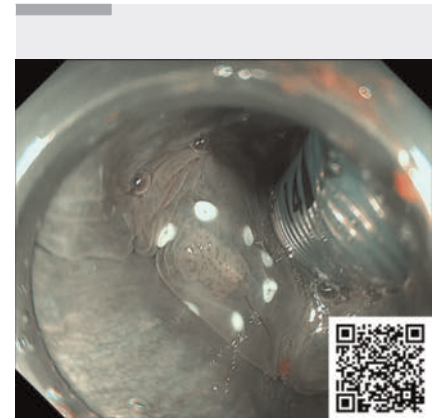
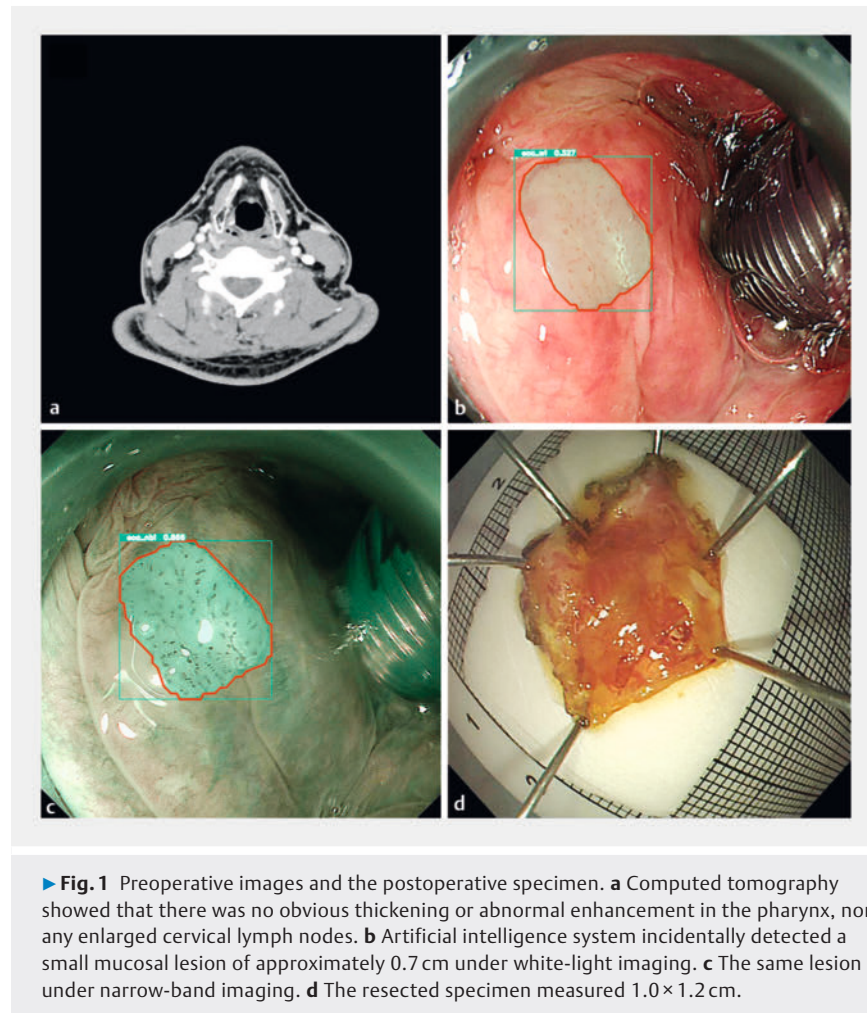


Endoscopic submucosal dissection for a small high grade intraepithelial neoplasia in the hypopharynx detected incidentally by artificial intelligence

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► Video 1 Endoscopic submucosal dissection for a small, high grade intraepithelial neoplasia in the hypopharynx detected incidentally by artificial intelligence.

