Use of hemospray for non-variceal esophageal bleeding in an infant

To the Editor:
Hemospray (Cook Medical Inc, Bloomington, IN, USA) is a new device licensed in Canada and Europe for endoscopic hemostasis of non-variceal upper gastrointestinal bleeding. It consists in a hemostatic powder that is sprayed onto actively bleeding lesions through an application catheter positioned through the working channel of the endoscope. Such a powder absorbs water almost instantly to form a mechanical barrier that stops the bleeding. In a case series recently published in the Journal of Hepatology, hemospray was shown effective in controlling bleeding from portal hypertensive gastropathy [1]. Its efficacy has been previously reported for bleeding from esophageal, gastric and duodenal ulcers, gastric varices, and gastric antral vascular ectasia [2–4]. In the largest series described so far, hemostasis was achieved in 85% of patients treated with hemospray alone, with 15% of rebleed rate at 7 days [5]. The use of hemospray in children has not been reported yet. We describe here the successful use of this novel device to treat an upper gastrointestinal bleeding in an 11-month old infant.

Fig. 1. Upper gastrointestinal endoscopy images of the case described. Upper gastrointestinal endoscopy performed in the patient at diagnosis (A) shows grade II and III varices with red wales and spots. A large actively bleeding esophageal ulcer was visualized 11 days post-sclerotherapy (B). Hemospray allowed to stop the active bleeding from the ulcer (C). The healing of the ulcer was noted 6 days from the procedure (D).
Case description

A girl of 10 months of age was referred with clinical and biochemical features of severe cholestasis, mild liver failure, and severe portal hypertension, and was diagnosed with cirrhosis secondary to neonatal sclerosing cholangitis. The first upper gastrointestinal endoscopy performed at diagnosis showed grade II and III esophageal varices with red wales and spots (Fig. 1A). No primary prophylaxis was performed because of the lack of definite evidence of its effectiveness in children and of the severe growth failure of the patient (5.8 kg, Z-score <-3 standard deviations), which did not allow passing an endoscopic banding device across the cricopharynx. After 8 weeks from the first endoscopy the patient was admitted for an upper gastrointestinal bleeding episode. One actively bleeding esophageal varix was visualized at endoscopy and the bleeding was partially stopped by two injections of 3 ml of sclerosing agent. After 3 days, a second session of sclerotherapy was required to completely control the bleeding. As her conditions worsened rapidly, the patient was listed for liver transplantation (LT) with a PELD score of 16 [6]. After 11 days from variceal sclerosis, a severe rebleeding was observed despite prophylactic intravenous octreotide and pantoprazole administration. A large actively bleeding post-sclerotherapy esophageal ulcer was visualized (Fig. 1B). We used hemospray, which solidified instantly on the ulcer and stopped the bleeding (Fig. 1C). No hemorrhagic episode was observed in the following weeks, and the healing of the ulcer was noted 6 days after the procedure (Fig. 1D). The girl underwent successful LT at the age of 13 months with a reduced liver graft (segments II–III) and she is well at 2-month follow-up.

Discussion

Upper gastrointestinal bleeding by the age of 5 years is observed in 60% and 100% of young children with medium and large esophageal varices, respectively [7]. Children with biliary atresia were shown to experience the first hemorrhagic episode at a median age of 14 months [8]. Although randomized controlled trials are lacking, recent evidence showed that primary prophylaxis with endoscopic banding or sclerotherapy is effective in preventing bleeding [8]. Nevertheless, the rebleeding rate is higher with sclerotherapy than with banding [9]. Unfortunately, in infants and children weighting less than 8–10 kg the introduction of the banding device in the esophagus is often impossible, and sclerotherapy is the only available treatment [8]. Treatment options in case of rebleeding from sclerotherapy-induced esophageal ulcers are limited in adults (transjugal intrahepatic portosystemic shunt, surgical shunts, self-expanding stents, esophageal transection, Sengstaken–Blakemore tube) and almost absent in young children, for whom urgent liver transplantation is the only option. Hemospray has proven effective in adults and we show here that it could be effective and safe in children as well. Its ease of use constitutes a further advantage for pediatric gastroenterologists who are less frequently confronted to upper gastrointestinal bleeding than their colleagues caring for adults. Although only a temporary mechanical barrier, the solidified powder allows to stop the bleeding, and to reduce the immediate need for invasive and riskful procedures in adults and, hopefully, also in children [5]. Our preliminary experience described above, if confirmed, suggests a promising role for hemospray for non-variceal upper gastrointestinal bleeding in infants and children.

Conflict of interest

The authors declared that they do not have anything to disclose regarding funding or conflict of interest with respect to this manuscript.

References


Massimiliano Paganelli*
Fernando Alvarez
Ugur Halac

Department of Gastroenterology, Hepatology and Nutrition,
CHU Sainte-Justine, 3175 chemin de la Côte-Sainte-Catherine,
Montreal, QC H3T 1C5, Canada
*Corresponding author.

E-mail address: m.paganelli@umontreal.ca