Endoscopic ultrasound-guided angiotherapy of a large bleeding gastrointestinal stromal tumor

Bleeding gastrointestinal stromal tumors (GISTS) have historically been managed with either surgical resection or radiologic embolization. Occasional reports exist of endoscopic therapies such as hemoclips [1], endoloop ligation [2], and endoscopic ultrasound (EUS)-guided angiotherapy [3]. We herein present the case of an elderly patient with recurrent bleeding from a large gastric GIST who was successfully treated with EUS-guided angiotherapy.

A 94-year-old man with severe aortic stenosis presented with symptomatic anemia and hemoglobin of 5.9 g/dL. Esophagogastroduodenoscopy (EGD) identified a large subepithelial lesion at the incisura with a depressed 15-mm central ulcer (Fig. 1). EUS revealed a 40×45-mm hypoechoic well-circumscribed lesion with areas of cystic degeneration arising from the muscularis propria. A corresponding 7-mm hypoechoic malignant-appearing lymph node was identified (Fig. 2). Fine needle aspiration (FNA) confirmed a diagnosis of GIST. Although surgical resection was indicated, the patient’s age and multiple comorbidities precluded this.

EUS-guided angiotherapy was considered a suitable option. A curved linear-array echoendoscope (Olympus GF-UC(T)140P-OLS; Olympus America Inc., Center Valley, Pennsylvania, USA) was used, and a vessel deep to the GIST ulcer was identified. Pulse wave Doppler confirmed arterial flow (Fig. 3; Video 1). After the patient had been given an intravenous injection of cefotetan 2 g, a 19-gauge needle (Flex 19; Boston Scientific, Natick, Massachusetts, USA) was used to puncture the target artery and 2 mL of N-butyl 2-cyanoacrylate (Histoacryl; B. Braun Medical, Germany) was injected. The Doppler image after cyanoacrylate injection showed an absence of vascularity and a posterior acoustic shadow (Fig. 4).

Fig. 1 Large subepithelial lesion at the incisura with a deep clean-based ulcer.

Fig. 2 Endoscopic ultrasound image showing the typical appearance of a gastrointestinal stromal tumor (GIST) with an associated malignant-appearing lymph node.

Fig. 3 Pulse wave Doppler demonstrating arterial waveforms from the artery that was feeding the tumor.

Fig. 4 Doppler image after cyanoacrylate injection showing an absence of vascularity and a posterior acoustic shadow.
Bethlehem, Pennsylvania, USA) was injected followed by an immediate flush of 2 mL of 5% dextrose. Cyanoacrylate deposition was seen within the lesion as an area of increased echogenicity with posterior acoustic shadowing. Power Doppler confirmed a near absence of vascularity within the GIST (Fig. 4). Repeat EGD/EUS after 4 weeks revealed a substantial reduction in the size of the lesion and the central ulcer. There was a small amount of cyanoacrylate seen protruding through the ulcer bed (Fig. 5). At 6-month follow-up, there was no further evidence of gastrointestinal bleeding.

EUS-guided angiotherapy appears safe, effective, and technically feasible for the management of bleeding GISTs. Importantly, its application is not limited by the lesion's size. Future directions for its use may include patients with bleeding GISTs requiring a bridging therapy prior to surgery and those not suitable for surgical resection.

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References

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Video 1
Endoscopic ultrasound (EUS)-guided angiotherapy of a gastrointestinal stromal tumor (GIST).