Novel use of endoscopic morcellator to clear large obscuring clot in patient with upper-GI bleed

John Gubatan, MD, Paul Kwo, MD, Joo Ha Hwang, MD, PhD

Significant clot burden limits visibility and prevents finding intervenable lesions for hemostasis. Endoscopic tools such as BioVac (US Endoscopy, Mentor, Ohio, USA)[1] and distal caps with suction[2] and promotility[3] agents are available, with varying degrees of success. Here, we present a challenging case in which standard endoscopic techniques failed to clear a large obscuring gastric clot, and the novel application of an endoscopic morcellator (EndoRotor; Interscope, Whitinsville, Mass, USA) allowed successful localization of the culprit lesion. This device[4] is a nonthermal, automated endoscopic resection system designed to remove benign mucosal tissue throughout the GI tract. It has been used for nonthermal ablation of nonneoplastic Barrett's esophagus[5] and direct endoscopic pancreatic necrosectomy. To our knowledge, the application of an endoscopic morcellator to mechanically disrupt large blood clots has not been previously reported.

A 79-year-old woman with a history of end-stage renal disease and cirrhosis presented with coffee-ground emesis and melena. On admission, the patient was in hemodynamically stable condition. Her initial laboratory results were most notable for hemoglobin 9.7 g/dL, platelets 129 $\times$ 10^9 per liter, and an international normalized ratio 1.1. The patient was treated with intravenous pantoprazole, octreotide, and ceftriaxone. EGD with the patient under anesthesia was notable for nonbleeding grade I esophageal varices and a moderate-size blood clot in the lesser curvature and fundus of the stomach obscuring visualization; thus, the procedure was terminated (Fig. 1). The patient continued to pass melena, and her hemoglobin fell to 5.8 g/dL, requiring 3 units packed red blood cells, and metoclopramide was added to her regimen to try to clear the large clot. CT angiography of the abdomen and pelvis demonstrated no active extravasation along the GI tract. Repeated EGD revealed an interval increase in the size of the blood clot (Fig. 2). Despite irrigation and suction, the area could not be cleared. The use of cold snare or Roth net removal was not feasible because of the clot size, and the use of BioVac was ineffective. Repeated EGD was performed the following day with the use of an endoscopic morcellator. The combination of the endoscopic morcellator's rotating cold blade and suctioning enabled the large clot to be liquefied (Fig. 3; Video 1, available online at www.VideoGIE.org). After about 30 minutes, the large obscuring clot was completely cleared, revealing a solid, fibrous collection of undigested food that suggested a bezoar. In the process of liquefying the large clot, the bezoar was mechanically disrupted. However, the endoscopic morcellator could not completely clear and extract the bezoar because fibrous tissue clogged the device's suction channel. The patient continued to receive intravenous metoclopramide

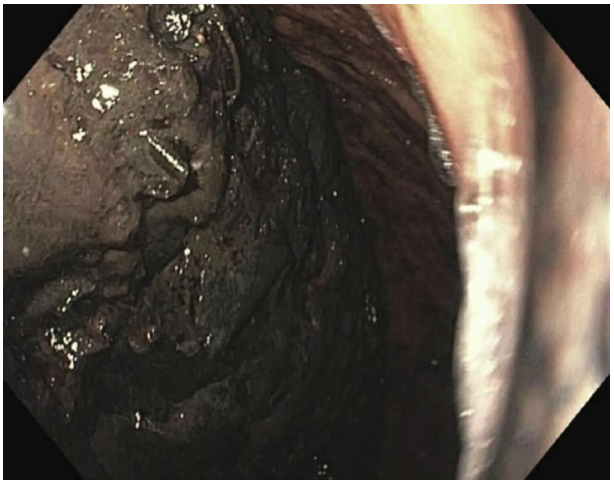

Figure 1. Initial EGD showing large clot.

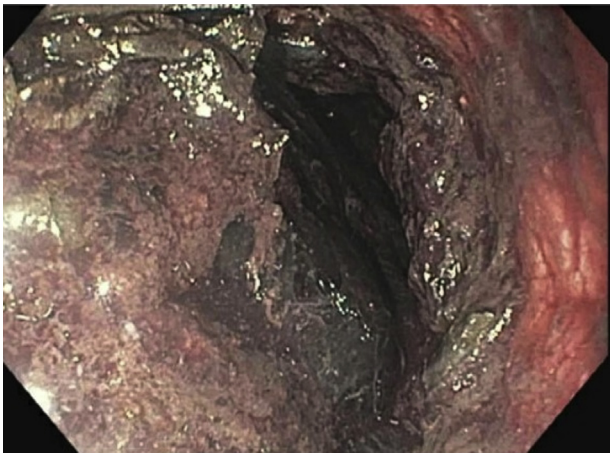

Figure 2. Second EGD showing interval enlargement of clot.

