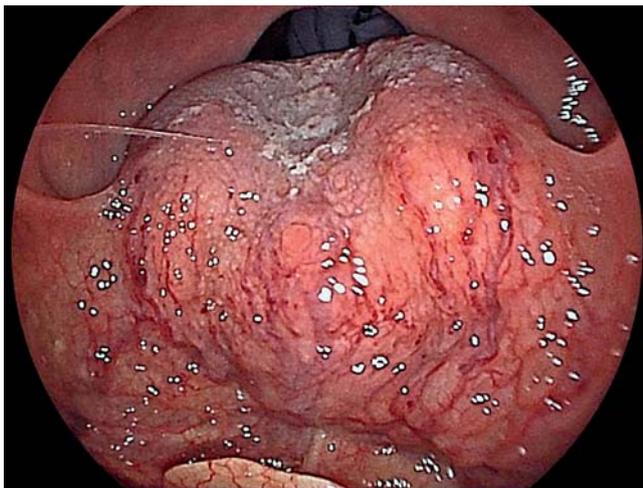


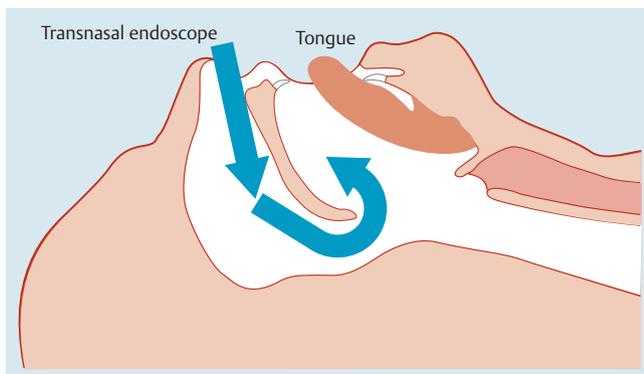
## Intraoropharyngeal U-turn method using transnasal esophagogastroduodenoscopy



**Fig. 1** The transnasal endoscope used in this procedure, which is able to make a U-turn of up to 210°.



**Fig. 2** Image during transnasal endoscopy showing a forward view of the radix linguae after a U-turn has been made with the endoscope.



**Fig. 3** Illustration of the intraoropharyngeal U-turn method.

The more progress that has been made in endoscopy, the more superficial cancers have been found in the head and neck regions [1–4]. There are, however, some areas that are difficult to observe on transoral esophagogastroduodenoscopy (EGD). In particular, only a tangential

view of the radix linguae is obtained with transoral EGD. In this report, we present the procedure for an intraoropharyngeal U-turn method using transnasal EGD [5], which we used to diagnose a superficial squamous cell carcinoma of the radix linguae.

The endoscope used (EG-580NW; Fuji Film, Tokyo, Japan) was a transnasal endoscope that was able to provide high-quality, wide-field (140°) endoscopic images that could be viewed on a monitor and digitally recorded. Suction, irrigation, and insufflation are all possible with this transnasal flexible endoscope, which facilitates clinical assessment of this particular area. The tip of the endoscope can make a U-turn up to an angle of 210° (● Fig. 1). All areas of the tongue from the radix linguae to the apex linguae can therefore be observed using this intraoropharyngeal U-turn method (● Fig. 2).

The procedure for performing the intraoropharyngeal U-turn method is illustrated in ● Fig. 3. The procedure was used in a man with a superficial oropharyngeal cancer (● Video 1). First, the patient opened his mouth wide and stuck his tongue forward as much as possible, while making a vocal sound like “ayyy”. A tangential view of a small elevated lesion at the right radix linguae was possible on transoral endoscopy (● Fig. 4a), but closer observation was very difficult. With the endoscope inserted through the nose, the tumor was invisible on routine observation. However, by turning the transnasal endoscope through a U-turn in the oropharyngeal area, a forward view of radix linguae could be obtained. This provided a much better view of the lesion (● Fig. 4b) than had been possible with transoral endoscopy, and a 10×6-mm superficial lesion was removed by en bloc resection (● Fig. 5). Histopathological examination revealed a diagnosis of squamous cell carcinoma with microinvasion beneath the epithelium.

