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Case Report

An anomalous engenderment of a common scenario: upper gastrointestinal bleeding

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ABSTRACT

Upper gastrointestinal bleeding (UGIB) includes hemorrhage originating from the esophagus to the ligament of Treitz. It is a gastrointestinal emergency that can result in significant morbidity, mortality, along with laborious utilization of health-care resources. With the advent of definite management protocols, the recent trends have revealed that patients rarely die from exsanguination, with decompensation of the underlying disorders, rather, proving to be causative of the same. Rapid assessment, resuscitation, and early endoscopic investigation serve as the foundation of early management. Common sinister underlying aetiology include Oesophageal Varices, Peptic Ulcer Disease, NSAID Induced Acute Gastritis or Malignancy. Arising from a conglomeration of aetiologies, an infrequent one, is a silently sinister pseudoaneurym rupturing into the stomach, stemming from a visceral artery. Since the first description by Beaussier in 1770, the condition has been detected with increasing frequency, primarily as a consequence of the increasing use of accurate imaging methods. Coeliac artery aneurysms (CAAs) occur in approximately 0.2% of the overall population and constitute approximately 4% of all visceral artery aneurysms (VAAs). Their risk of rupture is estimated at 10% to 15% and is associated with high mortality. Associated risk factors include atherosclerosis, hypertension, systemic inflammation, trauma, collagen vascular disease, infection, fibromuscular dysplasia, and cirrhosis.

Keywords: Bleeding, Endoscopy, Pseudoanuerysm

INTRODUCTION

Aneurysms of the coeliac trunk and its distributaries are a rare pathology. Since the first description by Beaussier in 1770, the condition has been detected with increasing frequency, primarily as a consequence of the increasing use of accurate imaging methods.

Celiac artery aneurysms (CAAs) occur in approximately 0.2% of the overall population and constitute approximately 4% of all visceral artery aneurysms. Their risk of rupture is estimated at 10% to 15% and is associated with high mortality.

Associated risk factors include atherosclerosis, hypertension, systemic inflammation, trauma, collagen vascular disease, infection, fibromuscular dysplasia, and cirrhosis.

As the classical teaching goes "When you hear hooves, think of horses, not zebras", the diagnosis should be considered when no other common pathologies are identified.

The following case study illustrates the rare clinical picture, with timely intervention trimmed to accommodate the patient co morbidities.

CASE REPORT

A 53-year-old male presented with 3-4 bouts of hematemesis. He was a known hypertensive. He had history of chronic alcohol intake, now reformed, with no other relevant medical history. On examination, he was pale, with BP of 80/50mmHg and heart rate 105bpm.

According to the Blatchford scoring system, his score was 10 at presentation necessitating intervention. Patient's haemoglobin was stabilized with transfusions. UGIE performed did not reveal any pathology. However, extrinsic compression was found in the proximal body of the stomach along lesser curvature and a doubtful impression of haemosuccus pancreaticus was made. Ultrasound abdomen revealed a pseudo-aneurysm with contained hematoma of the coeliac trunk (Figure 1).

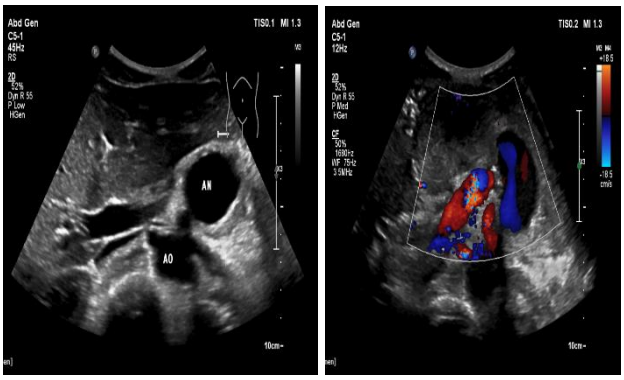

Figure 1: USG abdomen demonstrating the aneurysm (an) and the abdominal aorta (AO). Doppler mode showing direction of flow of flood.

CT Angiography of the Abdominal Vessels was performed, which demonstrated a coeliac artery pseudo aneurysm with possible dissection and large contained hematoma (Figure 2, 3, 4).

