



Endoscopic submucosal dissection for superficial pharyngeal carcinoma using transnasal endoscope

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Detection of superficial pharyngeal carcinoma is becoming more common with advances such as narrow-band imaging and blue-laser imaging.^{1,2} Endoscopic submucosal dissection (ESD) for superficial pharyngeal carcinoma is useful as a minimally invasive treatment.^{3,4} However, lesions at the posterior wall of the oropharynx are usually difficult to resect using a conventional transoral endoscope because they are perpendicular to the muscle layer and the subepithelial layer is quite narrow at this site (Fig. 1). In such cases, a transnasal endoscope is useful. Here we report on oropharyngeal ESD using a transnasal endoscope.

CASE

The patient (Video 1, available online at www.VideoGIE.org) was a 71-year-old man who had a history of esophageal and pharyngeal ESD for superficial squamous cell carcinoma. Follow-up endoscopy revealed a reddish area on the posterior oropharyngeal wall. On narrow-band imaging magnification, a lesion could be recognized as a brownish

area, and biopsy testing revealed squamous cell carcinoma. ESD was performed with the patient under general anesthesia in the operating room (Fig. 2).

First, the procedure was performed using a GIF-H290T (Olympus Medical Co, Tokyo, Japan) and DualKnife (Olympus) (Fig. 3). Dissection was difficult because the lesion was perpendicular to the muscle layer with a narrow subepithelial layer (Fig. 4). Therefore, we opted for a transnasal endoscope.

The subepithelial tissue was dissected under direct vision using the GIF-XP290N and a needle knife (Fig. 5). Laryngeal forceps were inserted orally, and the lesion was pulled and traction was applied to perform dissection (Fig. 6). When approximately half of the lesion was dissected, it became possible to maneuver it into the subepithelial tissue with a conventional transoral endoscope, and the lesion was resected en bloc without any adverse events (Fig. 7).

The procedure time from incision to resection was 40 minutes. Pathologic examination revealed squamous cell

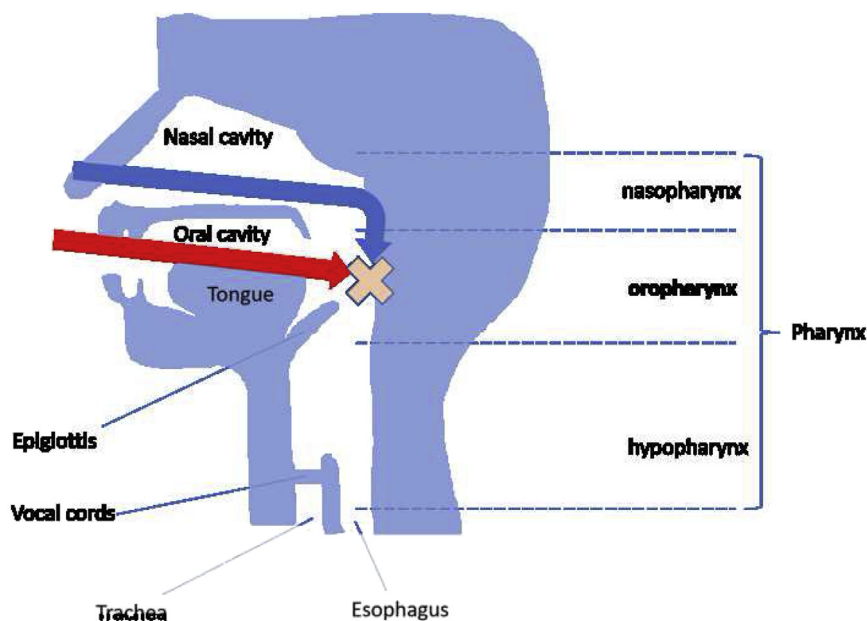


Figure 1. Schema of the pharynx. The posterior wall of the oropharynx is seen vertically via the transoral endoscope (red arrow). With the transnasal endoscope, the lesion can be approached horizontally (blue arrow).