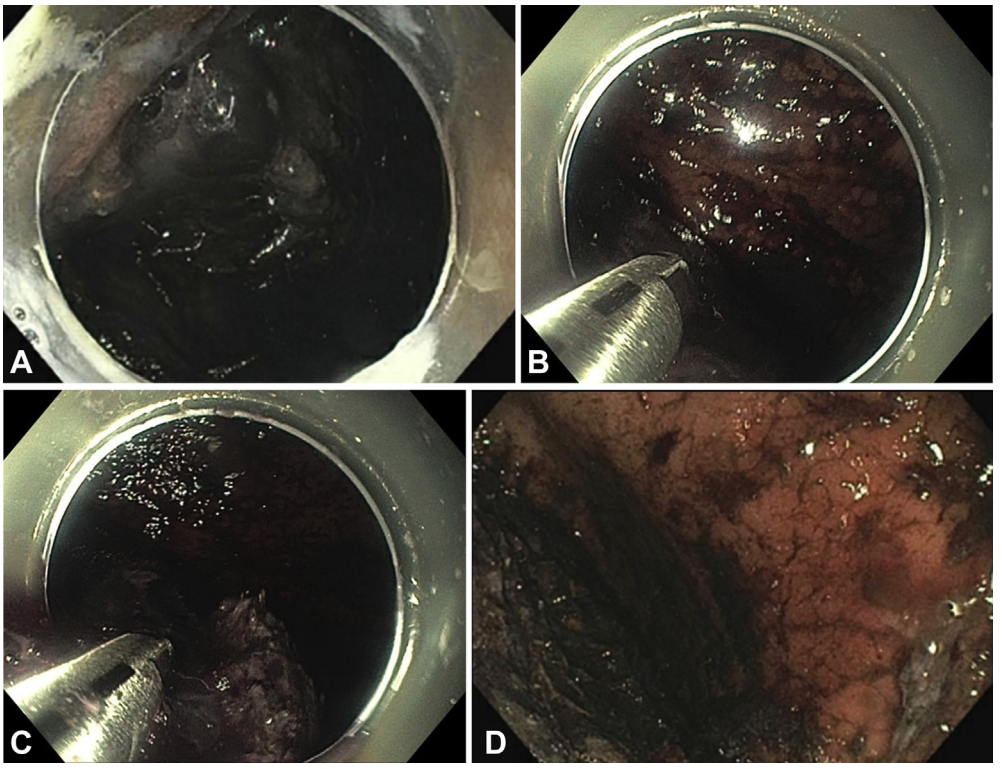

Figure 3. **A**) Large obscuring clot in stomach. **B**) EndoRotor positioned proximal to clot. **C**) EndoRotor with rotating blade liquefying clot. **D**) Large clot liquefied revealing bezoar in stomach.