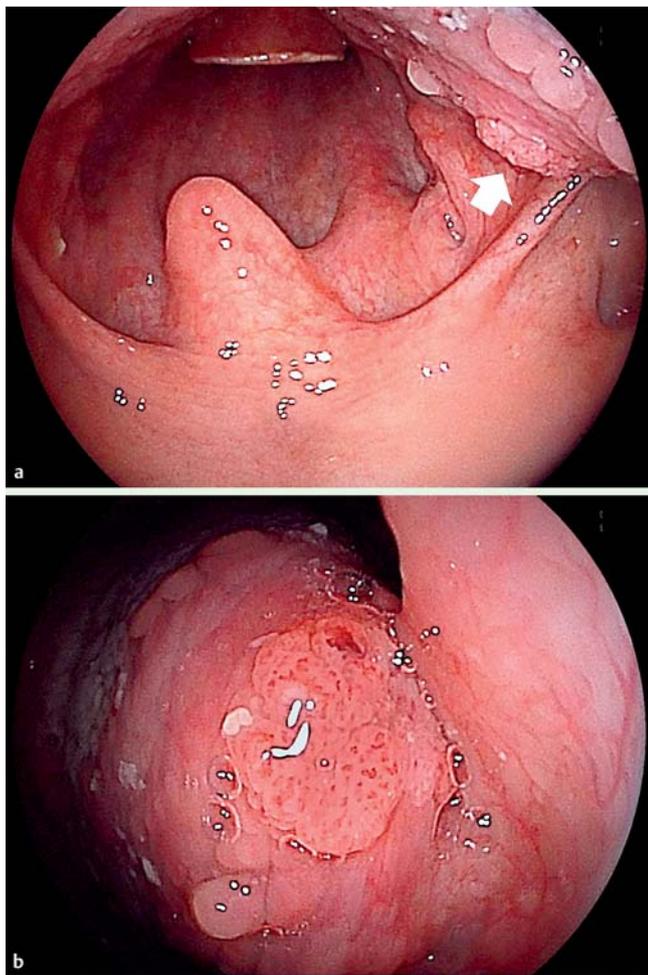
In conclusion, the intraoropharyngeal U-turn method during transnasal EGD is a useful technique for detailed observation of the oropharynx, in particular the radix linguae.

### Video 1

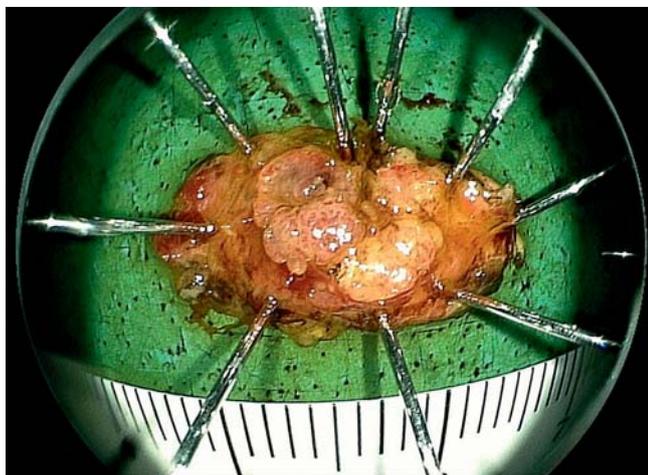
The procedure of transnasal endoscopy using the intraoropharyngeal U-turn method for observation of a superficial oropharyngeal cancer.

Endoscopy\_UCTN\_Code\_CCL\_1AB\_2AB

**Competing interests:** None



**Fig. 4** Images from examination of a man with superficial oropharyngeal cancer showing: **a** a tangential view of the tumor observed with transoral endoscopy (arrows); **b** a clearer view of the tumor observed with transnasal endoscopy using the intraoropharyngeal U-turn method.



**Fig. 5** Macroscopic appearance of the 10×6-mm lesion after en bloc resection.

**Kenro Kawada<sup>1</sup>, Takuya Okada<sup>1</sup>, Taro Sugimoto<sup>2</sup>, Seiji Kishimoto<sup>3</sup>, Tatsuyuki Kawano<sup>1</sup>**

<sup>1</sup> Department of Esophageal and General Surgery, Tokyo Medical and Dental University, Tokyo, Japan

<sup>2</sup> Department of Otorhinolaryngology, Tokyo Medical and Dental University, Tokyo, Japan

<sup>3</sup> Department of Head and neck surgery, Tokyo Medical and Dental University, Tokyo, Japan

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## Bibliography

**DOI** <http://dx.doi.org/10.1055/s-0033-1359192>  
*Endoscopy* 2014; 46: E137–E138  
 © Georg Thieme Verlag KG  
 Stuttgart · New York  
 ISSN 0013-726X

## Corresponding author

**Kenro Kawada, MD, PhD**

Department of Esophageal and General Surgery  
 Tokyo Medical and Dental University Hospital  
 Yushima 1-5-45, Bunkyo-ku  
 Tokyo 113-8519  
 Japan  
 Fax: +81-3-38174126  
[kawada.srg1@tmd.ac.jp](mailto:kawada.srg1@tmd.ac.jp)