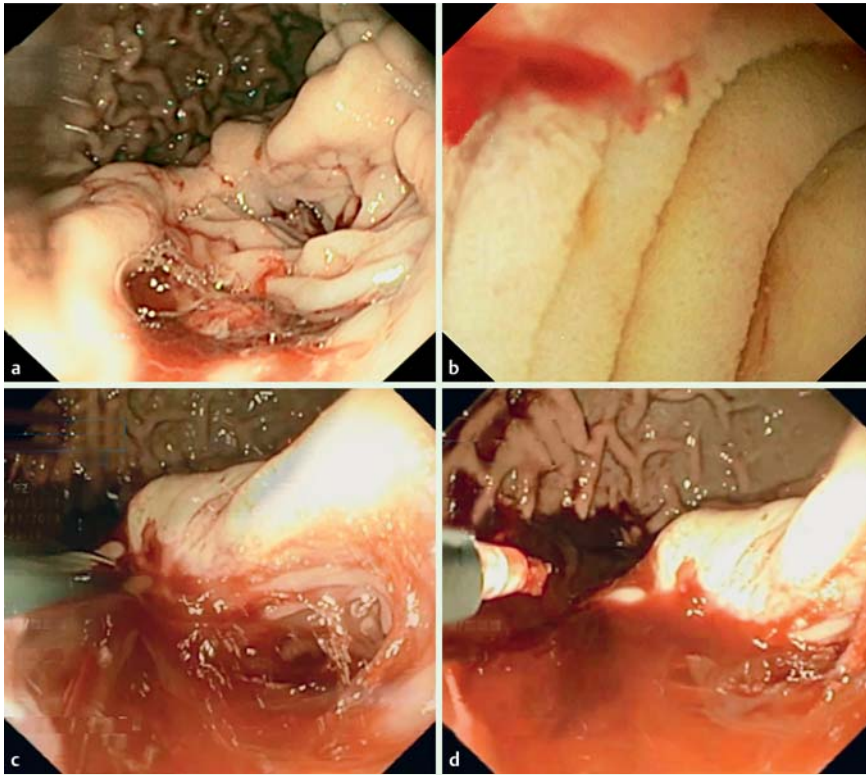
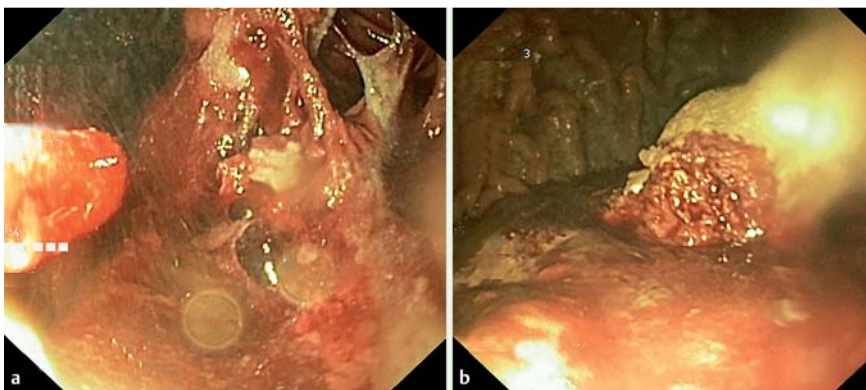


## Hemospray rescue treatment of gastroenteric anastomotic bleeding



**Fig. 1** Endoscopic images from a 52-year-old man who had undergone a gastroenteric anastomosis for a duodenal bulb stenosis showing: **a** an oozing bleeding point in the border of the anastomosis; **b** the bleeding point in close-up underwater view; **c** attempted treatment of the bleed with injection of a solution of saline and epinephrine, without success; **d** the bleeding site obscured by blood and clots.



**Fig. 2** Endoscopic views showing the effect of using the powder with hemostasis being successfully achieved.

A 52-year-old man with chronic pancreatitis and pancreatic exocrine insufficiency developed a duodenal bulb stenosis that caused postprandial vomiting. He underwent a gastroenteric anastomosis to restore the intestinal flow. He was readmitted 30 days after discharge with hematemesis, hypovolemic shock, and severe anemia (hemoglobin 6.6g/dL). He was re-

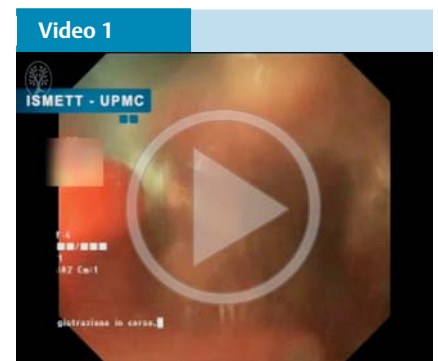
suscitated, and an emergency gastroscopy was carried out, which showed an oozing bleeding point likely secondary to a post-surgical vascular ectasia in the border of the gastroenteric anastomosis (Fig. 1 a, b).

Initially the bleeding site was treated with local submucosal injection of fibrin glue (Beriplast P Combi-Set; CSL Behring

GmbH, Marburg, Germany) to create a large cushion to jam the vessel, but bleeding restarted at an increased rate (Video 1). We attempted to inject a solution of saline and epinephrine, without success (Fig. 1 c). The increased blood flow and clots obscured the bleeding site, rendering it difficult to perform any further conventional treatment that required accurate localization of the bleeding source (Fig. 1 d).

We decided to use Hemospray (Cook Medical, Winston Salem, North Carolina, USA). A 10-Fr catheter was advanced approximately 2cm out of the scope and was placed approximately 2cm from the bleeding site. Multiple consecutive bursts created a hemostatic powder barrier, which successfully stopped the bleed (Fig. 2; Video 1). There were no adverse events and no late recurrent bleeding.

Current hemostatic techniques include injection therapy (epinephrine, sclerosants, or fibrin glue), thermal therapy (heater probe, bipolar cautery, or argon plasma coagulation), and mechanical therapy (standard metal clips, over-the-scope clips, or band ligation). However, these techniques do have some limitations, especially in the case of massive bleeding that obscures the endoscopic view. One possible major advantage of the hemostatic powder over the current endoscopic modalities may be its ability to control bleeding from obscured bleeding sites. The advent of Hemospray potentially obviates the need for en face therapeutic positioning.



Endoscopic view of the bleeding site being treated with fibrin glue then epinephrine, which led to increased bleeding, and finally with multiple bursts of Hemospray powder, which successfully stopped the bleeding.

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**Competing interests:** None

**Antonino Granata, Dario Ligresti,  
Gabriele Curcio, Luca Barresi,  
Ilaria Tarantino, Rosalba Orlando,  
Mario Traina**

Endoscopy Service, Department  
of Diagnostic and Therapeutic Services,  
IRCCS – ISMETT (Istituto Mediterraneo  
per i Trapianti e Terapie ad alta  
specializzazione), Palermo, Italy

#### **Bibliography**

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#### **Corresponding author**

**Antonino Granata, MD**  
ISMETT/UPMC  
Via Tricomi 5  
90127 Palermo  
Italy  
Fax: +39-091-2192400  
(specify Endoscopy Service)  
[agranata@ismett.edu](mailto:agranata@ismett.edu)