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Using a self-assembling peptide to achieve endoscopic hemostasis for anastomotic bleeding after ileocecal resection

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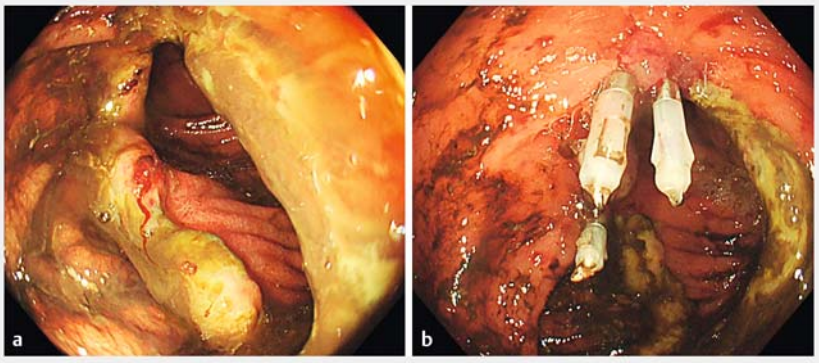
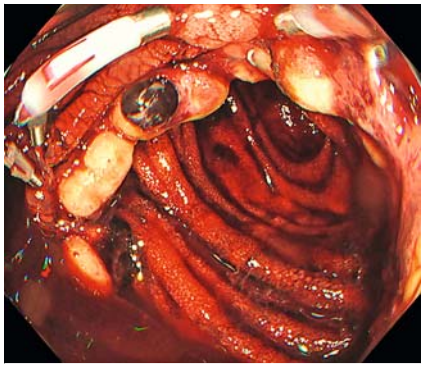
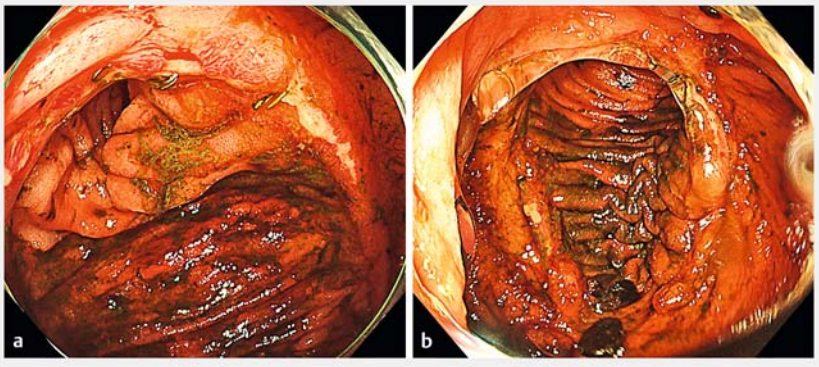


▶ **Fig. 1** First emergency endoscopy upon presentation with hematochezia. **a** Endoscopy showed a circumferential anastomotic ulcer with active oozing of blood. **b** Endoscopic hemoclips were applied to the visible bleeding vessel.



▶ **Fig. 2** Second emergency endoscopy showing hematochezia. Endoscopy revealed blood oozing from a circumferential anastomotic ulcer.



▶ **Fig. 3** Third emergency endoscopic image. **a** Endoscopy revealed that the anastomotic ulcer was bleeding again. **b** Hemostasis was achieved by applying 3 mL of PuraStat, a viscous transparent gel, to the circumferential anastomotic ulcer.

A novel synthetic self-assembling peptide, PuraStat (3-D Matrix Ltd, Tokyo, Japan), has been introduced as a surgical or endoscopic hemostatic agent [1,2]. The peptide self-assembles into an extracellular scaffold matrix when activated by a pH change associated with exposure to blood. The matrix forms a stable mechanical barrier at the bleeding site, thereby achieving hemostasis in vivo. In addition, the activated matrix promotes tissue proliferation and facilitates effective healing of the mucosa [2]. Herein, we report a case of endoscopic hemostasis using PuraStat for postoperative anastomotic bleeding.

A 78-year-old man with chronic heart failure and a history of diabetes mellitus underwent ileocecal resection of the cecal volvulus. The patient was not taking anticoagulants. On postoperative day 7, he presented with hematochezia. Emergency endoscopy revealed active oozing of the blood from a circumferential anastomotic ulcer. Endoscopic hemoclips were applied to visible blood vessels (▶ **Fig. 1**). However, 6 days later, massive hematochezia recurred (▶ **Fig. 2**). Hemostasis was achieved using additional clips and sodium alginate, and the patient was discharged. Seven days after discharge, the patient was readmitted with recurring hematochezia and anemia (hemoglobin level, 6.2 g/dL). Colonoscopy was performed after blood transfusion. Endoscopy showed blood oozing from the anastomotic ulcer and PuraStat was applied to the anastomotic ulcer to stop the bleeding (▶ **Fig. 3**). After application of PuraStat, the patient presented had no hematochezia and was discharged with an improved hemoglobin level of 10.0 g/dL (▶ **Video 1**). He has not presented with hematochezia for 9 months since his last endoscopy. We plan to perform a follow-up endoscopy 1 year after the last endoscopy.

PuraStat is indicated for hemostasis of oozing bleeding in the parenchyma of solid organs, vascular anastomoses, and capillaries of the gastrointestinal tract [2–5]. In the case described here, PuraStat® was effective in achieving hemostasis of bleeding from postoperative anastomotic ulcers.

Thieme

VIDEO

▶ **Video 1** PuraStat was applied over the circumferential anastomotic ulcer using a delivery catheter (Top Corporation, Tokyo, Japan) inserted through the endoscope accessory channel.
Case A 78-year-old man with a history of chronic heart failure and diabetes mellitus underwent ileocecal resection of the cecal volvulus. He presented with hematochezia after surgery. Emergency endoscopy revealed active oozing of blood from a circumferential anastomotic ulcer. Endoscopic hemoclips were applied to the visible bleeding vessel, but recurrent massive hematochezia occurred. Endoscopic hemostasis was attempted using a self-assembling peptide called PuraStat (3-D Matrix Ltd, Tokyo, Japan). When the endoscope was inserted, a large amount of blood accumulated in the intestinal tract. After drainage, active oozing of blood from a circumferential anastomotic ulcer was noted. PuraStat was applied to the circumferential anastomotic ulcer using a delivery catheter (Top Corporation, Tokyo, Japan) inserted through the endoscope accessory channel. Effective hemostasis was achieved after the application of Purastat.

Competing interests

The authors declare that they have no conflict of interest.

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