# Massive GI Bleed Caused By Erosion of a Duodenal Ulcer Into the Cystic Artery: A Case Report

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## Introduction

With advancing interventions for upper gastrointestinal (UGI) bleeds through endoscopic treatments and embolization, it is increasingly rare for patients to require surgery for UGI hemorrhage.

We describe a patient who required exploratory laparotomy despite Gastrointestinal (GI) intervention with **endoscopy** and Interventional Radiology (IR) **angioembolization.** Ultimately this patient was found to have erosion of a duodenal ulcer into the cystic artery, causing hemorrhagic shock and the need for multiple transfusions.

## Case Presentation

An 87-year-old woman with **chronic pain on daily NSAIDs** was admitted to our Medical ICU (MICU) after she presented to the ED with epigastric pain, hematemesis and melena for 1 day. In the ED, she was immediately diagnosed with hemorrhagic shock with severe anemia and underwent resuscitation with crystalloid and blood products before intubation and transfer to the ICU.

## References

Britt RC, Collins JN, Cole FJ, Weireter LJ, Britt LD. Duodenal ulceration into the cystic artery with resultant massive hemorrhage. Am Surg. 2004;70(11):999-1001.

Kim HC, Jeong YS, Han K, Kim GM. Transcatheter arterial embolization of cystic artery bleeding. Front Surg. 2023;10:1160149.

## Interventions

After initial stabilization, the patient urgently underwent esophagogastroduodenoscopy (EGD). Non-bleeding ulcers were noted at the first part of the duodenum without evidence of perforation. The largest anterior lesion measured 2.2cm and clips were placed.

Given the location of the ulcers, patient was transferred to the IR Suite for empiric coil embolization of the **gastroduodenal artery**. No extravasation was appreciated.

## Findings

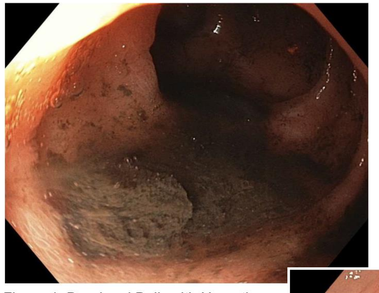


Figure 1: Duodenal Bulb with Hematin



Figure 2: Ulceration

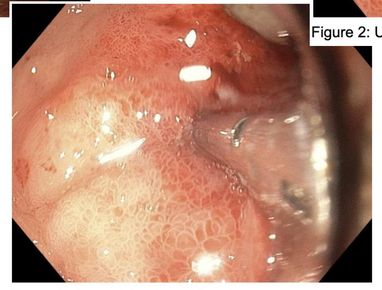


Figure 3. Second Portion of Duodenum

## Operation

Because the patient continued to require transfusion despite hemodynamic stability, the surgical team took her to the operating room (OR) for an **exploratory laparotomy.**

**The first portion of the duodenum** was found to be densely adhered to the anterior gallbladder with erosion into the cystic artery. The artery was suture-ligated and hemostasis was ensured.

Upon further exploration, the posterior duodenum had scarring into the porta hepatis. The surgeon performed **an antrectomy** and posteriorly dissected out the post-pyloric duodenum distal to the liver hilum adhesions, before stapling across the duodenum just proximal to the ampulla of Vater. A Billroth II gastrojejunostomy was created and abdominal fascia was ultimately closed.

Postoperatively, the patient remained hypotensive despite further resuscitation and was brought back to the OR for exploration. No bleeding was noted. The anastomosis was viable. The gallbladder was distended.

Patient was extubated and diet was advanced by postoperative day 7. On postoperative day 11, patient complained of abdominal pain and was found to have cholecystitis. She underwent percutaneous cholecystostomy without complication.

## Conclusion

Hemorrhagic shock in the setting of duodenal ulceration should prompt consideration of the cystic artery as a source. This would then warrant ulcer localization with EGD and then angiography with IR - both of which occurred in this case.

One might argue for pre-emptive embolization of the cystic artery in this case. While embolization risks gallbladder ischemia, this potential complication may also be addressed with a less invasive percutaneous cholecystostomy, as demonstrated in this report.