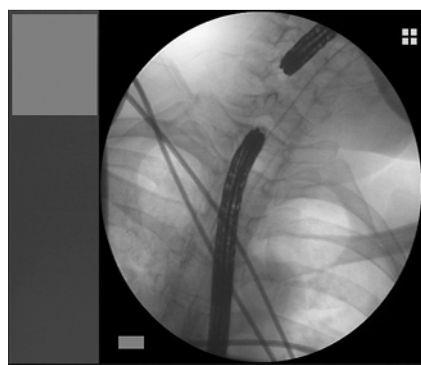


Peroral endoscopic tunneling for restoration of esophagus in a patient with a post-radiation post-cricoid complete esophageal obstruction

Peroral endoscopic tunneling for restoration of esophagus (POETRE) is a novel third-space endoscopy procedure that has been reported for the treatment of complete esophageal obstruction [1–3]. To date, POETRE has been described only for mid-esophageal strictures. This case demonstrates the use of POETRE in a patient with a post-cricoid cervical complete esophageal obstruction.

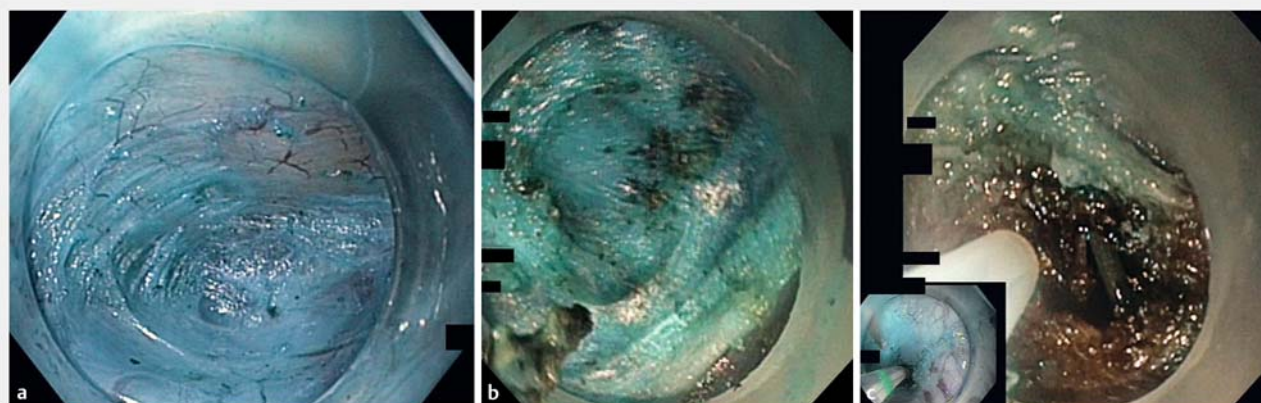


► **Fig. 1** Fluoroscopic image showing the 3-cm distance between the antegrade and retrograde endoscopes once negotiated up to the level of esophageal stricture from either side.

A 52-year-old woman reported total dysphagia following definitive chemoradiotherapy for hypopharyngeal squamous cell carcinoma. She had a feeding gastrostomy in situ and had undergone three previous failed attempts at endoscopic dilation. Assessment of the stricture using contrast swallow demonstrated complete esophageal obstruction, and combined antegrade (peroral) and retrograde (through the feeding gastrostomy tract) endoscopy under fluoroscopy guidance revealed a long-segment (3 cm) complete esophageal obstruction (► **Fig. 1**). Endoscopic transillumination across the stricture was not possible. POETRE was performed in the retrograde direction (► **Video 1**) [1]. A gastroscope was passed into esophagus via the feeding gastrostomy port. After elevation, a submucosal tunnel was created posteriorly, starting 4 cm from the distal end of the stricture, using a Triangle Tip knife (TT Knife-J; Olympus, Japan). Once the stricture segment had been reached, dense fibrosis was encountered and dissected (► **Fig. 2 a**). An ultraslim endoscope was passed orally and, after submucosal elevation, a mucosal flap was raised using a snare tip by transverse inci-

sion beyond the cricopharynx on the posterior wall (► **Fig. 2 b**). Dissection was advanced on both sides under fluoroscopic guidance and a guidewire was negotiated from the retrograde to the antegrade tunnel (► **Fig. 2 c**), where it was grasped and brought out orally. A fully covered self-expandable metal stent (FCSEMS) with a short cervical flange was deployed across the stricture over the guidewire. The distal end of stent was anchored to the esophageal wall using endoclips. The patient was maintained on gastrostomy feeds. A contrast swallow demonstrated no leakage.

Four weeks later, the FCSEMS was removed retrogradely using the stent invagination technique. Hyperplastic granulation at the proximal end of the stent was dilated to 12 mm (► **Fig. 3**). A contrast swallow demonstrated free flow across the stricture and no leakage, and oral feeds were restarted. The patient underwent weekly dilation to 15 mm on five occasions. Esophagogastroduodenoscopy subsequently revealed complete epithelization of the neo-esophagus. A self-dilation program using an 11-mm bougie was recommended three times weekly. At follow-up 12 weeks post-



► **Fig. 2** Endoscopic views showing: **a** the retrograde submucosal tunnel; **b** the antegrade submucosal tunnel; **c** the guidewire passed through from the retrograde tunnel and visible from the antegrade tunnel.



Video 1 Retrograde peroral tunneling restoration of esophagus (POETRE) is performed in a patient with post-cricoid complete esophageal obstruction and, following serial dilations, results in complete re-epithelization of the dilated stricture.

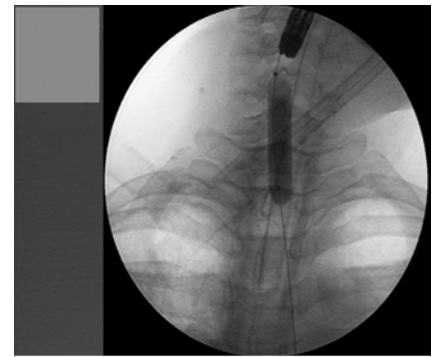


Fig. 3 Fluoroscopic image showing balloon dilation of the hyperplastic granulation tissue at the proximal end.

POETRE, the patient reported comfortably consuming a near-normal diet orally. This video demonstrates the safety and efficacy of POETRE for the treatment of complete esophageal obstruction, and that the technique can be effective even in a post-cricoid location.

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Competing interests

The authors declare that they have no conflict of interest.

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