

Inverted Meckel's diverticulum presenting as chronic anemia: case report and literature review

Pramod S. Puligandla, MD, MSc;* Lisa Becker, MD;† David Driman, MB ChB;‡ Igor Prokopiw, MD, PhD;§ Donald Taves, MD;† Edward T. Davies, MD*

Meckel's diverticulum is a remnant of the omphalomesenteric duct and is the most common congenital abnormality of the gastrointestinal tract. Complications resulting from a Meckel's diverticulum occur in up to 4% of patients with this anomaly and include obstruction, "diverticulitis," gastrointestinal hemorrhage, intussusception and perforation. This report describes the unusual presentation of a Meckel's diverticulum as a small-bowel polyp in a patient with chronic anemia.

Case history

A 47-year-old man initially presented with iron deficiency anemia. His medical history was significant for ongoing "heartburn" and a previous dilatation for a benign esophageal stricture. He was also taking a compound containing acetylsalicylic acid for chronic back pain. Physical examination was unremarkable. Laboratory investigations at that time revealed a hemoglobin of 90 g/L with microcytic indices, a serum ferritin level of 5 µg/L (normal 40–260 µg/L) and stool samples that tested positive for occult blood. Management at the time included discontinuation of the anti-inflammatory medication. Findings on upper endoscopy and small-bowel biopsies were normal. At colonoscopy, an angiodys-

plastic lesion at 30 cm in dimension was fulgurated. The patient was placed on iron supplementation and was to be followed up by his family physician.

This patient returned 3 years later, after being lost to follow-up, with a recurrence of his microcytic anemia and stools that were again positive for occult blood. There was no further history of acetylsalicylic ingestion. Although a dedicated small-bowel study 2 months later was reported as normal, an enteroclysis was performed subsequently because of a high suspicion of small-bowel disease. Enteroclysis demonstrated a persistent, well-defined but not obstructive, tubular, intraluminal filling defect measuring 3.5 × 9.0 cm within the distal ileum (Fig. 1). Computed tomography with oral and intravenous contrast confirmed a 3.0 × 5.0 cm intraluminal tubular mass of fat density. An eccentric crescent of gas along most of the length of the mass suggested that this mass was intraluminal (Fig. 2). On the basis of these findings, a laparotomy was done, which revealed a 10.0-cm small-bowel mass in the distal ileum. On closer examination, the small-bowel mass was an inverted Meckel's diverticulum, with the end of the diverticulum being firm. A segmental small-bowel resection with primary anastomosis was performed. The patient had an uncomplicated recovery and was discharged

home in 9 days with no further recurrence of his anemia.

Pathological examination of the specimen demonstrated a segment of small bowel 14 cm long. On opening the specimen a sausage-shaped protuberance 7.5 × 2.8 cm in dimension was seen projecting into the lumen. This was in continuity with a small opening on the serosal aspect into which mesenteric fat appeared entrapped (Fig. 3). At the tip there was a 1.8-cm umbilicated ulcer, with 2 similar ulcers on the lateral aspect, measuring 0.7 cm and 1 cm in dimension respectively. Histologic examination showed normal small intestinal mucosa lining the polyp with heterotopic gastric mucosa adjacent to each of the ulcers. Random sections from the diverticulum showed additional collections of gastric-type mucus glands, unassociated with ulceration. *Helicobacter pylori* were not present in the resected specimen.

Discussion

This case of an inverted Meckel's diverticulum presenting as a small-bowel mass is rare. Even more unusual is this patient's presentation with chronic anemia in the absence of any significant gastrointestinal symptoms. From our review of the literature, we could find only 2 other reports of an inverted Meckel's di-

From the Departments of *General Surgery, †Radiology, ‡Pathology and §Gastroenterology, St. Joseph's Health Centre, University of Western Ontario, London, Ont.

Accepted for publication Dec. 22, 2000.

