

## Case description

This 77 year old gentleman was admitted during my interventional radiology attachment, with past medical history of hypertension, gastro-oesophageal reflux disease, and stress from a recent bereavement. He presented with abdominal pain, hypotension, episodes of melaena and haematemesis, and reduced consciousness. He was admitted to the ICU and resuscitated. Endoscopy failed to identify a bleeding source, while the patient continued to have episodes of melaena. A CT angiogram (CTA) performed showed possible contrast extravasation near first part of the duodenum (D1), likely from the gastro-duodenal artery (GDA) or a pseudoaneurysm (**Figure 1**). The patient was thus decided for a catheter directed mesenteric angiogram the same day. At the time of angiogram study, the patient was haemodynamically stable with no clinical signs of bleeding, and no active extravasation/bleeding or pseudoaneurysm were identified, although the GDA demonstrated areas of spasm (**Figure 2**). Extensive selective angiogram was performed and further imaging of the GDA had negative findings, so decision was made not to embolise.

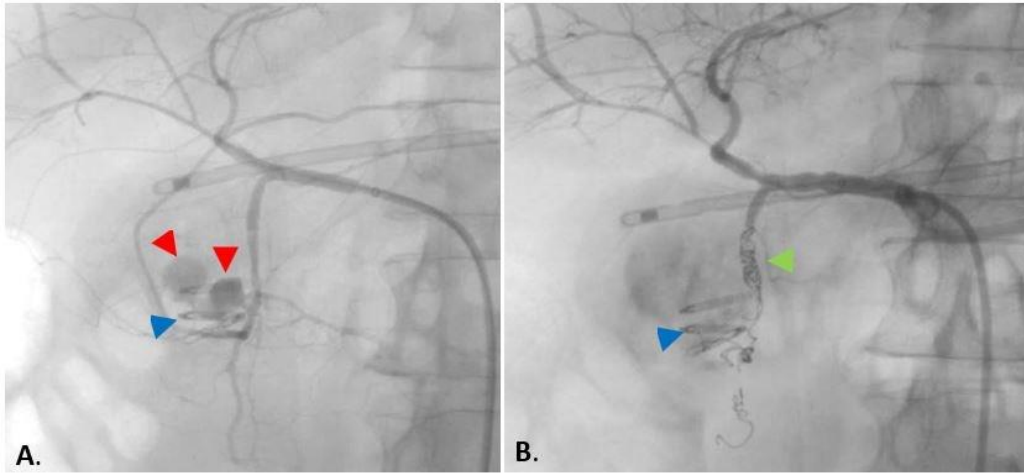


**Figure 1** – Contrast extravasation in area of D1 from GDA (*arrowhead*)



**Figure 2** – Spasm in area of GDA (*arrowhead*)

The patient was re-scoped the next day, a large 3cm acute ulcer was identified on the posterior duodenal wall (D1/D2), and a visualised non-bleeding vessel was clipped. The distribution of the ulcer was reported to be fitting with the GDA blush seen on the initial CTA. Unfortunately, on the third day, the patient became hypotensive again, with a drop in haemoglobin. The patient underwent another catheter angiogram, which showed brisk contrast extravasation from the GDA, corresponding to the duodenal endoscopic clips (**Figure 3A**), and it was successfully embolised with multiple 5mm coils (**Figure 3B**). The check angiogram confirmed GDA occlusion, with no further contrast extravasation. The patient remained stable thereafter, no further episodes of gastrointestinal bleed, awaiting follow-up.



**Figure 3 – A.** GDA extravasation on repeat angiogram.  
**B.** No extravasation following GDA embolisation with coils  
*(blue arrowhead – endoscopic clips (3x); red arrows – extravasation; green arrowhead – coils)*

### Learning and Reflection:

GDA, typically a branch of the hepatic artery, passes behind the D1 and is highly relevant with respect to a bleeding duodenal ulcer. Endoscopy is the first line of management for such non-variceal upper gastrointestinal bleeding (UGIB), but embolisation is considered when endoscopic treatment is unsuccessful. Non-variceal UGIB is intermittent, and the patient needs to be actively bleeding to identify the bleeding site, which angiography can identify in 40-60% cases. The patient didn't have any intervention during the first angiography as no bleeding point or pseudoaneurysm were identified.

This case was a good learning opportunity for me. I got to see and experience a close liaison and team-work between multiple disciplines (upper GI team, ICU, anaesthetists and interventional radiologists), that led to timely management of the exsanguinating patient with good clinical outcome. I experienced the role of interventional radiology in gastrointestinal bleed and its embolisation; also, if CTA demonstrates active extravasation, embolising the GDA region, even if the extravasation is not evident subsequently on catheter angiography, is a better management plan than 'sit and wait' as bleeding is likely to return in the absence of embolisation. I also learnt the importance of understanding the mesenteric branch anatomy and their variants. Above all, I for the first time realized the importance of interventional radiology as a rescue specialty in a clinical case.