

Inverted Meckel's Diverticulum Causing Intussusception in an Adult

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ABSTRACT

Adult intussusception is rare, making-up only about 1% of the causes of bowel obstruction intussusception, secondary to an inverted Meckel's diverticulum, is also a rare occurrence. Chronic abdominal pain, lower gastrointestinal bleeding, and recurrent obstructive symptoms may lead to an unnecessary delay in diagnosis. This case report describes a rare cause of adult intestinal intussusception due to inverted Meckel's diverticulum. Intussusception was diagnosed on emergency ultrasound of the patient, who was successfully managed with surgery.

Key words: *Intussusception. Meckel's diverticulum. Ultrasound. Mass.*

INTRODUCTION

Approximately 5% of all intussusceptions occur in adults, accounting for 1% of all bowel obstructions.¹ Intestinal intussusception in adult is frequently caused by a mass with 70-90% of cases having a demonstrable cause based on discharge diagnosis or surgical results.² With the wider use of ultrasonography and its improved resolution and better appreciation, Small Bowel Intussusception (SBI) can be diagnosed confidently. Intussusceptions are classified according to location (enteroenteric, ileocolic, ileocecal, or colocolic) and cause (benign, malignant, or idiopathic). Intussusception in an adult can be further classified on the basis of etiology. Inverted Meckel's diverticulum is also a source of chronic gastrointestinal blood loss.³ It may cause diagnostic ambiguity by producing chronic abdominal symptoms.⁴ This case report describes this rare occurrence in an adult.

CASE REPORT

A 23-year-old male presented with pain in abdomen, vomiting and absolute constipation for 2 days. On clinical examination, his abdomen was distended. There was tenderness in right lower abdomen. His bowel sounds were exaggerated. Acute intestinal obstruction was diagnosed and patient was resuscitated with intravenous fluids and high dose antibiotics. A nasogastric tube was also passed for decompression. Supine X-ray of abdomen showed diffusely dilated

small bowel loops (Figure 1 A). Erect X-ray abdomen redemonstrated dilated small bowel loops containing large air-fluid levels, which were also suggestive of small bowel obstruction. (Figure 1 B).

Ultrasound of abdomen revealed markedly dilated small bowel loops containing fluid. Peristalsis were exaggerated. A gut related mass was seen in the right iliac fossa with cross-sectional diameter of 4 cm and rounded in shape having multiple hyperechoic and hypoechoic striations giving a coiled spring appearance characteristic of bowel within bowel appearance (intussusceptiens and intussusceptum). In addition, the lead point was seen as a rounded mass in the centre of the intussusception in both transverse and longitudinal sections (Figure 2).

On laparotomy, abdomen was opened through lower midline incision. Ileoileal intussusception was seen causing small intestinal obstruction. The lead point was an inverted Meckel's diverticulum. Intussusception was not reducible at the lead point due to gross edema. Proximal small intestine was grossly dilated with increased peristaltic activity. Resection of the non-reducible portion was performed with end-to-end anastomosis (Figure 1 C). The diverticulum measured 3 x 2.5 x 2 cm. Histopathology confirmed the diagnosis

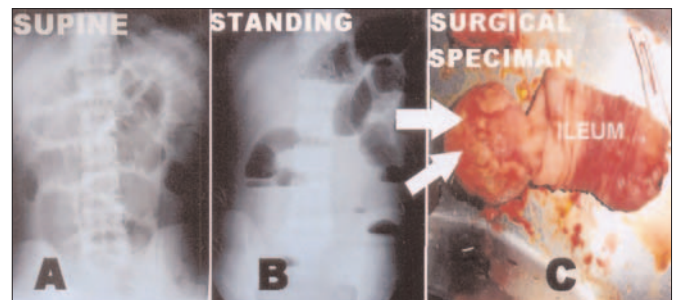


Figure 1: (A) Supine X-ray abdomen showing dilated small bowel loops. (B) Erect X-ray abdomen showing large air-fluid levels within dilated intestine. (C) Resected portion of small intestine. Arrows point to Meckel's diverticulum.

