Treatment of complete esophageal stenosis using endoscopic ultrasound-guided puncture: a novel technique for access to the distal lumen

Fig. 1 Endoscopic view, showing complete obliteration of the esophageal lumen after high-dose chemoradiation in a 62-year-old woman.

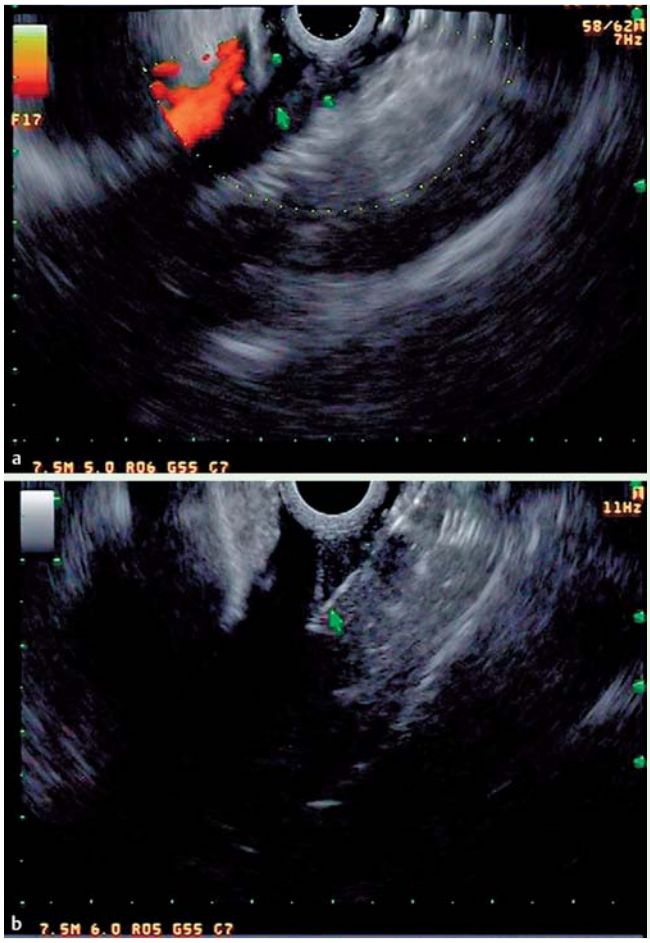

Fig. 2 **a, b** EUS images of the esophageal total stricture. **a** A thickened esophageal wall (arrows) continues through the stenosis. **b** EUS image of the 19G needle through the stricture (arrow).

Treatment of locally advanced esophageal cancers with high-dose definitive concomitant chemoradiotherapy can lead to high-grade esophageal strictures, or, rarely, total obliteration of the lumen. Strictures can be successfully treated with various endoscopic techniques; however, complete obstruction is a technically challenging problem. Anterograde endoscopic techniques carry the risk of perforation or bleeding. A combined anterograde–retrograde dilation technique, described in a few reports, is another option but requires retrograde access through a prior ostomy [1–4].

We report a novel method for managing complete esophageal obstruction using endoscopic ultrasound (EUS)-guided puncture for access to the distal lumen, previously described only in a case of total colonic stricture using a prototype forward-view echoendoscope [5].

A 62-year-old woman had received high-dose chemoradiation for a squamous cell esophageal carcinoma (stage IIIC) and her esophagus had completely occluded, with severe compromise to her quality of life (▶ **Fig. 1**). Several attempts to pass a guide wire though the stricture were unsuccessful.

We decided to attempt recanalization of the lumen using an EUS-guided access. The linear echoendoscope (GF-UCT140-AL5; Olympus, Tokyo, Japan) was advanced 24 cm from the incisors and the distal esophageal lumen was identified from the proximal end on the EUS image (▶ **Fig. 2a**). A 19G needle (Expect Flex; Boston Scientific Corp, Natick, Massachusetts, USA) was used to puncture the obstructed lumen under EUS guidance (▶ **Fig. 2b**). Contrast filling was visualized under fluoroscopy and a 0.035-inch guide wire (Microvasive Jagwire; Boston Scientific) was advanced through the EUS needle (▶ **Fig. 3a, b**). An 8-mm biliary balloon (Hurricane RX; Boston Scientific) was used to perform a first dilation under endoscopic and fluoroscopic guidance (▶ **Fig. 3c**). The endoscopic appearance after dilation was satisfactory, with re-establishment of luminal continuity (▶ **Video 1**).

