

Meckel's diverticulum diagnosed by capsule endoscopy

Divertículo de Meckel diagnosticado mediante cápsula endoscópica

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Introduction

Meckel's diverticulum is a congenital anomaly that results from an incomplete vitelline canal. Diagnosis is usually made during the investigation of a series of symptoms, including gastrointestinal bleeding, obstruction or intestinal perforation. Occasionally it is found incidentally in imaging studies or during laparoscopy made for other reasons. The diagnostic gold standard is Technetium-99m pertechnetate scanning, which detects ectopic gastric tissue, with a specificity of 95% and a sensitivity of 80-90% in children, whereas specificity is 9% and sensitivity 62.5% in adults. There have been case reports of Meckel's diverticulum diagnosed by capsule endoscopy, however, videocapsule can pass fast through the diverticulum, which can preclude obtaining an image of it. Here we present a case of a Meckel's diverticulum diagnosed by capsule endoscopy.

Clinical case

A 29 year-old woman with a medical history of hemorrhoids without any other chronic diseases presented with a 6 years history of painless hematochezia. A colonoscopy was performed, reporting ileal nodular hyperplasia, a hyperplastic polyp and isolated erythema patches of mucosa in her sigmoid and internal hemorrhoids. Four months prior to her evaluation she reported intermittent pain in her meso and hipogastrium. An upper endoscopy was performed, reporting a grade B erosive esophagitis and antral erythematous gastropathy.



Figure 1. "Double-lumen" sign on capsule endoscopy, suggestive of small intestine diverticulum.

Capsule endoscopy (Figure 1) showed a small erosion and a double-lumen sign in the ileum, consistent with a diverticulum, with no signs of active or recent bleeding. A Meckel's scan (Figure 2) was performed, with no evidence of ectopic gastric mucosa. Due to persistence of symptoms, she underwent an exploratory laparoscopy (Figure 3); a Meckel's diverticulum (MD) was found and removed 80 cm proximal to the ileocecal valve. Histologic evaluation showing gastric mucosa confirmed MD.

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Date of reception: 06-06-2024
Date of acceptance: 17-04-2025
DOI: 10.24875/END.24000010

Available online: 16-07-2025
Endoscopia. 2025;37(2):66-68
www.endoscopia-ameg.com

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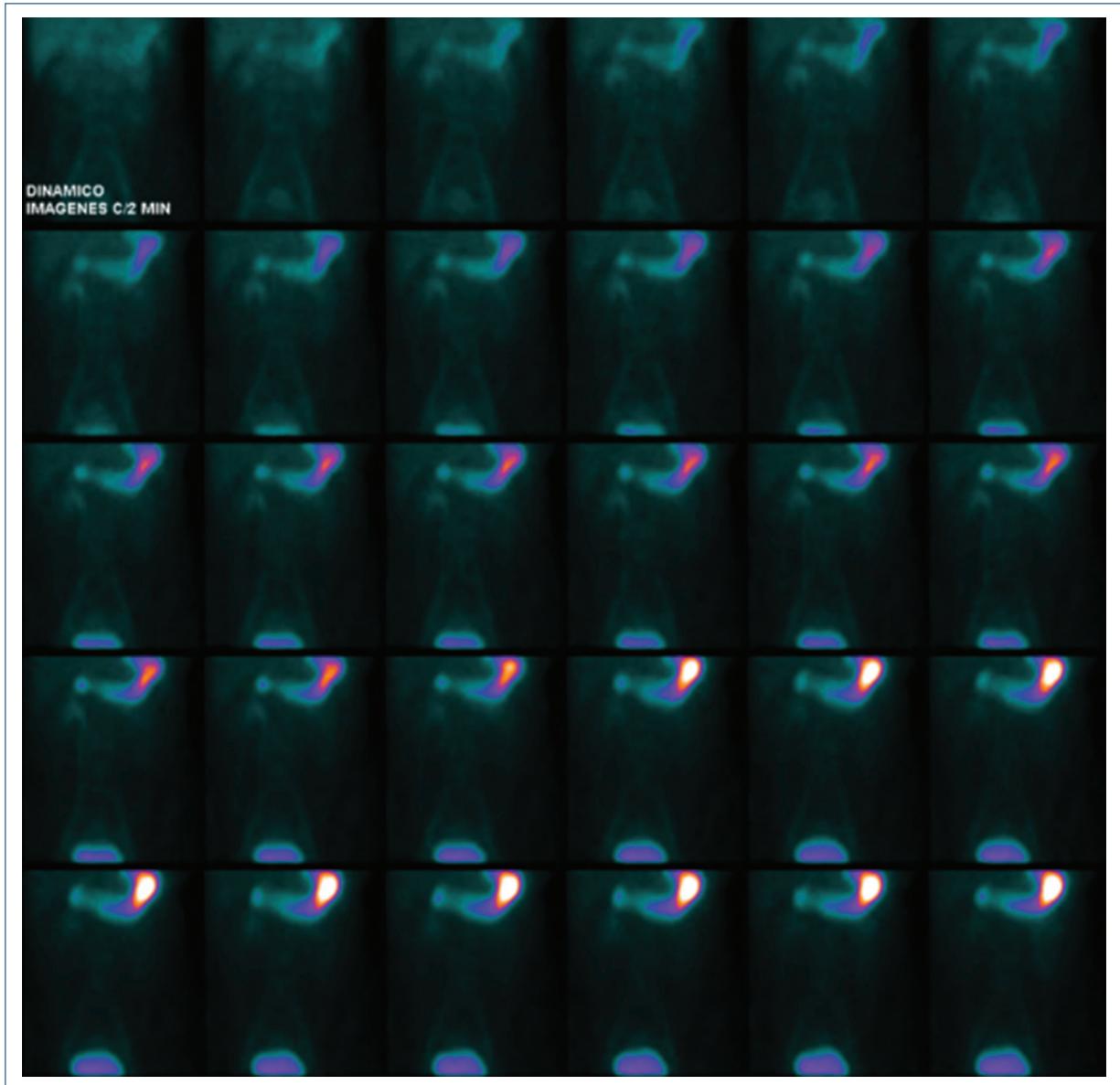