Hypopharyngeal carcinoma, a malignant tumor with a poor prognosis, is usually diagnosed at an advanced stage owing to underdiagnosis. Limited knowledge of hypopharyngeal lesions and rapid access to the esophagus during endoscopy might contribute to this delayed diagnosis [1]. Previous studies have shown the potential of artificial intelligence (AI)-based systems for high sensitivity detection of early pharyngeal cancer [2]. Here, we present a case in which a hypopharyngeal precancerous lesion was incidentally detected using AI and successfully treat-

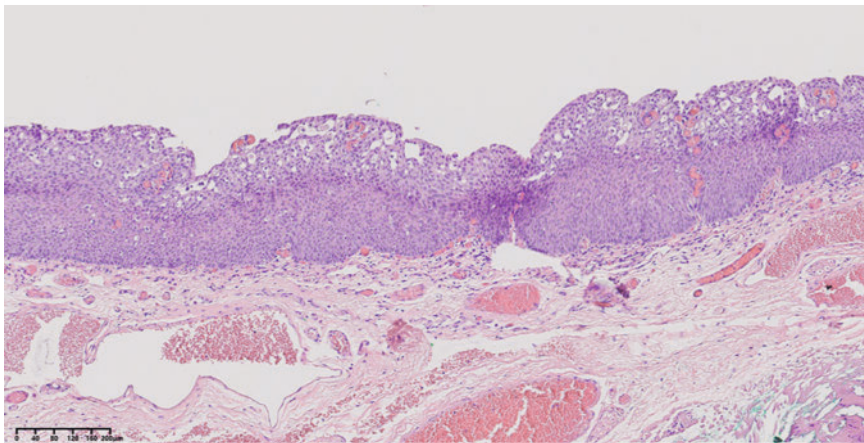
ed by endoscopic submucosal dissection (ESD).

A 58-year-old man was referred to our hospital for endoscopic treatment of an esophageal mucosal lesion. He had experienced hoarseness and throat discomfort for 2 years. Enhanced computed tomography of the head and neck showed no obvious thickening or abnormal enhancement in the pharynx, nor any enlarged cervical lymph nodes (**► Fig. 1 a**). During endoscopic treatment for the esophageal lesion, with the assistance of an AI system, a suspected hypopharyn-

geal precancerous lesion, approximately 0.7 cm in size, was detected in the corniculate tubercle of the hypopharynx (**► Fig. 1 b, c**, **► Video 1**). Given the previous success of ESD in treating early hypopharyngeal cancer, the patient agreed to undergo the procedure, which was successfully performed [3,4] (**► Fig. 1 d**). Histopathology revealed a high grade squamous intraepithelial neoplasia measuring 0.7×0.3 cm (**► Fig. 2**).

Subsequent follow-up endoscopy at 1 year showed no residual lesion or recurrence.

The potential for synchronous or metachronous head–neck cancer in patients with esophageal squamous cell carcinoma (ESCC) underscores the significance of careful examination of the pharynx during endoscopy in such patients [5]. Previous AI systems have primarily focused on detecting early hypopharyngeal cancer, leaving uncertainty about their capacity to identify hypopharyngeal precancerous lesions. While our team's AI system was originally developed for ESCC and precancerous lesions, it has demon-



► **Fig. 2** Histopathology of the specimen showed a high grade squamous intraepithelial neoplasia (hematoxylin and eosin ×200).

strated efficacy in detecting similar squamous epithelial precancerous lesions in the hypopharynx. Nevertheless, further clinical studies are essential to validate its effectiveness.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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References

- [1] Nakanishi H, Doyama H, Takemura K et al. Detection of pharyngeal cancer in the overall population undergoing upper GI endoscopy by using narrow-band imaging: a single-center experience, 2009–2012. *Gastrointest Endosc* 2014; 79: 558–564
- [2] Tamashiro A, Yoshio T, Ishiyama A et al. Artificial intelligence-based detection of pharyngeal cancer using convolutional neural networks. *Dig Endosc* 2020; 32: 1057–1065. doi:10.1111/den.13653
- [3] Satake H, Yano T, Muto M et al. Clinical outcome after endoscopic resection for superficial pharyngeal squamous cell carcinoma invading the subepithelial layer. *Endoscopy* 2015; 47: 11–18. doi:10.1055/s-0034-1378107
- [4] Shimizu Y, Yamamoto J, Kato M et al. Endoscopic submucosal dissection for treatment of early stage hypopharyngeal carcinoma. *Gastrointest Endosc* 2006; 64: 255–259 discussion 260–252
- [5] Shimizu Y, Tsukagoshi H, Fujita M et al. Head and neck cancer arising after endoscopic mucosal resection for squamous cell carcinoma of the esophagus. *Endoscopy* 2003; 35: 322–326. doi:10.1055/s-2003-38151

Bibliography

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