

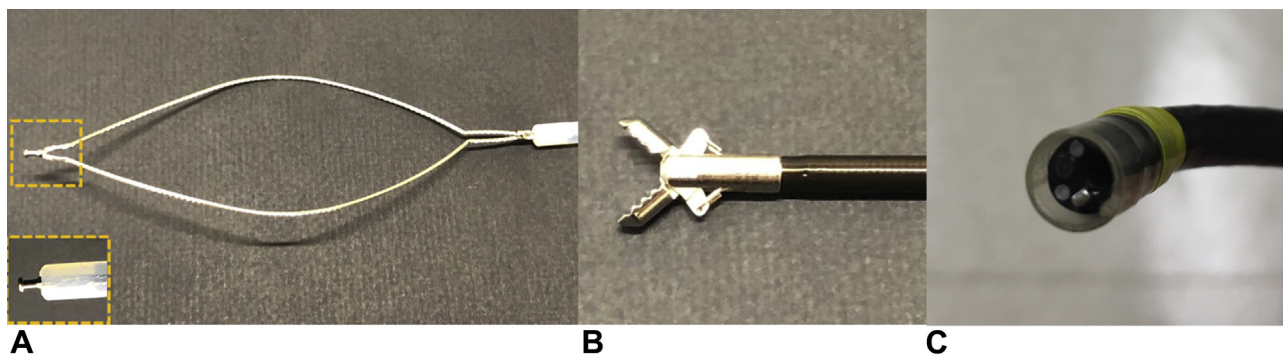


## Conscious transnasal hybrid endoscopic submucosal dissection enables safe and painless en bloc resection in elderly patients with early gastric cancer

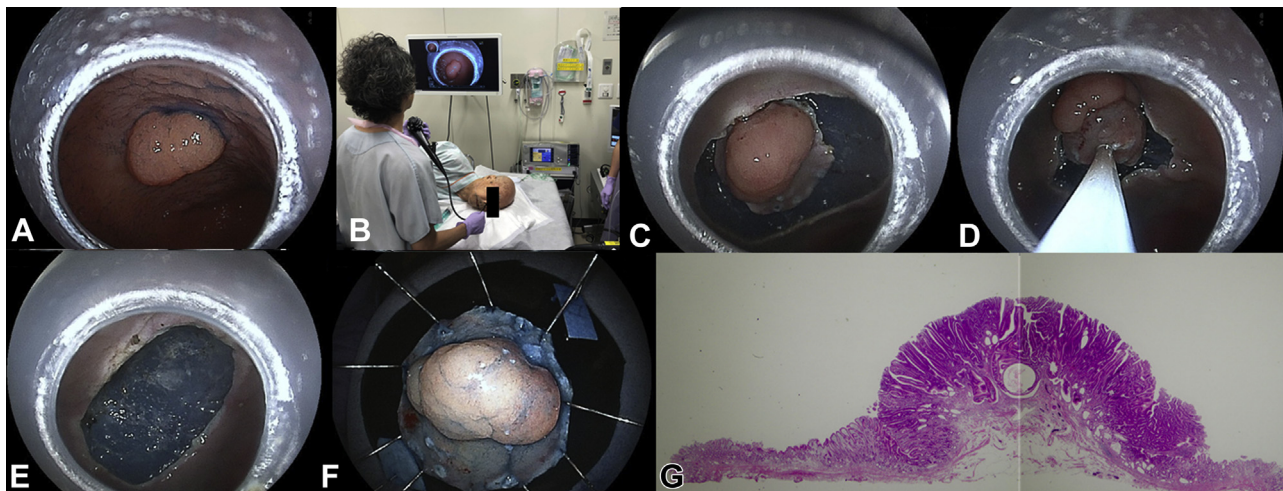
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Endoscopic submucosal dissection (ESD) is a technically demanding and time-consuming procedure, which is usually performed with the patient under sedation. It is associated, therefore, with some definite risks, especially in elderly patients. Recently, hybrid ESD was developed as an alternative therapeutic technique for achieving safe, easy, and quick en bloc resection of superficial GI neoplasms.<sup>1,2</sup> Additionally, a previous study reported the feasibility of gastric ESD with use of a small-caliber endoscope, which was inserted perorally, as a countermeasure to overcome the narrow space<sup>3</sup> or for use of a traction-assisted device.<sup>4</sup> Because of the lower likelihood of pain and gag reflex activation, small-caliber endoscopy by the nasal route can be performed without the patient under sedation. Although Nakamura et al<sup>5</sup> reported the efficacy of transnasal ESD without sedation, the limited usefulness of the transnasal endoscope still remains problematic. Because of the narrow accessory channel, operators must manufacture their own devices to fit the size of the narrow channel. Under these circumstances, ultrathin endodevices for use in transnasal endoscopy have been newly introduced: Souten<sup>6,7</sup> and Raicho (Kaneka Medics, Tokyo, Japan) (Figs. 1A and B). Using these devices, we performed transnasal hybrid ESD without sedation for the resection of superficial gastric neoplasms (Video 1, available online at [www.VideoGIE.org](http://www.VideoGIE.org)) and confirmed whether either is tolerated for elderly patients with severe comorbidities.