Figure 2. Meckel's scan negative to ectopic gastric mucosa.

The patient had an adequate post-surgical evolution. She was followed up for 6 months without recurrence of symptoms.

Discussion

Meckel's diverticulum is the most common congenital anomaly of the gastrointestinal tract, with a reported incidence of 0.6-4%. It develops from incomplete obliteration of the omphalomesenteric canal causing the creation of a true diverticulum in the small bowel¹. Meckel's is described by the "Rule of Twos", which

states: it occurs in 2% of the population, symptoms appear before age of two or within the first two decades of life, two main types of ectopic tissue, it is usually located within 2 ft of the ileocecal valve, it is approximately 2 in long, it is two times more likely to be symptomatic in males than females, and 2% become symptomatic². Adults are usually asymptomatic, which is why Meckel's is normally found incidentally in imaging or during laparoscopy performed for other reasons¹. In a systematic review, the authors found that among those adults with a symptomatic complicated Meckel's diverticulum, 35.6% presented with intestinal

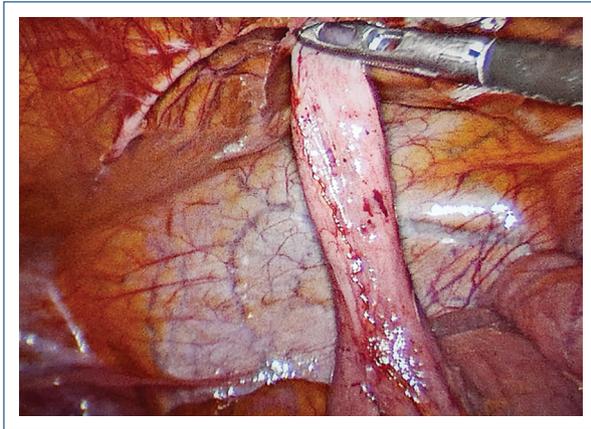


Figure 3. Meckel's diverticulum on laparoscopy.

obstruction, whereas 27.3% with gastrointestinal bleeding and 29.4% with diverticulitis³. Complementary studies are of little or no worth, especially when the diverticulum is uncomplicated. Contrast-enhanced CT scan can easily overlook a MD, which may be mistaken for a small intestinal loop. However, CT is the best study in case of complications. MRI does not have a well-established role in the diagnosis of this entity⁴. Gold standard for diagnosis is Technetium-99 pertechnetate scan, which has the ability to detect ectopic gastric mucosa. This mucosa is visible as a focal area of radionuclide uptake in the right lower quadrant that appears at the same time as the activity in the normal gastric mucosa². Despite some case reports of Meckel's diagnosed by videocapsule endoscopy, its diagnostic role is not established yet⁵. Capsule endoscopy is usually done after non conclusive upper endoscopy and colonoscopy during the diagnostic approach of gastrointestinal bleeding or iron deficiency anemia, as it was in this case. Classic findings of Meckel's diverticulum in videocapsule endoscopy are double lumen sign, diaphragm sign⁶, an elevated lesion with normal mucosa or a pedunculated polyp, seen in those cases with an inverted diverticulum⁵. Capsule entrapment within the diverticulum have been reported⁷, with potential complications such as abdominal pain, perforation and diverticulitis. Treatment consists of surgical resection. In those patients with incidentally found Meckel's diverticulum, it is not clear whether to resect

the diverticulum or not⁸. However, some authors recommend prophylactic resection in high-risk patients: male, age <40 years, diverticulum <2 cm and presence of macroscopic mucosal alterations. There is no recurrence of the diverticulum once resected and patients have a good postsurgical evolution.

Funding

There was no funding for this study/article.

Conflicts of interest

The authors declare that they have no conflicts of interest.

Ethical considerations

Protection of humans and animals. The authors declare that no experiments involving humans or animals were conducted for this research.

Confidentiality, informed consent, and ethical approval. The study does not involve patient personal data nor requires ethical approval. The SAGER guidelines do not apply.

Declaration on the use of artificial intelligence. The authors declare that no generative artificial intelligence was used in the writing of this manuscript.

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