Endoscopic submucosal dissection of an early-stage gastric tumor with minimal bleeding using full-time red dichromatic imaging

Hemostasis during endoscopic submucosal dissection (ESD) can be challenging and time-consuming [1], as the thick vessels in the stomach can bleed profusely [2]. Red dichromatic imaging (RDI) was recently developed to address this difficulty [3]; it improves recognition of the bleeding points and enables safe hemostasis while reducing the psychological stress on the endoscopist. However, to date RDI has not significantly reduced hemostasis time [4]. We present the case of a patient with early gastric cancer in whom bleeding during ESD was promptly controlled using full-time RDI.

A 77-year-old man with gastric cancer (50 mm) was referred to our facility for ESD (Fig. 1a). We used a GIF-H290T gastroscope (Olympus, Tokyo, Japan), the EVIS X1 video system (Olympus, Tokyo, Japan) as the light source, and an electrosurgical knife (IT2 knife; Olympus, Tokyo, Japan) for ESD. All procedures including submucosal injection, circumferential mucosal incision, submucosal dissection, and postresection hemostasis were performed in RDI mode. The submucosal injection and mucosal incision (Fig. 1b) were performed carefully avoiding deep vessels through the use of RDI. Because we could clearly identify submucosal vessels (Fig. 1c), the thick vessel was precoagulated. Any bleeding points were easily detected with RDI, allowing quick and effective hemostasis (Fig. 1d). The demarcation line between the submucosal and muscle layers was also clear, allowing safe submucosal dissection (Fig. 1e). Exposed ulcer vessels after resection were recognized clearly using RDI. The 65-mm specimen was resected en bloc in 40 minutes; only two bleeding events occurred with no complications (Video 1).

This experience demonstrates that RDI is not only useful for quickly identifying bleeding points but is highly effective in avoiding hemorrhage by rendering the blood vessels more visible. Considering that RDI enables easier recognition of the submucosal layer [5], ESD using full-time RDI has the potential to become mainstream.
Competing interests

The authors declare that they have no conflict of interest.

The authors

Yohei Ikenoyama1,2, Ayaka Iri3, Hajime Imai3, Hayato Nakagawa2
1 Department of Gastroenterology, Cancer Institute Hospital, Japanese Foundation for Cancer Research, Tokyo, Japan
2 Department of Gastroenterology and Hepatology, Mie University Hospital, Tsu, Japan
3 Department of Gastroenterology, Okanami General Hospital, Iga, Japan

Corresponding author

Yohei Ikenoyama, MD, PhD
Department of Gastroenterology Cancer Institute Hospital, 3-8-31, Ariake, Koto-ku, Tokyo 135-8550, Japan
307006yohei@gmail.com

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