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Received April 5, 2008; accepted July 24, 2008.

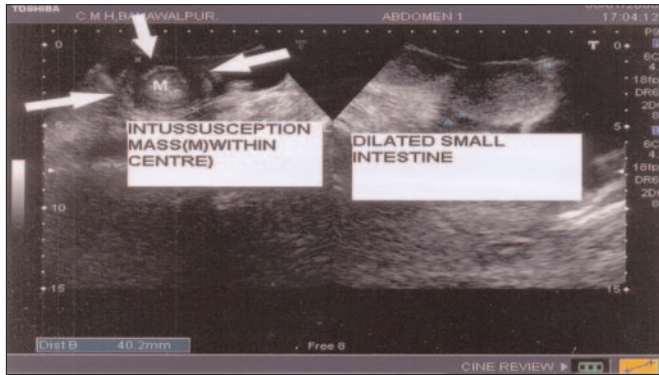


Figure 2: Ultrasound showing striated appearance of small intestine at level of intussusception with bowel within bowel appearance (arrows) and Meckel's diverticulum in the centre (M).

of Meckel's diverticulum. Patient made an uneventful recovery and was discharged on 7th postoperative day.

DISCUSSION

Intussusception is rare in adults. The mean age at presentation tends to be in the 6th decade of life. It may be acute or chronic (persistent or intermittent) in addition to being 'silent'. Chronic intussusception may have lasted in some instances for a year before the diagnosis. Higher age at intussusception may point to underlying malignancy since the mean age for benign cases is 44 years as opposed to 60 years for the malignant.⁵

Meckel's diverticulum is the most common congenital anomaly of the gastrointestinal tract, occurring in 2-3% of the population. Common complications include hemorrhage, small bowel obstruction, and diverticulitis. A Meckel's diverticulum may invaginate or invert into the lumen of the small intestine. Once inverted, the diverticulum may lead to ileoileal or ileocolic intussusception.⁶

Colonic intussusception in adults reveal four border layers on ultrasound.⁷ This sign is called tetra-layered sign of adult intussusception and was also found in this case.

Most intussusceptions in the small bowel are secondary to benign lesions. Most intussusceptions in the small bowel are secondary to benign lesions. These include benign neoplasms (lipoma, leiomyoma, haemangioma, neurofibroma), adhesions, Meckel's diverticulum, lymphoid hyperplasia and adenitis, trauma, celiac disease, intestinal duplication and Henoch-Schonlein purpura.⁸

Intussusception due to a mass may manifest with atypical clinical findings. Often, there is a prior history of episodic crampy abdominal pain, nausea and vomiting, symptoms that suggest partial intestinal obstruction. Intussusception due to a mass can also manifest with symptoms related to a neoplastic process, including constipation, weight loss, melena, or a palpable

abdominal mass at physical examination, rather than specific symptoms related to the intussusception itself.⁹ Symptomatic diagnosis of intussusception due to a mass is difficult owing to the variety of clinical manifestations. The presence of mass, the degree of bowel wall edema, and the amount of invaginated mesenteric fat, all affect the appearance of an intussusception. If there is bowel wall edema due to impaired circulation of the mesenteric vessels, thickened bowel loops make it difficult to differentiate the mass from inflammation because the former may appear amorphous. An intussusception due to a mass appears as an abnormal target with a cross-sectional diameter greater than that of the normal bowel and may be associated with proximal bowel obstruction. Identification of a mass that is separate and distinct from bowel loops is not easy.¹⁰

The widespread application of Computed Tomography (CT) in different clinical situations has increased the detection of intussusception. Intussusception secondary to inverted Meckel's diverticulum in adults has also been managed with laparoscopic surgery.¹⁰

Although distal intussusceptions can be reduced by enema techniques under fluoroscopic control, irreducible or prolonged history requires surgery. Resection of the irreducible segment may be necessitated as in this case.

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