A novel endoscopic technique for closure of a large esophageal perforation using the clip-and-snare method with the prelooping technique

Fig. 1 Endoscopic view showing a large perforation (yellow arrowheads) in the cervical esophagus during endoscopic submucosal dissection.

It is sometimes difficult to close a large perforation using endoclips and over-the-scope clips, and surgery may be required [1]. We report a novel endoscopic technique for closure of a large perforation using the clip-and-snare method with the prelooping technique.

A 76-year-old man with a metachronous esophageal cancer, which developed at a scar in the cervical esophagus that resulted from a previous endoscopic submucosal dissection (ESD), underwent a second ESD. A large perforation occurred during submucosal dissection because of severe fibrosis associated with the previous ESD (● Fig. 1). Closure of the perforation could not be achieved by endoscopic clip placement because of its large size. Therefore, we endoscopically closed the perforation using an endoclip with the clip-and-snare method and prelooping technique, as has been applied in the traction method for ESD [2,3].

First, a snare (SD-210L-15; Olympus, Tokyo, Japan) was prelooped around the transparent hood (D-201-11804; Olympus) attached to a single-channel upper gastrointestinal endoscope (GIF-Q260J; Olympus) (● Fig. 2a), which was then advanced towards the mucosal defect. The anal side of the mucosal perforation was grasped using an endoclip (HX-610-090; Olympus) passed through the scope channel and was not released. Subsequently, the prelooped snare was loosened from the transparent hood (● Fig. 2b), and the

Fig. 2 The clip-and-snare method with prelooping technique. **a** A snare was prelooped around the transparent hood attached to a single-channel upper gastrointestinal endoscope. **b** The prelooped snare was loosened from the transparent hood. **c** The endoclip that had previously been used to grasp the anal side of the mucosal perforation was grasped with the snare. **d** Endoscopic view showing successful closure of the perforation.

Fig. 3 Endoscopic view 2 months later showing an ulcer scar.

endoclip was grasped with the snare and released from the forceps (● Fig. 2c). The snare was pulled from the mouth, resulting in narrowing of the perforation, which could then be closed using endoclips (● Fig. 2d; ● Video 1).

A large esophageal perforation is closed using the clip-and-snare method with prelooping technique.

Following this procedure, the patient developed no symptoms, except for a slight fever and elevation of the C-reactive protein (CRP) level. An ulcer scar was observed 2 months post-ESD (● Fig. 3).

This novel technique involving a device that is routinely used for endoscopic therapy may be a helpful and easy procedure for closure of a large perforation in the digestive tract.

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