A 90-year-old man was referred to our hospital for treatment of a 20-mm protruding lesion in the antrum, which was diagnosed as category 4 by the Vienna classification (Fig. 2A). The patient, with a history of angina, was diagnosed as having myelodysplastic syndrome (complete blood count: hemoglobin 7.6 g/dL; white blood cell count 4800/ $\mu$ L, platelet count 23,000/ $\mu$ L), and he was categorized as American Society of Anesthesiologists physical status class 3. To avoid the risk associated with sedation, after obtaining written informed consent from the patient, we performed hybrid gastric ESD through the nasal route without sedation (Fig. 2B). As preparation for that procedure, we used naphazoline nitrate for local anesthesia. We used the EG-580NW2 endoscope (Fujifilm, Tokyo, Japan), with a distal end diameter of 5.8 mm and an inner diameter of the instrument channel of 2.4 mm. Because the currently manufactured distal attachment cap is not suitable for use with this transnasal endoscope, a handmade distal attachment with transparent tape was prepared (Fig. 1C). As a therapeutic device, we used Souten, a multifunctional snare with a needle-knife with a knob-shaped tip attached to the top of the snare, for making a circumferential incision and to perform partial submucosal dissection; thus, all hybrid ESD processes can be completed with a single device. Raicho is a rotatable hemostatic forceps that allows a precise approach to the lesion. Its maximal diameter is 2.35 mm, ensuring the



**Figure 1.** Ultrathin-type endodevices that can be used in transnasal endoscopy. **A**, Souten (Kaneka Medics, Tokyo, Japan). A 1.5-mm needle-knife with a knob-shaped tip attached to the top of the snare loop. The diameter of the insertion sheath part is 2.35 mm. **B**, Raicho (Kaneka Medics, Tokyo, Japan). A rotatable monopolar-type hemostatic device. The diameter of the insertion sheath part is 2.3 mm. **C**, Handmade distal attachment with transparent tape wound on the tip of the transnasal endoscope.



**Figure 2.** Hybrid endoscopic submucosal dissection (ESD). **A**, Lesion located in the antrum. **B**, Endoscopy by the transnasal approach with use of a thin-type scope without sedation. **C**, A circumferential incision is made with the Souten tip. **D**, Lesion tied up with the snare part of the Souten. **E**, Ulcer floor after hybrid ESD. **F**, Resected specimen; en bloc resection was achieved. **G**, Microscopic view of the gastric polyp.

suction ability of the endoscope. First, a marking was made with the tip of the Souten. After local injection of saline solution, a full-circumferential incision was made, and the lesion edge was also trimmed with the tip of the Souten (Fig. 2C). Subsequently, additional saline solution was injected under the center of the lesion, and the snare part of the Souten was placed on the dissection plane and tightened (Fig. 2D), and the lesion was resected. The high-frequency device (VIO300D; Erbe, Tübingen, Germany) was set in the Endocut mode (effect 3, interval 2) for incision and in the forced coagulation mode for snaring and submucosal dissection (effect 2, 45 W). No active bleeding was noted during the ESD procedure. To avoid delayed bleeding, post-ESD preventive coagulation of visible vessels in the resection area was attempted with the Raicho (Fig. 2E). The entire procedure was completed within 10 minutes without the patient feeling pain (Fig. 2F). The patient's vital signs remained unchanged during the procedure. Histopathologic examination showed R0 curative resection of the intramucosal adenocarcinoma (Fig. 2G).

There are several limitations of transnasal hybrid ESD that still need to be overcome. First, the aforementioned devices are not available outside the Japanese market. Second, the image resolution of the transnasal small-caliber endoscope is low compared with that of the conventional endoscope. In addition, we need to pay attention to the fact that the weaker suction ability and lack of a water jet may make hemostasis more difficult to achieve. Although hybrid ESD can shorten the procedure time and reduce the difficulty of ESD, additional studies will be needed to determine whether this modality is also useful for beginners.

Herein, we have presented a case of transnasal hybrid ESD performed without sedation and with little pain to the elderly patient. The drawbacks of the transnasal endoscope with the narrow accessory channel can be overcome

with the use of the newly developed ultrathin endoscopic devices, Souten and Raicho.

## DISCLOSURE

*All authors disclosed no financial relationships relevant to this publication.*

*Abbreviation: ESD, endoscopic submucosal dissection.*

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