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Case report: A rare case of upper gastrointestinal bleeding

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Abstract

The most common causes of upper gastrointestinal bleed (UGIB) are peptic and posterior duodenal ulcers, usually resulting from a gastroduodenal artery (GDA) bleed. We are presenting a case of a patient who suffered from an UGIB after the commencement of apixaban to treat newly diagnosed atrial fibrillation. Despite endoscopic intervention, clear computed tomography angiography (CTA) and GDA embolisation, bleeding persisted leading to a hypovolemic shock. (Interventional Radiology images)

This is a rare occurrence which led the team to request a second CTA, revealing an extravasation of contrast, indicating the persistence of bleeding which consequently led to an emergent surgery. The patient underwent an exploratory laparotomy and an ulcer was discovered during intraoperative endoscopy.

The position of the ulcer was identified in the posterior-lateral duodenal wall. The persistence of bleeding despite GDA embolization suggested that the patient was most likely to be bleeding from the inferior pancreaticoduodenal artery (IPDA) or an aberrant blood vessel.

Our teaching points focus on the importance of considering the pancreaticoduodenal anastomosis and other anatomical variants as sources of bleeding when managing an UGIB.

Keywords: Upper gastrointestinal bleeding (UGIB), gastro duodenal artery (GDA) embolization, intraoperative endoscopy, aberrant branching pattern

Introduction

An UGIB is described as blood loss from a gastrointestinal source above the ligament of Treitz. It is a common issue which occurs in 80-150 out of 100,000 people each year with a mortality rate of 2 to 15%. The most common causes of an UGIB are peptic ulcers and duodenal ulcers which account for 50-70% of the cases. Patients can present with haematemesis, haematochezia, melena or symptoms secondary to blood loss ^[1].

The most frequent vessel responsible for an UGIB is the GDA. It is responsible for the supply of blood to the area most commonly affected by peptic ulcers. An ulcer that is in close proximity to the GDA and the posterior wall of the duodenum can cause erosion of this artery or the branches of the GDA leading to massive bleeding ^[2].

Management of upper gastrointestinal bleeding includes stabilising the patient, providing a blood transfusion if needed, and utilising upper endoscopy for both diagnosis and therapeutic interventions based on identified lesions. Decisions on transfusions are guided by haemodynamic parameters, bleeding rate, and estimated blood loss ^[3].

Most cases respond to endoscopic interventions such as epinephrine injection and heat probe coagulation, however, 5% of patients require surgery or transcatheter arterial embolization ^[4].

This case report highlights the importance of considering the pancreaticoduodenal vessels anastomosis and other anatomical variants as sources of bleeding when managing an UGIB.

Case

A 68-year-old female with a background history of ulcerative colitis, alcohol excess, anxiety, depression, and a previous deep vein thrombosis (DVT) presented to hospital with newly diagnosed fast atrial fibrillation. Based on a CHA₂DS₂-VASc score of 3, she was started on a direct oral anticoagulant (DOAC), apixaban 5 mg OD. During her admission she developed abdominal pain and melena, which resulted in acute onset of anaemia with her haemoglobin (Hb) dropping from 14.3 g/dl to 6.9 g/dl.

Investigation

The patient's UGIB was most likely related to the recent commencement of the DOAC therefore she underwent an upper endoscopy to try and identify the source. There was no source of bleeding identified during this procedure however a large amount of clotted and fresh blood was seen in D1, D2 and the stomach (Figure 1, Figure 2). *Helicobacter Pylori* treatment was commenced, and conservative management continued. However, her haemoglobin continued to decrease despite regular blood transfusions.

A CTA was performed after the patient had a massive GI bleed which had resulted in hypovolemic shock. The CTA demonstrated no active bleeding. As the GDA is the most common source of an UGIB, it was decided to refer the patient to interventional radiology for embolisation of the GDA (Figure 3, Figure 4).

Unfortunately, the bleeding did not resolve and her Hb continued to drop, resulting in the development of hypotension and tachycardia. A repeat CTA was performed which revealed extravasation of contrast in the 3rd part of the duodenum (Figure 5) with no identification of an active bleeding point.

Management

Laparotomy was decided as the next step in managing this UGIB refractory to treatment. Kocherisation of the duodenum and visualisation of the posterior gastric and duodenal wall showed a normal stomach lining and no external features of ulceration. Intraoperative upper endoscopy was completed, and a 1-cm duodenal ulcer was identified in the posterior-lateral wall distal to the ampulla of Vater. A 3 cm duodenotomy was performed in the anterior wall, which revealed the ulcer and underrunning 3/0 vicryl stitches were placed. Duodenotomy closure was performed with interrupted 3/0 PDS and a 26F drain placed in the subhepatic region.

Due to the position of the ulcer in the posterior-lateral duodenal wall, and its persistence in bleeding despite GDA embolization, it was suspected that the patient was most likely bleeding from the IPDA or an aberrant blood vessel.

Follow up

The patient went to the high dependency unit (HDU) post-operatively and commenced total parental nutrition (TPN) on day 1 post procedure for 5 days.

The drain was removed on day 6 and oral intake started with diet escalation accordingly.

Melena stopped within 2 days of the procedure. The patient was hemodynamically stable with Hb 10 g/dl with no further blood transfusions required. The remaining postoperative period was uncomplicated.

Discussion

The case report emphasises the need for a comprehensive approach to an UGIB and highlights the diagnostic complexity of this condition. The most common bleeding vessel is the GDA as it is the supply for the area most commonly affected by peptic ulcers.

While the GDA is often considered the primary culprit, it is important to remain vigilant for anatomical variants and other potential bleeding sources. In cases where the source of bleeding remains elusive, additional imaging modalities such as CTA may be necessary. Furthermore, surgery or transcatheter arterial embolization (TAE) may be required in some cases. This aligns with the literature, which suggests that, in 5% of cases, surgery or transcatheter arterial embolization may be required for UGIB management [4].

