Technically simplified peroral endoscopic myotomy: blunt dissection making submucosal tunneling fast and safe

As a primary treatment for patients with achalasia [1], peroral endoscopic myotomy (POEM) is a technically demanding procedure [2]. To perform a high-quality POEM and to prevent complications such as leakages, infections, major bleeding, and gas-related events, the establishment of a submucosal tunnel and the integrity of the mucosal flap are crucial [3, 4]. We present a blunt dissection technique to achieve rapid and safe submucosal tunneling in the aim to build a technically simplified POEM, which we call blunt POEM (►Video 1).

A 58-year-old woman suffered from solid food dysphagia and regurgitation. The endoscopy presented two surgical scars (►Fig. 1 a, b) and a contraction ring at the lower esophagus (►Fig. 1 c). The patient was diagnosed with type II achalasia under barium esophagography (►Fig. 1 d) and high resolution esophageal manometry. We decided to perform POEM on the patient. Briefly, a mucosal incision was made on the posterior esophageal wall (►Fig. 2 a). Once the endoscope was maneuvered into the submucosal space, the transparent cap was applied to bluntly dissect the fibers and thus establish a submucosal tunnel (►Fig. 2 b). The blunt dissection was so efficient that it took only 2 minutes to establish a 10-cm tunnel (►Fig. 2 c). After the submucosal tunnel was extended 2 cm into the proximal stomach, the selective inner circular myotomy and full-thickness myotomy were conducted (►Fig. 2 d). Finally, the mucosal entry was closed using endoclips (►Fig. 2 e). After the procedure, the lower esophageal sphincter (LES) was open and the endoscope smoothly passed the cardia (►Fig. 2 f).

The simplest strategy to establish a tunnel is to dissect the submucosal fibers without a knife, and the most effective way to prevent complications is to preserve the intact mucosal flap [5]. In the current method of blunt POEM, we devel-

►Video 1 The establishment of a novel peroral endoscopic myotomy (POEM) using a blunt dissection-based submucosal tunneling technique.

►Fig. 1 The diagnosis of achalasia after endoscopic submucosal dissection of early esophageal cancer. a One surgical scar on the right esophageal wall 24 cm away from the incisors. b Another esophageal scar 34 cm away from the incisors. c Contractile closed cavity was seen at the lower esophagus under endoscopy. d A beaklike narrow ring presented at the lower esophagus on barium esophagography.

Fig. 2 The establishment of a novel peroral endoscopic myotomy (POEM) using blunt dissection-based submucosal tunneling technique. **a** A 1.5-cm to 2-cm longitudinal mucosal opening was made after a submucosal cushion was created with the methylene blue saline solution. **b** The endoscope with a transparent cap fitted on its tip was drilled into the submucosal layer to create the working tunnel by bluntly dissecting fibers with the transparent cap. **c** A wide submucosal tunnel was established rapidly and safely as care was taken with the orientation of the endoscope. **d** Myotomy was performed from 2 cm below the mucosal opening to the end of the submucosal tunnel. **e** The mucosal opening was closed using endoscopic clips. **f** After the procedure, the cardia was relaxed and the endoscope was passed through it smoothly.

oped blunt dissection to simultaneously create a safe tunnel and preserve the mucosal flap. Compared with traditional POEM, blunt POEM is more easily maneuverable and less time-consuming for the treatment of achalasia.

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Competing interests

The authors declare that they have no conflict of interest.

The authors

Xiao Hu^{*}, Ying-hui Zhang^{*}, Xiao-gang Liu, Sheng-xi Han, Wei-hui Liu

Department of Gastroenterology and Hepatology, Sichuan Academy of Medical Sciences & Sichuan Provincial People's Hospital, School of Medicine, University of Electronic

Science and Technology of China, Chengdu, Sichuan Province, China

Corresponding author

Wei-hui Liu, MD

Department of Gastroenterology and Hepatology, Sichuan Academy of Medical Sciences & Sichuan Provincial People's Hospital, School of Medicine, University of Electronic Science and Technology of China, Chengdu, Sichuan Province, 610072, China
audiliu12@163.com

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