Capsule retention in a giant Meckel's diverticulum containing multiple enteroliths

A 58-year-old man presented to hospital with diffuse abdominal pain, melena, and iron-deficiency anemia. Gastroscopy and colonoscopy were unremarkable. Wireless capsule endoscopy (WCE) (PillCam SB2; Given Imaging, Yoqneam, Israel) was then carried out. The video sequence showed the capsule passing through a narrow orifice of the distal ileum into a cavity containing multiple enteroliths swirling in a greenish fluid with debris (• Figs. 1 and 2). Small ulcers were also demonstrated near the orifice in the bowel lumen. The capsule remained within the cavity until the battery was exhausted.

Consequently, computed tomography (CT) demonstrated a dilated part of the bowel at the right abdomen, filled with enteral contrast and containing a hyperdense foreign body – corresponding to the capsule – and multiple ovoid structures, each with a thick rim of intermediate density and low-density center (• Fig. 3).

The patient was operated on, and a giant enteral diverticulum (• Fig. 4) containing the capsule and four enteroliths was found (• Fig. 5).

Histological examination proved this to be a Meckel's diverticulum with few small ulcers, without the presence of ectopic gastric mucosa.

Obscure gastrointestinal bleeding is the most common indication for WCE, yielding high detection and low retention rates [1]. Crohn's disease, neoplasia, abdominal radiation injury, prolonged nonsteroidal anti-inflammatory drug use, and previous major abdominal surgery or small-bowel resection are the most common reasons for capsule retention [1]. There are few reported cases of capsule retention in a small-bowel diverticulum, either a simple diverticulum or Meckel's diverticulum [2–4]. Meckel's diverticula that do not have gastric mucosa – like in our case – create a more alkaline environment, promoting precipitation of calcium and other minerals essential for enterolith formation [5]. It has been reported that only 10% of Meckel's diverticula contain enteroliths [5].

To our knowledge, this is the first report of WCE providing images of a Meckel's diverticulum containing enteroliths.

Fig. 1 Wireless capsule endoscopy (WCE) showing the narrow orifice in the distal ileum which leads to a cavity (the greenish structure behind) containing enteroliths.

Fig. 2 Wireless capsule endoscopy (WCE) image of an enterolith inside the Meckel's diverticulum.

Fig. 3 Computed tomography (CT) image demonstrating a dilated part of the bowel, filled with the enteral contrast (given orally), and containing the capsule and multiple enteroliths, each with a thick rim of intermediate density and low-density center.

Fig. 4 Gross specimen of the Meckel's diverticulum. Some of the enteroliths are shown.

Fig. 5 Meckel's enteroliths and the capsule. Each enterolith is laminated, probably due to chronic and progressive formation.

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References

- 1 Liao Z, Gao R, Xu C, Li ZS. Indications and detection, completion, and retention rates of small-bowel capsule endoscopy: a systematic review. *Gastrointest Endosc* 2010; 71: 280–286
- 2 Giday SA, Pickett-Blakely OE, Buscaglia JM, Mullin GE. Capsule retention in a patient with small-bowel diverticulosis. *Gastrointest Endosc* 2009; 69: 384–386
- 3 Tanaka Y, Motomura Y, Akahoshi K et al. Capsule endoscopic detection of bleeding Meckel's diverticulum, with capsule retention in the diverticulum. *Endoscopy* 2010; 42: 199–200
- 4 Ordubadi P, Blaha B, Schmid A et al. Capsule endoscopy with retention of the capsule in a duodenal diverticulum. *Endoscopy* 2008; 40: 247–248
- 5 Pantongrag-Brown L, Levine MS, Buetow PC et al. Meckel's enteroliths: clinical, radiologic, and pathologic findings. *Am J Roentgenol* 1996 Dec; 167: 1447–1450

Bibliography

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