TAE has replaced surgery as the first-line therapy in patients with non-variceal UGIB who have failed to respond to endoscopic procedures due to its high technical and clinical success and good safety profile rates [5].

The challenges of identifying the source of bleeding are further underscored by this case, where initial attempts at GDA embolization were unsuccessful in stopping the bleeding. This led to exploratory/diagnostic/therapeutic laparotomy. The identification of a duodenal ulcer during surgery, despite earlier GDA embolization, suggests the presence of alternative bleeding vessels such as the IPDA or aberrant blood vessels. The position of the ulcer in our case, in the posterior-lateral duodenal wall distal to the ampulla of vater, supported an alternative vessel as a cause of the bleeding. This highlights the importance of maintaining a high index of suspicion for such sources of bleeding and adapting the management approach accordingly.

In summary, this case report serves as a reminder of the diagnostic complexity of UGIB and the need for a comprehensive and adaptable approach in managing this condition. It also highlights the importance of considering alternative bleeding vessels beyond the GDA, particularly in cases where conventional endoscopy alone is insufficient for localization.

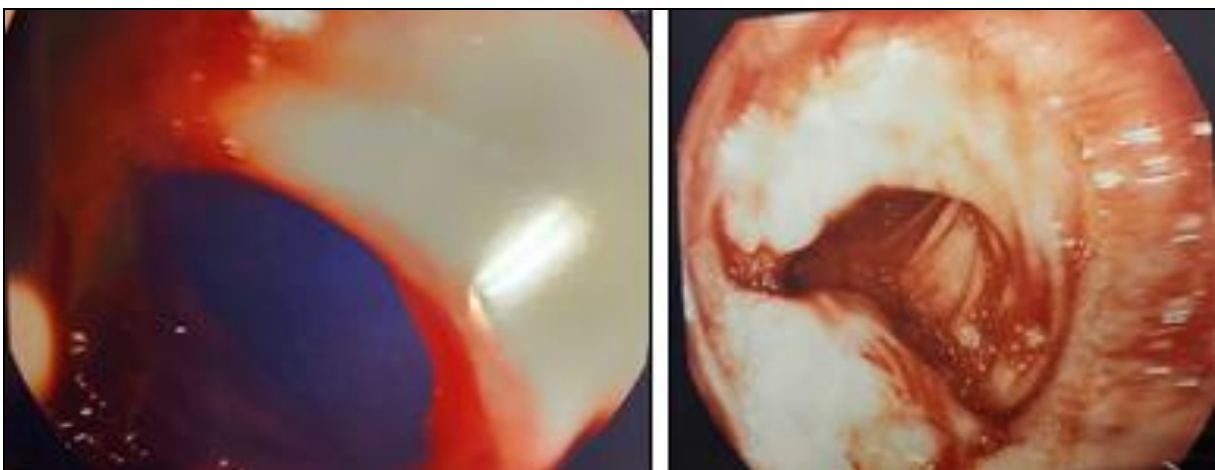


Fig 1, 2: a large amount of clotted and fresh blood was seen in D1, D2

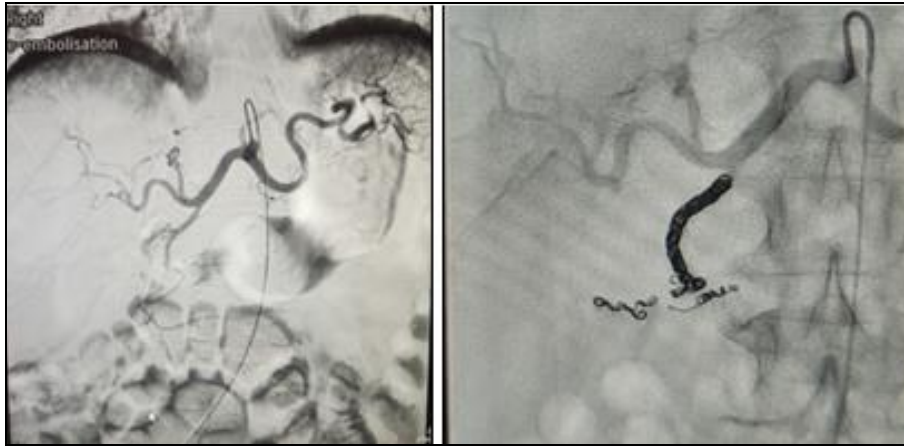


Fig 3, 4: interventional radiology for embolisation of the GDA

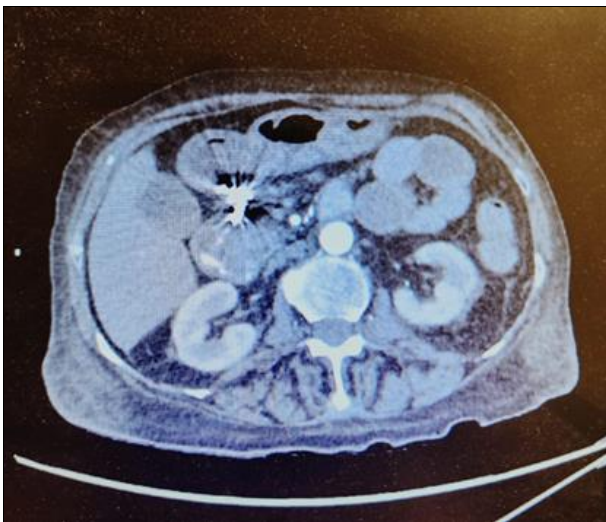


Fig 5: No identification of an active bleeding point

Conflict of Interest

Not available

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Not available

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