The patient underwent four additional endoscopic balloon dilations of up to 15 mm (▶ **Fig. 4**). She responded well, gaining the ability to swallow secretions, drinks, and soft food, and without evidence of delayed complications.

Video 1

Successful treatment of a completely obstructed esophageal stricture using endoscopic ultrasound-guided puncture.

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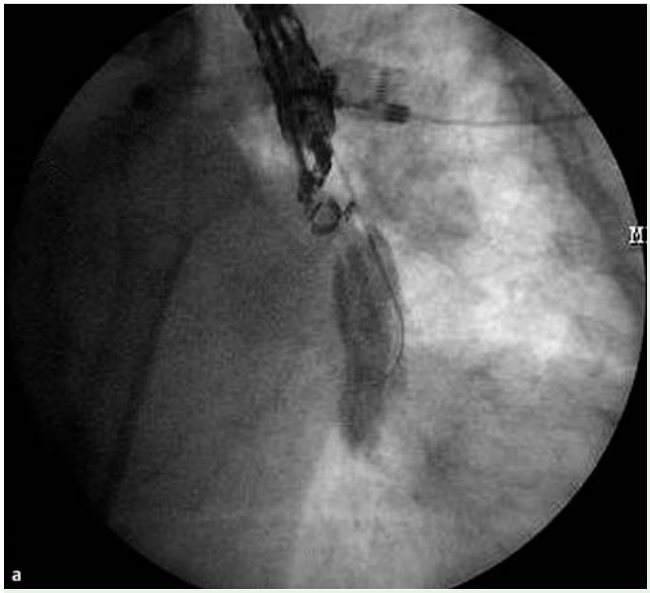

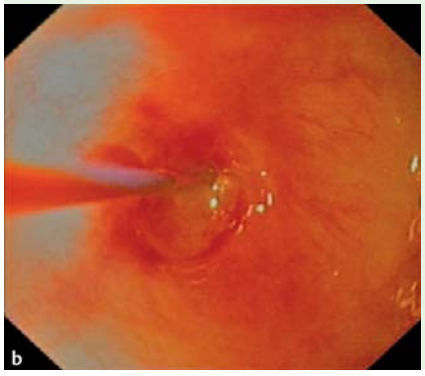

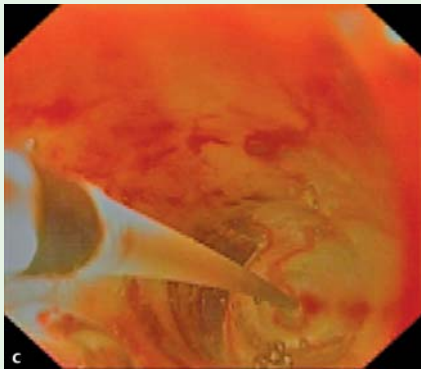

Fig. 3 **a** Fluoroscopic image of the echoendoscope and an esophagogram obtained after the guided puncture. **b, c** Endoscopic views. **b** A 0.035-inch guide wire is advanced to the distal esophageal lumen. **c** Dilation up to 8 mm with a biliary balloon.

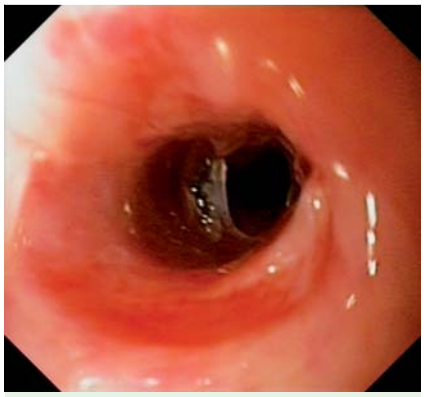

Fig. 4 Endoscopic view after two balloon dilation sessions up to 15 mm, at 8-weeks follow-up after recanalization.

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Competing interests: None

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Bibliography

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