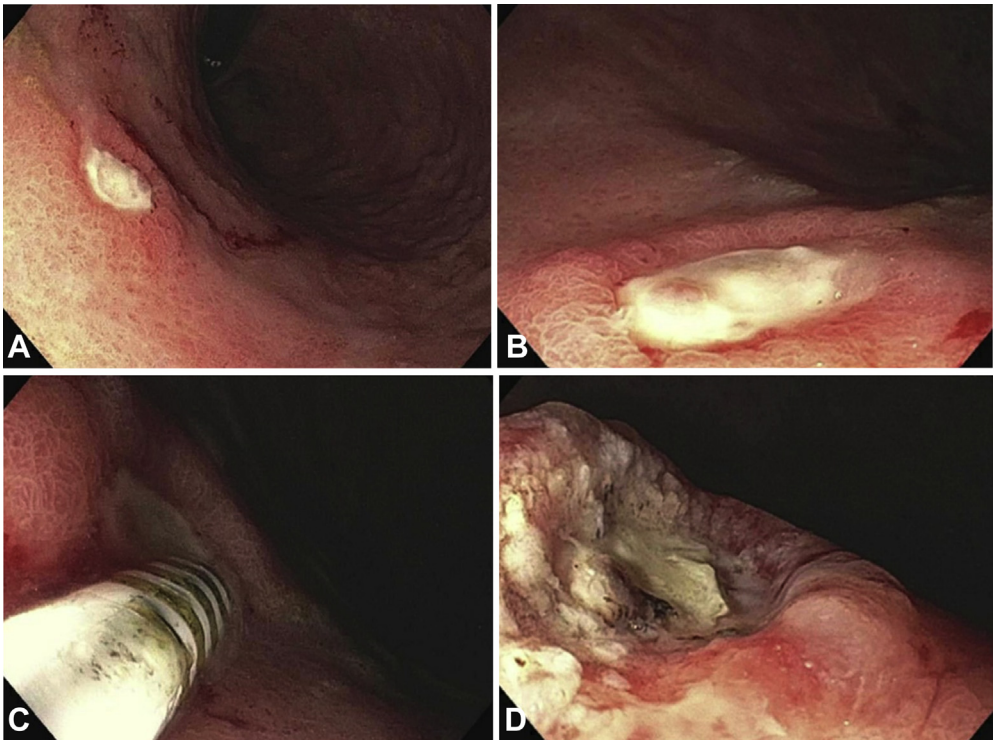

Figure 4. **A**) Retroflexion revealed a 5-mm cratered ulcer in the posterior wall of the stomach. **B**) Cratered ulcer revealed a non-bleeding visible vessel (Forrest Class IIA). **C**) Bipolar thermal probe cauterizing vessel. **D**) Hemostasis in ulcer after bipolar thermal therapy.

for 48 hours to clear the bezoar. EGD was then repeated and showed no residual clot or bezoar. EGD revealed a 5-mm cratered ulcer in the posterior gastric wall, with a nonbleeding visible vessel (Forrest class IIA). A bipolar probe was applied successfully for hemostasis (Fig. 4).

Our case illustrates the challenges associated with a large clot obscuring visualization. Standard use of promotility agents with supportive care were not successful because the patient continued to bleed intermittently, increasing the clot size. To our knowledge, this case is the first reported application of an endoscopic morcellator to safely liquefy a large blood clot in a patient with upper-GI bleeding. Although the endoscopic morcellator was unable to clear the bezoar because of fibrous material, the device was able to disrupt the bezoar and likely facilitated the promotility effects of metoclopramide. Application of the endoscopic morcellator likely decreased the time to identifying an intervenable lesion and decreased the length of hospitalization in our patient. In conclusion, the application of an endoscopic morcellator to liquefy blood clots may be an adjunct to our standard therapies for GI bleeding. Further studies are needed to evaluate the safety and efficacy of endoscopic morcellators in patients with GI bleeding.

ACKNOWLEDGEMENT

Supported by a Robert W. Summers Grant from the American Society for Gastrointestinal Endoscopy.

DISCLOSURE

Dr Hwang is the recipient of research funding and grant support from Interscope. All other authors disclosed no financial relationships relevant to this publication.

REFERENCES

1. Gregor H, Segal D, Rammal A, et al. A randomized clinical trial to determine the efficacy of the Biovac direct suction device during upper gastrointestinal bleeding: a feasibility analysis. J Can Assoc Gastroenterol 2018;1:403-4.
2. Moreels TG, Lotry M, Roth B, et al. Distal cap to facilitate removal of blood clots during endoscopic hemostasis for upper gastrointestinal bleeding. Endoscopy 2009;41:E152.
3. Barkun AN, Bardou M, Martel M, et al. Prokinetics in acute upper GI bleeding: a meta-analysis. Gastrointest Endosc 2010;72:1138-45.
4. Hollerbach S, Wellmann A, Meier P, et al. The EndoRotor®: endoscopic mucosal resection system for non-thermal and rapid removal of esophageal, gastric, and colonic lesions: initial experience in live animals. Endosc Int Open 2016;4:E475-9.
5. Knabe M, Blößer S, Wetzka J, et al. Non-thermal ablation of non-neoplastic Barrett's esophagus with the novel EndoRotor® resection device. United European Gastroenterol J 2018;6:678-83.

Division of Gastroenterology and Hepatology, Stanford University School of Medicine, Stanford, California, USA.

If you would like to chat with an author of this article, you may contact Dr Gubatan at jgubatan@stanford.edu.

https://doi.org/10.1016/j.vgie.2019.10.006