Endoscopic mucosal resection techniques have now evolved to include endoscopic submucosal dissection [1–3]. Although this technique enables larger tumors to be resected en bloc with adequate margins, a high complication rate due to bleeding, especially arterial bleeding, has become apparent [4]. In a considerable number of cases of bleeding that occur during endoscopic submucosal dissection the bleeding source cannot be identified because of a blood-filled field. The hemostatic method used during endoscopic submucosal dissection should secure a sufficient visual field to see the bleeding lesion, should be easy to perform, and should be capable of reliably stopping arterial bleeding. With these requirements in mind, we have developed a method of endoscopic hemostasis for use during endoscopic submucosal dissection that consists of high-frequency hemostatic forceps (HD8242W; Pentax, Tokyo, Japan) (Figure 1a) and an endoscope equipped with a water-jet system (Pentax EG-2931/SA-P2) (Figure 1b).

The forceps have been developed specially for hemostasis and have a narrow opening angle, a small cup, and blunt edges. Coagulation of the bleeding vessel requires only a low electrical current, which rarely causes perforation. After pinpoint holding and mechanical compression, electrocoagulation is easily performed. The water-jet system supplies a continuous jet of water at high pressure, which easily and swiftly washes away any blood that is obstructing the visual field, allowing identification of the bleeding source. Because the water-jet system supplies water through an exclusive port, the forceps channel can be used for the hemostatic instrument. By washing the bleeding field with the water jet, the bleeding source can be immediately identified and coagulated (Figure 2, Video 1), although in a small number of cases of erupting venous bleeding it can be difficult to identify the bleeding source. There are several hemostatic procedures which are used to control arterial bleeding during and after endoscopic submucosal dissection, but this procedure is quite effective and can be used as the method of first choice for treating this complication.

References


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Video

The combination of high-frequency hemostatic forceps and a water-jet system that provides a continuous supply of water at high pressure swiftly washes away obstructing blood in the visual field and allows accurate and effective hemostasis. This method is quite effective for controlling arterial bleeding during and after endoscopic submucosal dissection.

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