

Large Cameron Ulcer Bleed

Suha Jabak, MD¹, and Jana G. Hashash, MD^{1,2}

¹Division of Gastroenterology, American University of Beirut, Beirut, Lebanon

²Division of Gastroenterology, Hepatology, and Nutrition, University of Pittsburgh, Pittsburgh, PA

ABSTRACT

Cameron ulcers usually present with chronic obscure gastrointestinal bleeding. Few cases of life-threatening bleeding have been reported. We hereby present an elderly man who presented with upper gastrointestinal bleeding associated with hemodynamic instability because of a large cratered Cameron ulcer. This ulcer contained a large pseudoaneurysm, and endoscopic therapy was deemed unsafe. The patient had a recurrence of his bleeding, necessitating intervention by our interventional radiology colleagues and then surgical intervention for definitive therapy. This case is important because it familiarizes gastroenterologists with the endoscopic appearance of huge Cameron ulcers and therapeutic options to control hemostasis. It also stresses the importance of a multidisciplinary team approach to ensure the best outcomes for patients.

INTRODUCTION

Cameron lesions are gastric mucosal erosions, usually multiple, linear, and superficial, that occur at the diaphragmatic pinch in patients who have a large hiatal hernia.¹ The etiology of these lesions is likely multifactorial. Some propose that Cameron lesions form as a consequence of local mechanical trauma from gastric folds rubbing against each other as the hernia slides up and down past the diaphragmatic hiatus, whereas others propose that these erosions could be related to *Helicobacter pylori* infection, transient ischemia, acid reflux, and gastric or vascular stasis.^{2,3} Cameron erosions usually cause chronic occult gastrointestinal bleeding and, subsequently, iron deficiency and anemia.⁴ Patients with occult gastrointestinal bleeding usually respond to medical therapy with proton-pump inhibitors and iron supplementation. In those patients with refractory anemia or those requiring recurrent blood transfusions, surgical repair of the hiatal hernia is often considered. Only a few cases of overt life-threatening gastrointestinal bleeding from Cameron ulcers have been reported in the literature. In these situations, therapeutic endoscopy can be performed, although surgical interventions are preferred because endoscopic therapy may be technically difficult to achieve hemostasis.⁵

CASE REPORT

An 80-year-old man with advanced Alzheimer's disease, hypertension, and a history of transient ischemic attack, maintained on aspirin 81 mg daily, was transferred to our institution from an outside hospital for further evaluation and management of upper gastrointestinal bleeding. Before this bleeding episode, the patient had never had an upper endoscopy, never had gastrointestinal bleeding, and was not known to have a hiatal hernia. He had an episode of hematemesis at home after which he was taken to an outside hospital, where he underwent an emergent upper endoscopy showing copious amounts of fresh blood and clots necessitating termination of the procedure and transfer to our institution. On arrival to our emergency department, his blood pressure was 74/47 mm Hg and pulse rate was 98 bpm. Blood work showed a hemoglobin level of 6.9 g/dL. The patient was transfused with 2 units of packed red blood cells and was started on intravenous esomeprazole. He was then sent for a computed tomography angiography, which showed no active extravasation. An endoscopy 12 hours later revealed an 8-cm sliding hiatal hernia with a 5-cm deep cratered ulcer at the diaphragmatic pinch. The ulcer base contained adherent clot and fibrinous material, which could not be cleared. There was no active bleeding noted during that endoscopic procedure. A hemostatic clip was placed at the ulcer rim for localization in case the patient rebleeds (Figure 1).

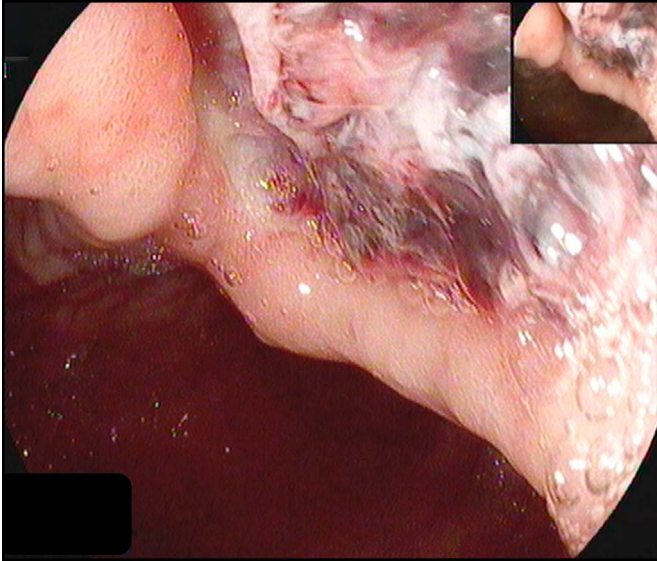


Figure 1. Initial endoscopy image showing a large, deep, cratered ulcer at the diaphragmatic pinch with adherent clot and fibrinous material covering the ulcer base.

