

Case report

Hemospray for recurrent esophageal band ulcer bleeding

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Abstract

Rebleeding after initially successful endoscopic variceal ligation (EVL) occurs in 20-60% of patients, most commonly from band ulcers, and is associated with 20-50% mortality. Although band ulcer bleeding has been treated in a number of different ways, no single therapeutic intervention has shown a clear benefit. Hemospray (Cook Medical, Winston-Salem, North Carolina, USA) is a relatively new non-contact hemostatic modality used in the management of bleeding peptic ulcers. It is a nano-powder that can be sprayed over a larger mucosal area. Here we describe a patient with end stage liver disease who presented with recurrent bleeding from a deep esophageal ulcer following band ligation and sclerotherapy, effectively managed with multiple sessions of Hemospray.

Key words: ulcer, esophageal varices, esophagogastroduodenoscopy, Hemospray.

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Introduction

Rebleeding after initially successful endoscopic variceal ligation (EVL) occurs in 20-60% of patients, most commonly from band ulcers, and is associated with 20-50% mortality [1, 2]. Although band ulcer bleeding has been treated in a number of different ways, no single therapeutic intervention has shown a clear benefit [3]. Hemospray (TC-325) (Cook Medical, Winston-Salem, North Carolina, USA) is a relatively new non-contact hemostatic modality used in the management of bleeding peptic ulcers. It is a nano-powder that can be sprayed over a larger mucosal area. Here we describe a patient with end stage liver disease who presented with recurrent bleeding from a deep esophageal ulcer following band ligation and sclerotherapy, effectively managed with multiple sessions of Hemospray.

Case report

A 53-year-old diabetic man presented to his local hospital a year ago with hematemesis from bleeding esophageal varices and was managed with EVL. He con-

sumed 60 grams of alcohol per day for 25 years but stopped following his index bleed. Subsequently he experienced further episodes of variceal bleeding managed with EVL and sclerotherapy and was referred for further management to our center.

The patient underwent upper gastrointestinal (GI) endoscopy which showed a large deep ulcer in the esophagus at 20 cm from the incisors, with no signs of active bleeding. Investigations showed hemoglobin 7.0 gm/dl, platelets 148000 cells/mm³, WBC 10030 cells/mm³, INR 1.4, bilirubin 1.4 mg/dl, creatinine 1.0 mg/dl, sodium 135 mmol/l and albumin 2.9 gm/dl. His Model for End stage Liver Disease (MELD) score was 12 and a triple phase abdominal CT scan revealed a shrunken cirrhotic liver, splenomegaly and patent portal vein. There was no hepatocellular carcinoma.

A week later he was readmitted with massive upper gastrointestinal bleeding requiring intensive care. He was transfused 2 units of packed red cells and was commenced on terlipressin, pantoprazole and intravenous antibiotics. Endoscopy revealed an active ooze from the esophageal ulcer (Fig. 1). He underwent Hemospray application using a TJF 180 upper GI endoscope and



Fig. 1. Oesophagogastroduodenoscopy suggestive of bleeding ulcer in the mid oesophagus



Fig. 2. Healed ulcer after Hemospray applications

a 10 French applicator catheter system. Hemospray was sprayed onto the bleeding ulcer using the special CO₂ delivery pump provided with the kit. The catheter was held 1 cm away from the ulcer using a non-touch technique (Fig. 2). Hemostasis was successfully achieved.

Two weeks later the patient developed another episode of GI bleeding from the same site and was treated with further Hemospray therapy. His ulcer gradually healed and he subsequently underwent successful deceased donor liver transplantation.

Discussion

Hemospray is a proprietary inorganic granular mineral-blend hemostatic nanopowder that increases the concentration of clotting factors and activated platelets at the bleeding site. It forms an adherent mechanical plug after mixing with blood [3, 4]. It has no systemic absorption and has no risk of toxicity. Anticipated complications of Hemospray include drug embolization, intestinal obstruction and allergic reaction. However, neither animal experiments nor human studies show conclusive evidence of such risks.

Hemospray has been successfully used to control peptic ulcer bleeding not responding to conventional therapy and bleeding from malignant ulcers. Recent studies have shown benefit even as first line therapy in such situations. In a prospective study, 20 patients with bleeding peptic ulcers underwent Hemospray application (85% single application; 15% two applications) and acute hemostasis was achieved in 95% of them [4]. In a small case series by Chen *et al.*, five patients with bleeding GI tumors responded well to 1-2 sessions of Hemospray application [4, 5].

Hemospray has been shown to achieve hemostasis in the management of acute esophageal variceal bleed [5]. In a case series by Ibrahim *et al.*, 8 of 9 patients with

acute variceal bleeding responded to a single application of Hemospray and the 9th patient responded to a second application. All patients underwent elective band ligation during their second endoscopy [6]. Similarly, Holster *et al.* reported the successful use of Hemospray in a patient with profuse gastric variceal bleeding that failed to respond to glue injection [7].

In this patient under consideration a non-touch technique such as Hemospray was felt to be the ideal modality for local hemostasis for his esophageal ulcer, because given the depth of the ulcer, an injection was likely to cause esophageal perforation. Moreover, Hemospray could be repeated until the ulcer completely healed [8]. TIPS was not considered because of recurrent hepatic encephalopathy associated with variceal bleeding.

This is the first case in which Hemospray application has been used for endoscopic band ulcer bleeding. More cases are required to ascertain the role of this technique for this condition.

Disclosure

Authors report no conflict of interest.

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