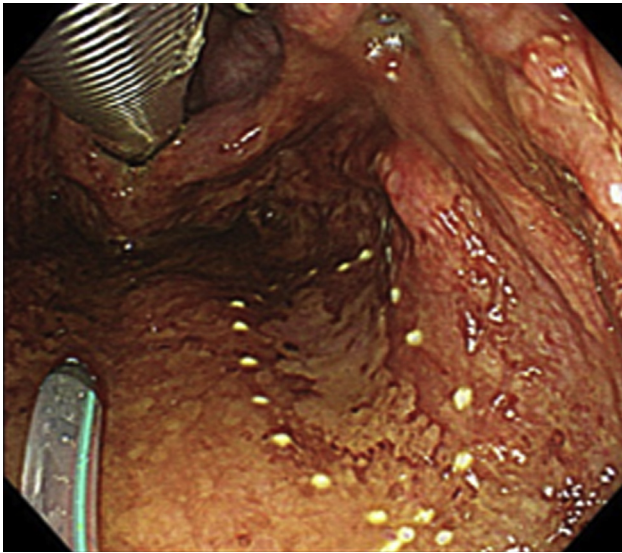


Figure 2. Endoscopic image of marking. A 25-mm area unstained with iodine is seen on the right side of the posterior oropharyngeal wall.

carcinoma in situ, measuring 25 × 14 mm, margin negative (Fig. 8). Liquid food was started on the third day after ESD, and the patient was discharged from our hospital 9 days after ESD. Two months after ESD, the ESD ulcer was completely healed (Fig. 9).

DISCUSSION

For lesions of the posterior oropharyngeal wall, use of a conventional transoral endoscope is usually difficult because it approaches the thin subepithelial tissue vertically, interfering with the orally inserted traction device



Figure 3. Endoscopic image during mucosal incision (transoral endoscope). Circumferential incision performed via conventional endoscopy.

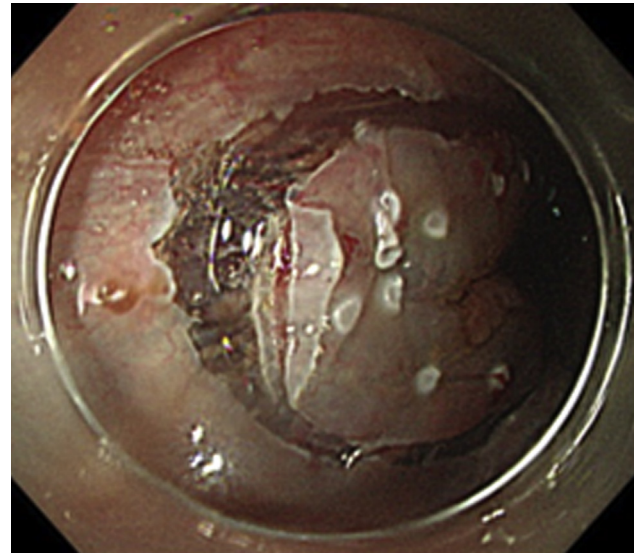


Figure 4. Endoscopic image during dissection (transoral endoscope). Entry into the subepithelial layer circumferential incision is difficult because the subepithelial tissue is thin and perpendicular to the muscle layer.

and the endoscope itself.⁵ In our experience, the muscle layer is energized by electrocautery, and muscle contraction occurs during incision and dissection. The transnasal endoscope is useful at such times because the lesion can be approached horizontally, and the narrow subepithelial tissue can be easily penetrated owing to the endoscope's small diameter. Another major advantage is

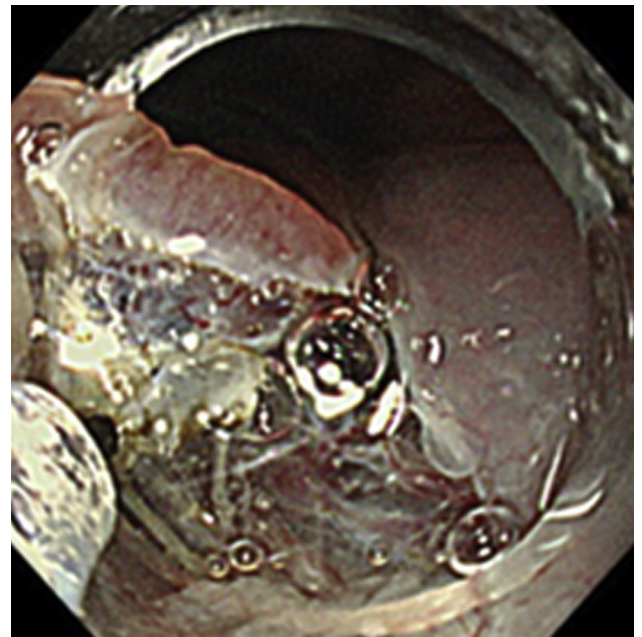


Figure 5. Endoscopic image during dissection (transnasal endoscope). Horizontal approach to the lesion is possible. Entry into the narrow subepithelial space is easy because of the thin endoscope.

