


Marginal ulcer with erosion into splenic artery in a patient with a Roux-en-Y gastric bypass

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A female patient in her 70s with a remote history of an open Roux-en-Y gastric bypass for weight loss was admitted to the medical intensive care unit (ICU) for septic arthritis of the hip and associated bacteremia. On hospital day 7, the patient was found to have a significant drop in hemoglobin to 55 g/L. Despite undergoing a CT angiography of the abdomen and pelvis, no source of bleeding was identified. She received two units of blood and responded appropriately. On hospital day 9, the patient began to experience melanic stools and hematemesis. At that time, she was found to have a hemoglobin of 40 g/L, a base deficit of -15, and was requiring three vasopressors to maintain adequate blood pressure. Both acute care surgery as well as gastroenterology were emergently consulted. A femoral venous introducer was placed and a massive transfusion protocol (MTP) was initiated. The patient was intubated, and an ultrasound-guided femoral arterial line was placed. The patient responded appropriately to MTP, calcium repletion, and was able to wean off vasopressors, prompting the cessation of the MTP. Emergent bedside upper endoscopy performed by gastroenterology revealed a marginal ulcer at the gastrojejunostomy with a visible vessel. This was injected with epinephrine and clipped. Despite these attempts, the bleeding was persistent and unable to be controlled endoscopically. At that time, the patient was not requiring vasopressors or ongoing transfusions to maintain appropriate blood pressure.

WHAT WOULD YOU DO?

- Proceed to the operating room for an exploratory laparotomy?
- Proceed to the operating room for exploratory laparoscopy?

- Proceed to interventional radiology for mesenteric angiogram?

WHAT WE DID AND WHY

Correct answer C

In light of the patient's hemodynamic stability at the conclusion of the upper endoscopy, the decision was made to proceed to interventional radiology for mesenteric angiography. The femoral arterial access was upsized for a 7 French sheath and a REBOA catheter was kept at the bedside in the event the patient became hypotensive in transport to radiology. During the mesenteric angiogram, a large pseudoaneurysm with contrast extravasation was found arising from the splenic artery, successfully treated with coil embolization. Completion angiogram demonstrated no further extravasation with reconstitution of the distal splenic artery via the pancreaticoduodenal arcade ([figure 1](#)).

The patient was transferred to the surgical ICU for ongoing resuscitation. On post-procedure day 4, the patient experienced another episode of melena requiring transfusion. Repeat mesenteric angiography demonstrated a hypertrophied left gastric artery, which was embolized with Gelfoam. On post-procedure day 7, the patient underwent repeat upper endoscopy for a slow drift in hemoglobin which did not show any active bleeding.

Marginal ulcers are a common complication of gastric bypass. Risk factors for marginal ulcers include smoking, diabetes, and non-steroidal anti-inflammatory drug use. The most common presentations for marginal ulcers include abdominal pain, nausea, and emesis. Rarely, patients may present in hemorrhagic shock. In these cases, the most common etiology is bleeding from jejunal branches of the superior mesenteric artery or gastric branches of the celiac trunk. These patients may present with a hostile abdomen especially if their index operation was performed in an open fashion. Only a handful of case reports have been published describing bleeding marginal ulcers from the splenic artery. To our knowledge, they have all been treated surgically with mixed success.

Massive hemorrhage from marginal ulcers is an emergency. First line of treatment should include endoscopic evaluation and early surgical consultation. If a marginal ulcer is the culprit and endoscopic therapies are unsuccessful in controlling the bleeding, consideration may be given to angiographic evaluation. This requires a hemodynamically appropriate patient. This clinical scenario



Figure 1 (A) Mesenteric angiography showing pseudoaneurysm with contrast extravasation from the splenic artery. (B) Completion angiogram after Gelfoam embolization showing no further extravasation of contrast.

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intuitively lends itself to the use of REBOA and warrants further investigation.

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