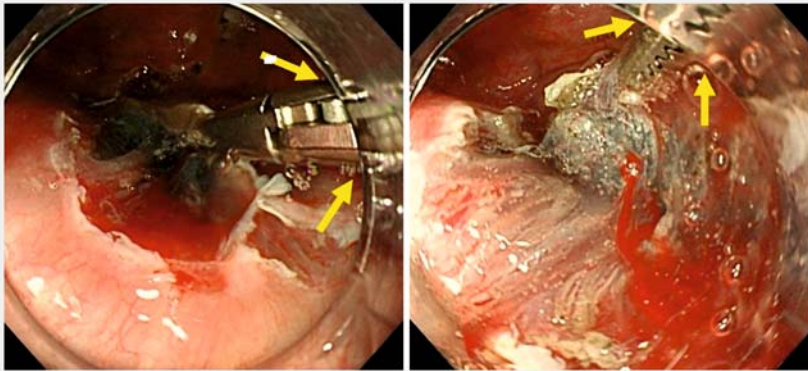


Effective traction using a clip with rubber band and grasping forceps in endoscopic laryngopharyngeal surgery

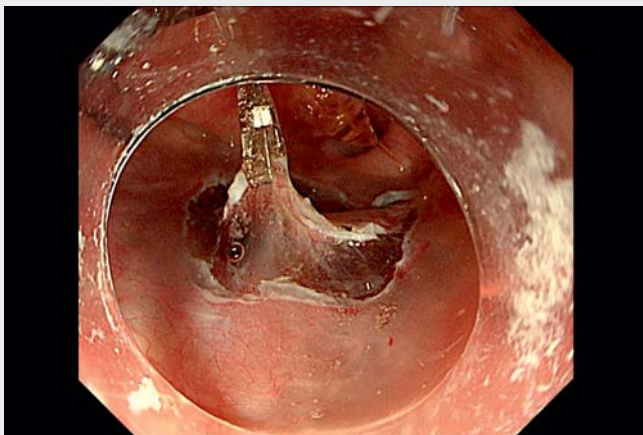
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► **Fig. 1** Conventionally, laryngeal forceps are used to directly grasp and retract the lesion; however, endoscope maneuvering is limited by interference between the laryngeal forceps (arrows) and the endoscope.



► **Fig. 2** The customized clip with rubber band.



► **Video 1** Endoscopic laryngopharyngeal surgery was performed for a superficial lesion located in the posterior wall of the hypopharynx.

The number of detected pharyngeal tumors has been increasing. Endoscopic laryngopharyngeal surgery (ELPS) is often performed for these tumors and can be an effective method of preserving speech and swallowing functions. ELPS is also useful for superficial pharyngeal tumors [1,2]. Conventionally, laryngeal forceps are used to directly grasp and retract the lesion; however, only limited

endoscope maneuvering is possible owing to interference between the laryngeal forceps and the endoscope (► **Fig. 1**) [3]. To avoid this interference, we customized a clip (ZEOCLIP; Zeon Medical Inc., Tokyo, Japan) by attaching a rubber band (► **Fig. 2**). This clip has mainly been used for colorectal endoscopic submucosal dissection, and there are some reports confirming its effectiveness [4,5];

however, there are no reports about its effectiveness in ELPS. Herein, we report our experience performing ELPS using this customized clip (► **Video 1**).

Before starting ELPS, we customize the clip by attaching a rubber band, and the clip is then housed within the delivery sheath. ELPS is performed in the supine position under general anesthesia. An otolaryngologist performs laryngeal expansion to create a working space. The lesion is marked with narrow-band imaging, and a full-circumference incision is created. The customized clip is then attached to the oral side. The otolaryngologist grasps the rubber band using laryngeal forceps, and effective traction can be applied; the traction direction can be changed according to the procedural situation (► **Fig. 3 a**). The elasticity of the rubber band makes it easy to apply and maintain appropriate traction. Furthermore, tearing of the lesion or slipping of the clip is less likely, and the technique enables accurate evaluation of the horizontal margin pathologically. Appropriate traction can be maintained until the end of the dissection (► **Fig. 3 b**), and en bloc resection is completed without complications (► **Fig. 3 c**).

In ELPS, traction using a customized clip can be useful for efficient dissection.

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► **Fig. 3** Endoscopic laryngopharyngeal surgery using the customized clip with rubber band. **a** Effective traction can be applied because the traction direction can be changed according to the procedural situation. **b** Appropriate traction can be maintained until the end of the dissection. **c** En bloc resection is completed without complications.

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Competing interests

The authors declare that they have no conflict of interest.

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