The patient was continued on intravenous esomeprazole, and an upper endoscopy was repeated 2 days later. The ulcer margin was biopsied to exclude the presence of malignancy. The ulcer base was visualized and contained 2 visible vessels, the largest of which was approximately between 8 and 10 mm in diameter (Figure 2). No endoscopic intervention was performed because we did not feel that this lesion was amenable to endoscopic therapy, given the size of the vessel. We had a multidisciplinary conference with our interventional radiology and surgical colleagues regarding a more definitive treatment approach for this ulcer that exhibited high-risk stigmata for bleeding. We were awaiting the pathology results to decide on the next steps, especially given the advanced dementia of the patient, but before

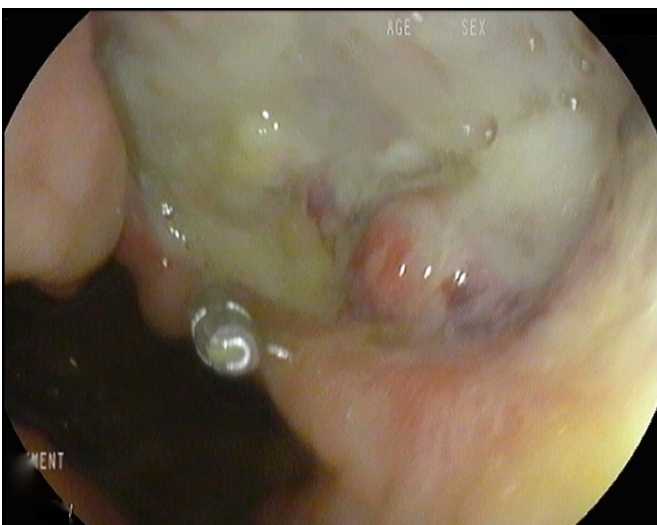


Figure 2. Repeat endoscopy image taken 48 hours later showing 2 visible vessels and the hemostatic clip which was previously placed at the ulcer margin for localization in case the patient rebleeds.

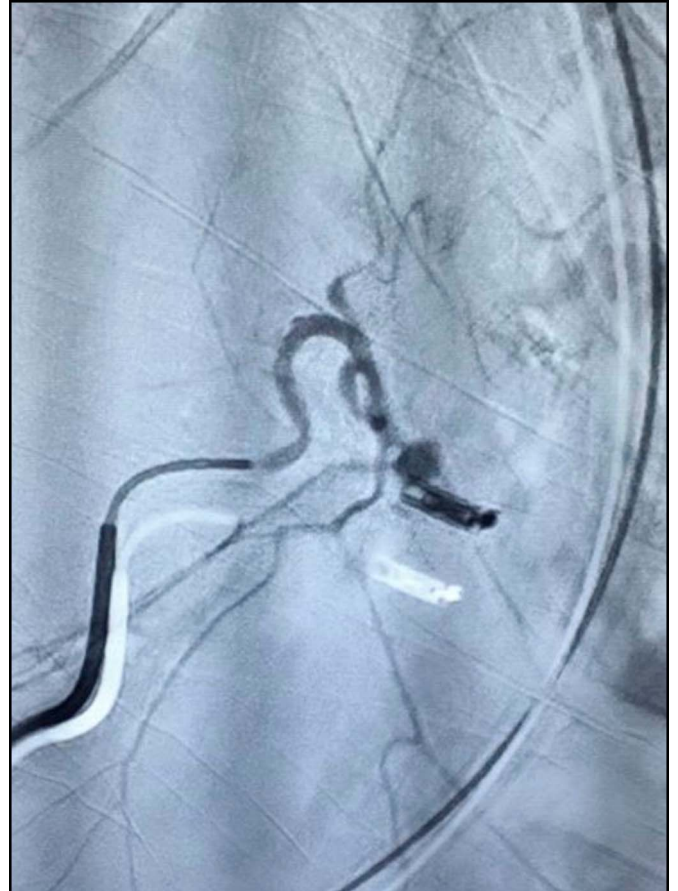


Figure 3. Angiography showing a left gastric artery pseudoaneurysm adjacent to the previously placed endoscopic hemostatic clip.

the results returned, the patient had a recurrent episode of large volume hematemesis with hemodynamic instability. Emergent angiography was performed and did not show active bleeding. A left gastric artery pseudoaneurysm was seen just adjacent to the previously placed hemostatic clip (Figure 3). Coil embolization of the pseudoaneurysm was performed to prevent rebleeding. Biopsy results came negative for malignancy. It was decided to have the patient undergo a laparoscopic repair of his large hiatal hernia. Eight weeks later, the patient was seen in follow-up and continues to do well on esomeprazole 40 mg twice daily.

