Endoscopic muscularis excavation of a rectal duplication cyst

Rectal duplication cyst (RDC) is a rare congenital disorder of the hindgut, accounting for up to 5% of all duplications in the alimentary tract [1]. The cyst usually becomes apparent in childhood, presenting with infection, fistulization, or mass effect; clinical presentation in adulthood is uncommon. Surgical excision is a cornerstone of treatment because it relieves symptoms and prevents complications, such as perianal sepsis, bleeding, and malignant degeneration [2]. Herein, we describe what is, to the best of our knowledge, the first case of endoscopic resection of an RDC.

A 33-year old patient was admitted to our department to undergo a diagnostic work-up because of bowel disturbances. At colonoscopy, a submucosal lesion was seen in the rectum 7 cm from the anal verge (● Fig. 1a). Transrectal ultrasound demonstrated a 20-mm anechogenic, well-delineated lesion extending to the

muscularis propria layer (● Fig. 1b). RDC was diagnosed. The patient opted for endoscopic resection, and informed consent was obtained.

After circumferential marking and mucosal incision, a submucosal entry point was created at the distal side of the lesion by injecting 6% hydroxyethyl starch solution (500 mL) mixed with 2 mL of methylene blue dye and 1 mL of epinephrine (● Fig. 2a). Submucosal dissection was done with both a DualKnife and a Hook-Knife (Olympus, Tokyo, Japan) until the edges of the cyst were circumferentially exposed. Then, muscular excavation was done to detach the dorsal edge of the cyst from the muscularis propria (● Fig. 2b). Finally, the 51-mm resected specimen was removed (● Fig. 2c), and the cyst was seen on the dorsal side (● Fig. 2d). Pathologic examination demonstrated a 25-mm cyst with a mucin-filled lumen. The cyst wall consisted of an epithelial

layer of columnar cells with partially hemorrhagic ulcerated colonic mucosa and granulation tissue (● Fig. 3a), surrounded by two thick muscle layers (● Fig. 3b).

Endoscopic resection by means of muscular excavation – as an extension of standard endoscopic submucosal dissection – was initially described for the treatment of gastric submucosal tumors and tumors of the esophagogastric junction originating from the muscularis propria [3,4]. Our case demonstrates that the same approach may be feasible in the endoscopic treatment of rectal submucosal lesions.

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Competing interests: None

Fig. 1 Macroscopic features of a rectal duplication cyst. **a** A rectal submucosal tumor is discovered in a 33-year-old patient undergoing colonoscopy because of bowel symptoms. **b** Transrectal ultrasound demonstrates a 20-mm cystic lesion extending to the muscularis propria layer. Intracystic echoes indicate the presence of mucus.

Fig. 2 Endoscopic submucosal excavation of the rectal duplication cyst. **a** Submucosal entry point at the distal side of the lesion. **b** Exposure of the cyst. **c** Post-resection mucosal defect. **d** A completely excavated cyst is seen on the dorsal side of the specimen.

**Hrvoje Ivekovic¹, Branko Bilic¹,
Jasminka Jakic Razumovic²,
Mirjana Kalauz¹, Nadan Rustemovic¹,
Hubert Piessevaux³, Pierre H. Deprez³**

¹ University Hospital Centre Zagreb,
Department of Gastroenterology
and Hepatology, Zagreb, Croatia

² University Hospital Centre Zagreb,
Department of Pathology, Zagreb,
Croatia

³ Department of Hepato-Gastroenter-
ology, Cliniques universitaires Saint-Luc,
Université Catholique de Louvain,
Brussels, Belgium

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Corresponding author

Hrvoje Ivekovic, MD
University Hospital Centre Zagreb
Department of Gastroenterology and Hepatology
Kispaticeva 12
10000 Zagreb
Croatia
Fax: +385-1-2388200
hrvoje.ivekovic@gmail.com

Fig. 3 Microscopic view of the cyst wall. **a** Part of the rectal duplication cyst demonstrating hemorrhagic ulcerated colonic mucosa and granulation tissue. **b** The wall of the cyst has an epithelial layer of columnar cells and an outer smooth-muscle layer.