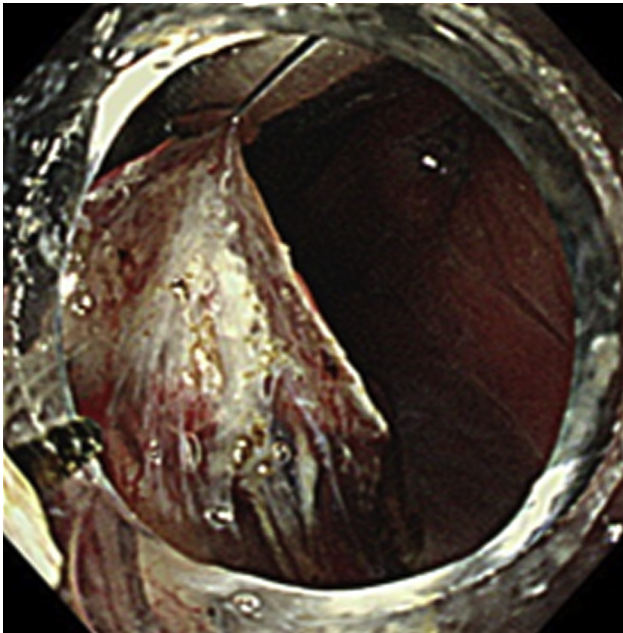


Figure 6. Endoscopic image during dissection (transnasal endoscope). Subepithelial tissue could be dissected under direct vision. Laryngeal forceps inserted orally are useful for applying traction.

that the traction device inserted orally does not interfere with the transnasal endoscope.

There are several reports of ESD using ultra-thin endoscopes.^{6,7} One advantage is that ESD beyond the esophageal stenosis is possible and the narrow submucosal layer can be easily penetrated. However, hemostasis using an ultra-thin endoscope may be difficult in an organ with a high bleeding potential, such as the stomach.

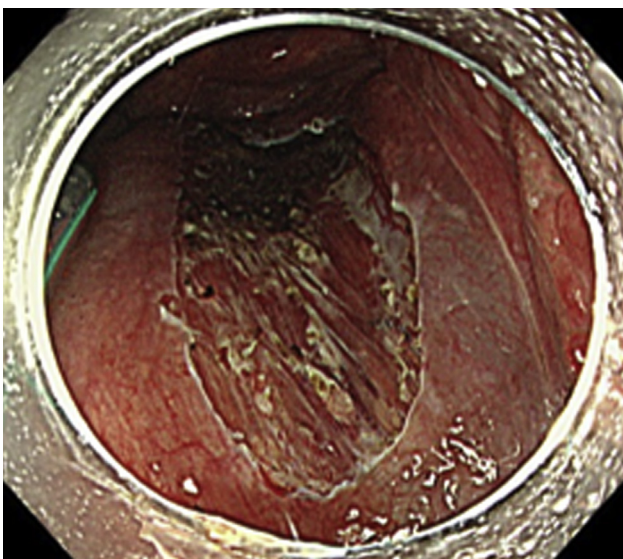


Figure 7. Endoscopic submucosal dissection ulcer after resection. The lesion was resected en bloc without adverse events.

