Background and Aims: GI bleeding is a leading cause of morbidity and mortality in the United States, with an estimated 20,000 deaths per year. Some subgroups of patients show refractory recurrent bleeding despite standard endoscopic therapy. The U.S. Food and Drug Administration has recently approved a hemostatic spray for clinical use in nonvariceal bleeding. Despite its efficacy, not all endoscopy units have access to this spray, at times because of cost. Our aim was to determine the safety and efficacy of a plant-based hemostatic particle spray in nonvariceal GI bleeding by use of a cross-platform setup.

Method: We present 3 cases in which plant-based particle spray was used for hemostasis with a cross-platform delivery system. Conventional therapies failed in the first 2 cases, and in the third case hemostatic particle spray was used as a primary therapy.

Results: Successful immediate hemostasis was achieved in all 3 patients. No immediate adverse events or recurrence of bleeding was noted.

Conclusions: Plant-based hemostatic particle spray is safe and effective as a temporizing measure in refractory ulcer and postnecrosectomy cavity bleeding. Further studies are needed to establish the safety and comparative efficacy of plant-based hemostatic powder. The cross-platform system used here for plant-based hemostatic particle spray presents a less-expensive alternative in selected cases. (VideoGIE 2019;4:386-8.)
Also, caution is taken to maintain 1 to 2 cm of distance from the site of bleeding to keep the catheter tip dry. The spray is then delivered in small puffs by pushing on the syringe (Fig. 1C). Despite poor visualization and a snowing effect from the spray, the endoscope is not irrigated to prevent clogging of the catheter.

We also compared spray dispersion areas between the current cross-platform technique and an available preassembled spray system. A similar spray dispersion area was observed with both methods of particle delivery. The currently proposed cross-platform method of hemostatic particle delivery is significantly cheaper than the commercially available preassembled system. At our institution, the cost of a cross-platform setup with 1 vial of hemostatic powder was $<200 USD compared with $1500 USD for a preassembled system. However, this does not account for the assembly time, which usually takes less than 5 minutes.

In our case series, use of the plant-based hemostatic particle spray was safe and effective as a temporizing measure in refractory GI and postnecrosectomy cavity bleeding. Further studies are needed to establish the safety and comparative efficacy of plant-based hemostatic powder. The cross-platform setup used here for plant-based hemostatic particle spray presents a less-expensive alternative in selected cases.

PATIENT 1

A 61-year-old man with a history of hepatitis C–related cirrhosis, who had undergone liver transplantation 6 months earlier, presented with recurrent GI bleeding from a large duodenal ulcer. He had previously been treated for GI bleeding with multiple endoscopic procedures and gastroduodenal artery embolization. During this admission, we performed emergent angiography of the superior mesenteric artery and the celiac artery without evidence of extravasation. This was followed by emergent EGD. After failure of clip deployment (Fig. 2A), we moved to an off-label use of hemostatic particle spray using a cross-platform setup as described above. One vial (3 g) of particles was sprayed. There was no recurrence of bleeding after this intervention (Fig. 2B), and repeat upper endoscopy at 3 months showed ulcer healing.

PATIENT 2

A 67-year-old man with a history of gallstone-related severe pancreatitis, complicated by walled-off pancreatic necrosis, presented with >500 mL of bloody percutaneous drain output, melena, and hypotension. Four weeks before this presentation, a lumen-apposing metal stent had been placed, followed by extensive necrosectomy. During this visit for a repeated necrosectomy, active bleeding from the wall of the cavity was observed. Unsuccessful attempts were made to obtain hemostasis with clip placement and argon plasma coagulation. With failure of these conventional methods, off-label hemostatic particles were sprayed with a cross-platform setup described above. The entire cavity was then covered with 3 g of particles, with cessation of bleeding at the end of the procedure. He had no recurrence of bleeding, and a repeat necrosectomy performed 4 weeks later was uneventful.

PATIENT 3

A 52-year-old man with a history of gallstone-related severe pancreatitis, complicated by pancreatic necrosis, was seen with gastric outlet obstruction. He had experienced nausea, poor appetite, and a 10-pound weight loss over the previous 4 weeks. He had received multiple transluminal necrosectomy procedures in the past. Repeat CT scan at this presentation showed recurrence
of a peripancreatic walled-off collection. An endoscopic transluminal drainage was planned. A 15-mm × 10-mm transgastric lumen-apposing metal stent was deployed, and the stent was dilated to 12 mm after deployment. This was complicated by evidence of fresh bleeding from the necrosectomy cavity (Fig. 2C), not from the gastric wall. We used hemostatic particles with the help of the cross-platform setup as described earlier. Three grams of particles were sprayed, with complete cessation of bleeding at the end of the procedure (Fig. 2D). He had no recurrence of bleeding, and a repeat necrosectomy 2 weeks later was uneventful.

**DISCLOSURE**

Dr Freeman is a consultant for Hobbs, Abbvie, and Boston Scientific. Dr Amateau is a consultant for Cook Medical, US Endoscopy, Boston Scientific, Olympus Medical, and Merit Medical. The other author disclosed no financial relationships relevant to this publication.

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Figure 2. Refractory large duodenal ulcer bleed (A) that failed conventional therapies is treated with hemostatic particle spray by use of a cross-platform setup (B). A postnecrosectomy cavity bleeding (C) that failed conventional therapies is also treated with hemostatic particle spray by use of a cross-platform setup (D).