Correspondence to: Dr. Edward T. Davies, Department of General Surgery, St. Joseph's Health Centre, 268 Grosvenor St., London ON N6A 4V2; fax 519 646-6242, ward@home.com

© 2001 Canadian Medical Association

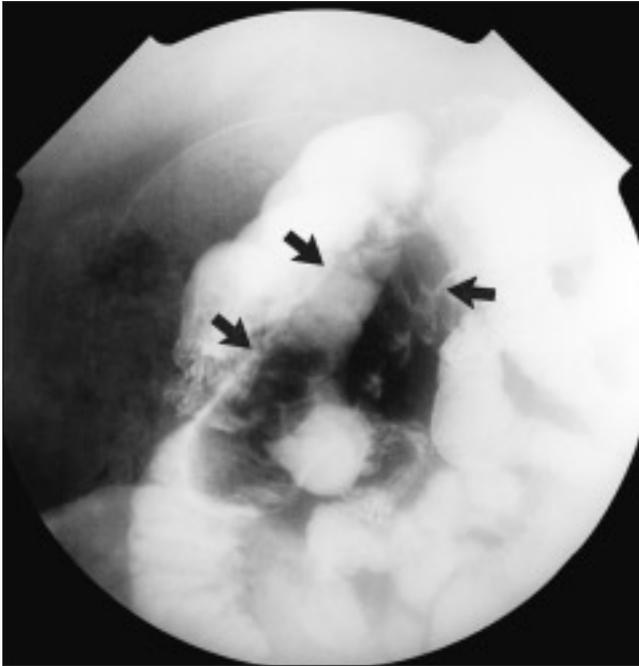


FIG. 1. Enteroclysis demonstrates a well-defined, tubular intraluminal filling defect in the mid- to distal ileum (arrows).



FIG. 2. Oral and intravenously enhanced CT shows an intraluminal tubular mass of fat density (arrow) with an eccentric crescent of air (curved arrow) and concentric thickening of the small-bowel wall.



FIG. 3. Examination of the small-bowel segment from the serosal aspect shows a small opening in which mesenteric fat is trapped (arrow).

verticulum presenting with chronic anemia.^{1,2} Pathological examination of the resected specimen revealed the presence of heterotopic gastric mucosa with resultant ulceration of the adjacent small-bowel mucosa. Peptic ulceration of this small-bowel mucosa represents the likely etiology for the patient's chronic anemia. Heterotopic gastric mucosa has been reported to occur in up to 50% of Meckel's diverticula and in up to 80% of symptomatic patients.³ Although *H. pylori*-induced "gastritis" has also been described with Meckel's diverticula,⁴ no *H. pylori* organisms were found in our operative specimen. Interestingly, this patient's anemia at initial presentation may have been exacerbated by the ingestion of nonsteroidal anti-inflammatory medication.⁵ This case highlights the importance of considering a complication of a Meckel's diverticulum in the clinical work-up of a patient presenting with obstruction, gastrointestinal bleeding or

abdominal pain that is atypical or undiagnosed after standard investigations.

References

1. James GK, Berean KW, Nagy AG, Owen DA. Inverted Meckel's diverticulum: an entity simulating an ileal polyp. *Am J Gastroenterol* 1998;93:1554-5.
2. Boldero JL. Inverted Meckel's diverticulum as a cause of anaemia and continuing blood loss. *Br J Radiol* 1978;51(610): 829-30.
3. Sabiston DC, Lyerly HK. *Textbook of surgery: the biological basis of modern surgical practice*. 15th ed. Philadelphia: Saunders; 1997. p. 946-50.
4. Hill P, Rode J. *Helicobacter pylori* in ectopic gastric mucosa in Meckel's diverticulum. *Pathology* 1998;30(1):7-9.
5. Mathur S, Verseman S, Estrada R, Hollinger FB. Bleeding from a Meckel's diverticulum after the use of ibuprofen. *Am J Gastroenterol* 1992;87(10):1467-70.