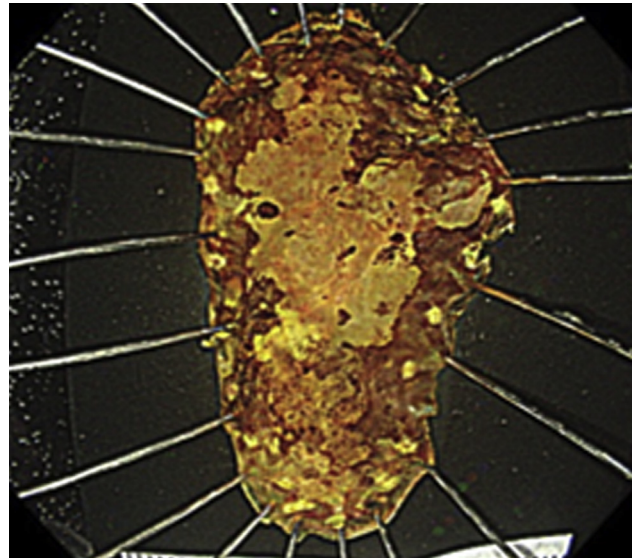


Figure 8. Endoscopic submucosal dissection specimen. The lesion was squamous cell carcinoma in situ, measuring 25×14 mm, ly0, v0, margin negative.

Pharyngeal ESD is accompanied by less bleeding than in other organs, so ESD can be performed with an ultra-thin endoscope that is easy to introduce. However, performing all ESD procedures transnasally is expected to increase procedure time. In our case as well, only the part submerged in the subepithelial tissue was performed transnasally, although it is important to use the conventional transoral endoscope and transnasal endoscope together. Currently, there is no ESD device for the ultra-thin endoscope, and thus development of knives and hemostatic forceps for use with the ultra-thin endoscope is awaited in the future.

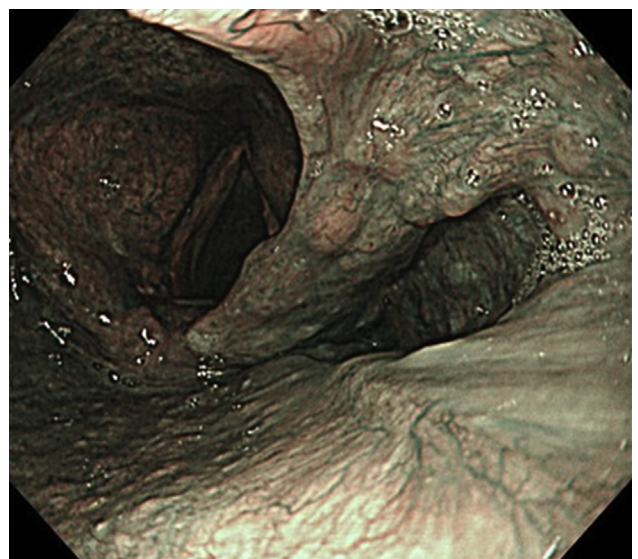


Figure 9. Two months after endoscopic submucosal dissection. Endoscopic submucosal dissection ulcer was completely healed.

In conclusion, ESD for oropharyngeal carcinoma can be performed safely and easily using a transnasal endoscope.

DISCLOSURE

All authors disclosed no financial relationships.

Abbreviation: ESD, endoscopic submucosal dissection.

REFERENCES

1. Muto M, Minashi K, Yano T, et al. Early detection of superficial squamous cell carcinoma in the head and neck region and esophagus by narrow band imaging: a multicenter randomized controlled trial. *J Clin Oncol* 2010;28:1566-72.
2. Kikuchi D, Iizuka T, Yamada A, et al. Utility of magnifying endoscopy with narrow band imaging in determining the invasion depth of superficial pharyngeal cancer. *Head Neck* 2015;37:846-50.
3. Hanaoka N, Ishihara R, Takeuchi Y, et al. Endoscopic submucosal dissection as minimally invasive treatment for superficial pharyngeal cancer: a phase II study (with video). *Gastrointest Endosc* 2015;82:1002-8.
4. Iizuka T, Kikuchi D, Hoteya S, et al. Endoscopic submucosal dissection for treatment of mesopharyngeal and hypopharyngeal carcinomas. *Endoscopy* 2009;41:113-7.
5. Iizuka T, Kikuchi D, Hoteya S, et al. A new technique for pharyngeal endoscopic submucosal dissection: peroral countertraction (with video). *Gastrointest Endosc* 2012;76:1034-8.
6. Muramoto T, Sakai E, Ohata K. Thin-endoscope endoscopic submucosal dissection for early esophageal cancer with postoperative stricture. *Dig Endosc* 2020;32:e11-2.
7. Minato Y, Sakai E, Ohata K. Conscious transnasal hybrid endoscopic submucosal dissection enables safe and painless en bloc resection in elderly patients with early gastric cancer. *VideoGIE* 2019;4:157-8.

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