

Successful en bloc resection of superficial esophageal cancer treated by endoscopic submucosal dissection with a splash needle

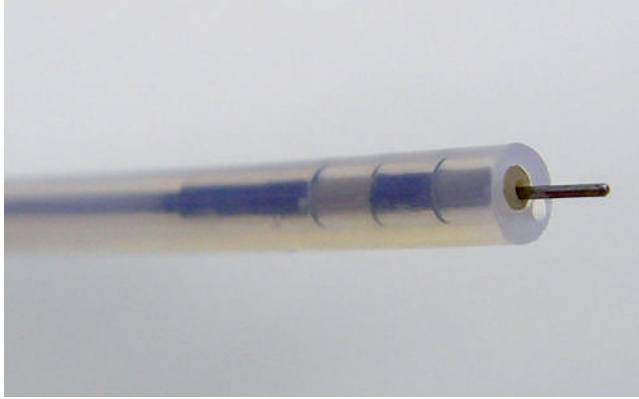


Fig. 1 Splash needle. The tip of the knife consists of a small channel for water irrigation and a thin needle.

Endoscopic submucosal dissection (ESD) enables resection of large or nonlifting gastrointestinal epithelial neoplasms in an en bloc fashion. However, the high frequency of complications and the complexity of the procedure need to be improved [1–4]. In collaboration with the Pentax Corporation, Tokyo, Japan, we have therefore invented a novel electro-surgical knife for ESD, called the splash needle (DN-2618A; Pentax Corp.), which has an ultra-thin short needle with a water-jet function (▶ Fig. 1). The advantages are: (i) the short needle is adjustable in length (maximum 2.5mm); (ii) the thinness of the needle (0.3 mm diameter) makes it possible to resect using only coagulation current from mucosal incision to submucosal dissection, to reduce the risk of heavy bleeding, or to resect sharply with minimal tissue damage by using cutting or Endocut current; (iii) the water-jet function from the knife itself allows the endoscopic view field to be kept clean, bleeding vessels to be easily identified, and additional submucosal injection to be done without changing the device. A disadvantage could be that a sharper cutting ability could lead to perforation if the knife is used incorrectly. A 64-year-old gentleman with a semicircular non-Lugol-staining area diagnosed as squamous cell carcinoma in the lower esophagus was referred for ESD. With a preoperative diagnosis of type 0-IIc intramucosal squamous cell carcinoma (m2), 3 cm in size, ESD was performed with a splash needle without complications in an operating

time of 65 minutes, in a similar way to that described previously, with some modification [5] (▶ Fig. 2, ▶ Video 1). The main modifications were:

1. A single channel upper GI endoscope with a water-jet system was used (GIF-Q260; Olympus Medical Systems Co., Ltd., Tokyo, Japan), which connected to a water-jet supplier (OPF; Olympus Medical Systems) containing sterile water to wash out blood and mucus from the target area, to keep the endoscopic view clean, and to identify bleeding points precisely during the procedure. The knife was connected to another water-jet supplier (SA-P2; Pentax) containing normal saline to make an immediate and sufficient submucosal fluid cushion in the area intended to be cut without changing the device.
2. The following electrocautery settings (VIO 300D; ERBE Elektromedizin, Tübingen, Germany) were used: forced coagulation mode (effect 2, output 30 W) for marking and submucosal dissection, and Endocut Q mode (effect 2, duration 1, interval 3) for circumferential mucosal incision. This case

Video 1

Endoscopic submucosal dissection with a splash needle for superficial esophageal cancer. Using the splash needle, the marking, mucosal incision, additional submucosal fluid injection, and submucosal dissection are all possible without changing the device.

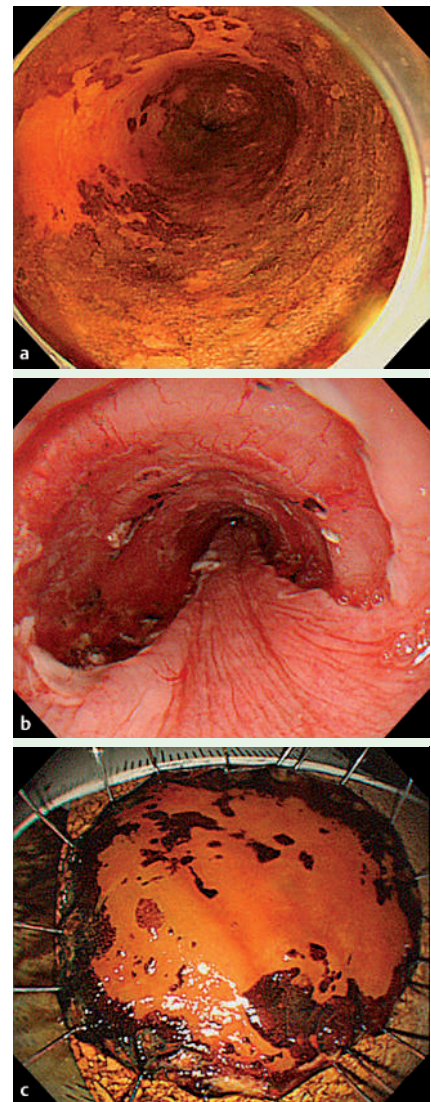


Fig. 2 a–c Superficial esophageal cancer resected by endoscopic submucosal dissection with a splash needle. **a** Type 0-IIc intramucosal squamous cell carcinoma (m2), 3 cm in size, is located in the lower esophagus. **b** Mucosal defect after endoscopic submucosal dissection with a splash needle. **c** The lesion is completely resected in one piece with a tumor-free resected margin.

shows that this novel knife unquestionably has several functional advantages which enable a step forward in ESD techniques.

Endoscopy_UCTN_Code_TTT_1AO_2AG

M. Fujishiro, S. Kodashima, O. Goto, S. Ono, Y. Muraki, N. Kakushima, M. Omata

Department of Gastroenterology, Graduate School of Medicine, The University of Tokyo, Tokyo, Japan

References

- 1 Fujishiro M. Endoscopic submucosal dissection for stomach neoplasms. *World J Gastroenterol* 2006; 12: 5108 – 5112
- 2 Fujishiro M, Yahagi N, Kakushima N et al. Endoscopic submucosal dissection of esophageal squamous cell neoplasms. *Clin Gastroenterol Hepatol* 2006; 4: 688 – 694
- 3 Fujishiro M, Yahagi N, Nakamura M et al. Endoscopic submucosal dissection for rectal epithelial neoplasia. *Endoscopy* 2006; 38: 493 – 497
- 4 Fujishiro M, Yahagi N, Kakushima N et al. Outcomes of endoscopic submucosal dissection for colorectal epithelial neoplasms in 200 consecutive cases. *Clin Gastroenterol Hepatol* 2007; 5: 678 – 683
- 5 Kodashima S, Fujishiro M, Yahagi N et al. Endoscopic submucosal dissection using flex-knife. *J Clin Gastroenterol* 2006; 40: 378 – 384

Bibliography

DOI 10.1055/s-2007-995538
Endoscopy 2008; 40: E81 – E82
© Georg Thieme Verlag KG Stuttgart · New York ·
ISSN 0013-726X

Corresponding author

M. Fujishiro, MD, PhD
Department of Gastroenterology
Graduate School of Medicine
The University of Tokyo
7-3-1, Hongo, Bunkyo-ku
Tokyo
113-8655 Japan
Fax: +81-3-58008806
mtfujish-kkr@umin.ac.jp