–d).

Histopathology of the specimen revealed Meckel's diverticulum with ectopic gastric mucosa.

The patient had an uneventful recovery and he remained well at six months follow-up.

2. Discussion

Intussusception is one of the most frequent causes of bowel obstruction in children. It requires immediate surgical evaluation. Reported incidence is 1.5–4 cases per 1000 live births [5].

In most cases intussusception involves the ileocecal region. Hyperplastic lymphoid tissue (that is a typical condition in children) is believed to act as a lead point.

Ileoileal intussusception is rarer and it is often due to a pathological or congenital lead point. Congenital lead point intussusception is estimated to be 2%–12% of all cases and it is more likely to be found in older patient [1]. Inverted Meckel's diverticulum or heterotopic pancreas have been reported to act as lead points [6–8]. Other causes could be polyps, lymphoma, lymphosarcoma and enteric duplication cyst.

Meckel's diverticulum results from an incomplete involution of the onphalomesenteric duct and it can be responsible for different clinical entities.

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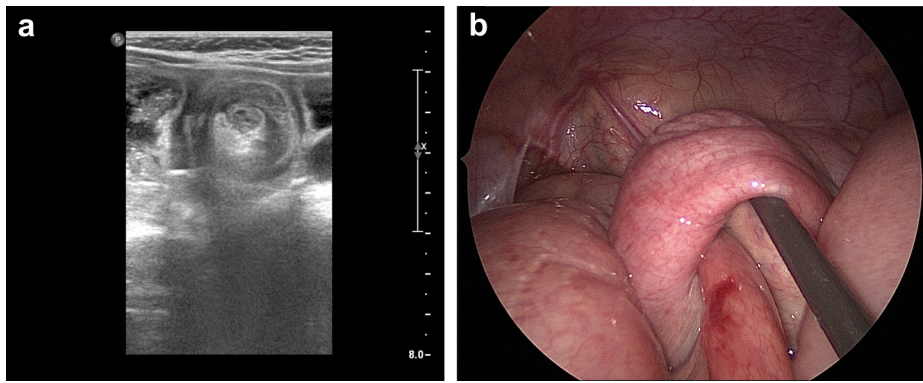


Fig. 1. a) Transverse ultrasound image demonstrating small bowel intussusception with classic doughnut or target sign, b) laparoscopic reduction of ileoileal intussusception (involved segment of 12 cm).

In our case Meckel's diverticulum was the cause of intussusception but it was not identified during laparoscopy. As a matter of fact it was inside the loop and it involved the mucosa and the submucosa. The unusual location of the intussusception (ileoileal) made us to consider the presence of a lead point and to explore the bowel outside the abdomen.

Laparoscopy was required in the first place as radiological procedures failed to reduce the intussusceptions. We usually achieve intussusception reduction with a hydrostatic or contrast enema but we have noticed that this procedure is scarcely effective when there is a pathological or congenital lead point. Moreover enemas can't be decisive in these cases. Surgery provides a gentle reduction of the intussusception and the exploration of the interested segment.

We performed a mini-invasive procedure that allowed both a correct diagnosis and an exploration of the abdominal cavity. The reduction was obtained by a gentle traction of the proximal bowel segment combined with the squeezing of the distal one.

Some authors affirm that laparoscopic approach carries the risk of serosal tears and bowel perforation necessitating conversion to open surgery with higher operative time and morbidity [1,9]. We routinely use laparoscopic intussusception reduction and conversions for iatrogenic damages have never been necessary.

Involved bowel can also be easily and safely brought out through the umbilical incision if required. This maneuver combines the esthetic advantages of laparoscopy to the possibility of manual bowel exploration.

3. Conclusions

Laparoscopic approach is a safe, effective, and esthetic procedure offering timely diagnosis and treatment for intussusceptions. The exploration of the involved bowel is mandatory considering the possible presence of a lead point. Laparoscopically assisted approach allows bowel manipulation and avoids the use of expensive staplers to perform bowel resections.

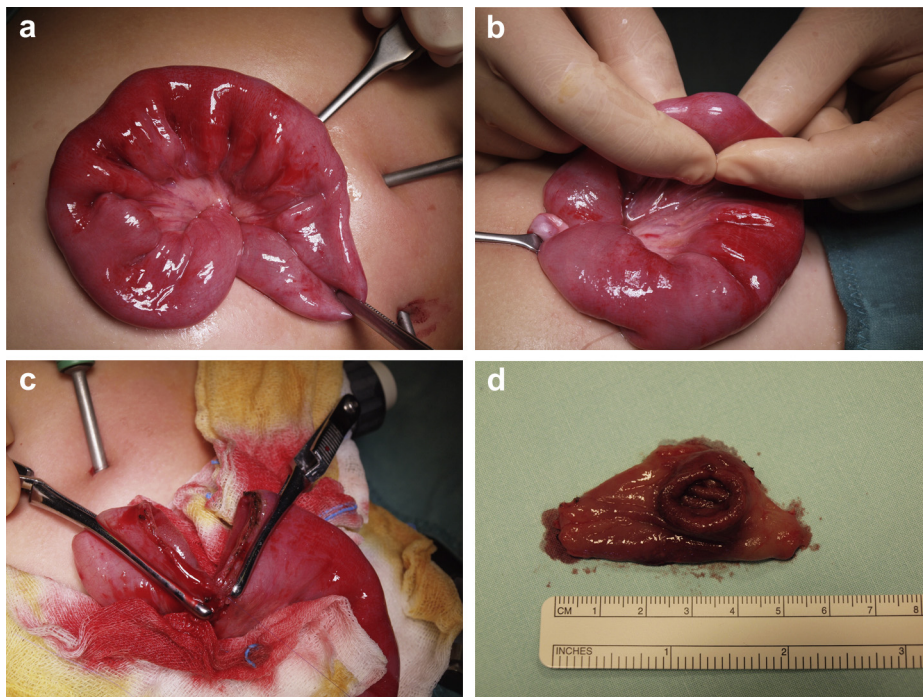


Fig. 2. Video-assisted transumbilical approach. a) Intraoperative view of ileal segment brought out of transumbilical incision, b) identification of ileal palpable tumor, c) small bowel resection, d) macroscopic photograph of resected small bowel with intraluminal diverticulum.

Conflict of interest

The authors declare that there are no conflicts of interest.

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