DISCUSSION

When Cameron ulcers cause life-threatening gastrointestinal bleeds, surgical interventions are often preferred over endoscopic approaches. This is because endoscopic interventions may be technically difficult, depending on the size of the ulcer, the constant movement of the hernia and ulcer with the patient's respiration, and the usually encountered large clot burden in the gastric fundus.⁵ The optimal surgery for bleeding Cameron ulcers is still unknown. Traditional surgical approaches include ulcerectomies, oversewing of bleeding Cameron ulcers, or exploratory laparotomy with under-running of the bleeding vessels. Recently, Tan et al reported

a minimally invasive, single incision, transgastric closure of Cameron ulcers.⁶ Depending on the patient's clinical status, hernia repair is often performed during the same operation to prevent recurrent Cameron ulcers from developing. In patients who undergo endoscopic therapy, thermal therapy should be used cautiously to avoid perforation especially in patients with deep ulcers because the gastric wall around the gastroesophageal junction lacks fibrous tissue.⁵ There have been reports of deep ulcers adhering to the pericardium which make thermal therapy extremely high risk and possibly contraindicated.⁷ Band ligation to treat a Cameron ulcer-visible vessel has been reported by Lin et al.⁸ Another study reported the use of endoscopically placed hemostatic clips for control of bleeding.^{4,8}

Each case should be individualized, and a decision pertaining to the next best therapeutic intervention, whether endoscopic or surgical, depends on the patient's hemodynamic stability and overall clinical picture. If an endoscopic evaluation is performed, it is important for the gastroenterologist to recognize when not to intervene but rather consult colleagues from other subspecialties for a multidisciplinary team-based approach to achieve the best outcome for the patient.

Our case was complicated by the presence of a left gastric artery pseudoaneurysm associated with the Cameron ulcer. There are no reports of this association in the literature. Left gastric artery pseudoaneurysms are very rare. They usually form as a sequelae of an adjacent inflammatory process such as chronic pancreatitis.⁹ Other causes could be related to abdominal trauma, atherosclerosis, other inflammatory conditions, or infection embolic events. Owing to the high risk of rupture and associated high mortality, elective intervention is recommended for left gastric artery pseudoaneurysms.⁹⁻¹¹

DISCLOSURES

Author's contributions: S. Jabak wrote the manuscript. JG Hashash wrote the manuscript, revised the manuscript, and is the article guarantor.

Financial disclosure: None to report.

Informed consent was obtained for this case report.

Received May 17, 2019; Accepted November 12, 2019

REFERENCES

1. Kimer N, Schmidt PN, Krag A. Cameron lesions: An often overlooked cause of iron deficiency anaemia in patients with large hiatal hernias. *BMJ Case Rep.* 2010;2010:cr0620103129.
2. Cameron AJ, Higgins JA. Linear gastric erosion. A lesion associated with large diaphragmatic hernia and chronic blood loss anemia. *Gastroenterology.* 1986;91(2):338-42.
3. Moskovitz M, Fadden R, Min T, Jansma D, Gavaler J. Large hiatal hernias, anemia, and linear gastric erosion: Studies of etiology and medical therapy. *Am J Gastroenterol.* 1992;87(5):622-6.
4. Camus M, Jensen DM, Ohning GV, et al. Severe upper gastrointestinal hemorrhage from linear gastric ulcers in large hiatal hernias: A large prospective case series of Cameron ulcers. *Endoscopy.* 2013;45(5):397-400.
5. Kapadia S, Jagroop S, Kumar A. Cameron ulcers: An atypical source for a massive upper gastrointestinal bleed. *World J Gastroenterology.* 2012; 18(35):4959-61.
6. Tan C, Kim G, So J, Shabbir A. Single-incision laparoscopic transgastric underrunning and closure of Cameron ulcers in acute gastrointestinal bleeding. *J Gastrointest Surg.* 2018;22:553-6.
7. Ooka K, Fasanella KE, Hashash JG. An unusual cause of a solitary giant gastric ulcer. *Gastroenterology.* 2019;156(4):e10-11.
8. Lin CC, Chen TH, Ho WC, Chen TY. Endoscopic treatment of a Cameron lesion presenting as life-threatening gastrointestinal hemorrhage. *J Clin Gastroenterol.* 2001;33(5):423-4.
9. Borioni R, Garofalo M, Innocenti P, et al. Haemoperitoneum due to spontaneous rupture of an aneurysm of the left gastroepiploic artery. *J Cardiovasc Surg.* 1999;40:63-4.
10. Panayiotopoulos YP, Assadourian R, Taylor PR. Aneurysms of the visceral and renal arteries. *Ann R Coll Surg Engl.* 1996;78:412-9.
11. UpToDate (https://www.uptodate.com/contents/overview-of-visceral-artery-aneurysm-and-pseudoaneurysm?search=left%20gastric%20artery%20pseudoaneurysm&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1#). Accessed October 10, 2019.

Copyright: © 2020 The Author(s). Published by Wolters Kluwer Health, Inc. on behalf of The American College of Gastroenterology. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.