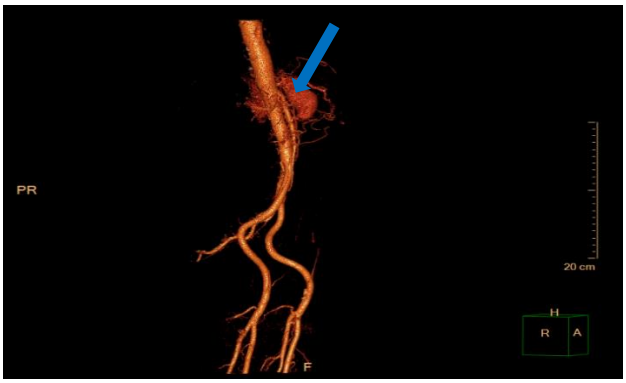

Figure 2: CT Angiography (Lateral) demonstrating the entire abdominal arterial vasculature (Contained hematoma marked by arrows).

Keeping in mind the consequential findings, the gold standard investigation to localize the source of bleeding, Digital Substraction Angiography (DSA).

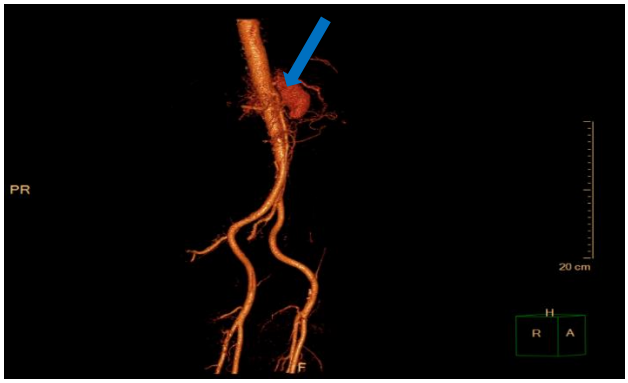

Figure 3: CT angiography (Lateral) demonstrating the entire abdominal arterial vasculature (contained hematoma marked by arrows).

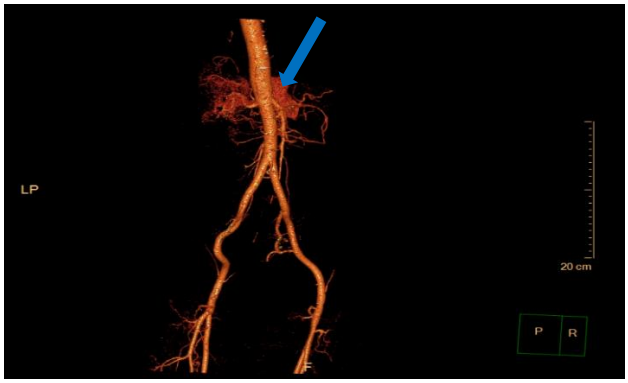

Figure 4: CT angiography (posterior) demonstrating the entire abdominal arterial vasculature (contained hematoma marked by arrows).

Digital Subtraction Angiography (DSA) of the Abdominal Vasculature was sent for, which affirmed the aforementioned. During the next two days the patient's condition improved along with his labs investigations. The patient was then successfully treated with interventional radiological measures-therapeutic coiling (6 coils) of the vessel (Figure 5, 6).

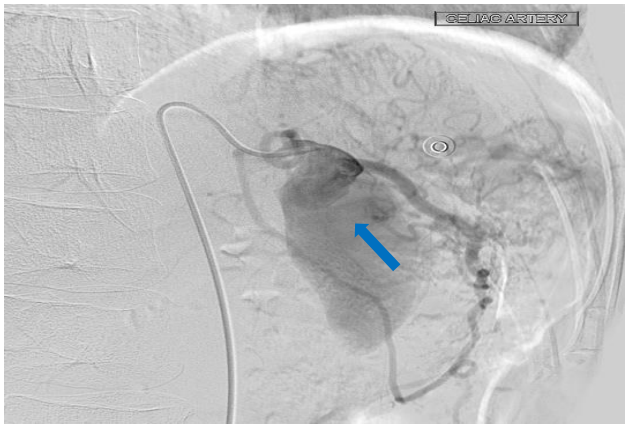

Figure 5: Digital Substraction Angiography (DSA) of the Coeliac Artery demonstrating the hematoma (marked by arrow).

Figure 6: Digital Substraction Angiography (DSA) of the Coeliac Artery demonstrating absence of hematoma and the embolization coils used.

Patient kept for observation in the general wards for monitoring, control of hypertension and blood sugars. Advised to abstain from smoking and dietary modifications. Follow up: asymptomatic; normal labs values.

CELIAC ARTERY ANGIOGRAPHY AND EMBOLIZATION:

Procedure done by: Dr. Rajgopal KV and Dr Prakashini

Procedure: Celiac artery angiography and embolization

Route: Right Femoral artery

Duration: 1.30 hour.

PG: Dr. Harsha

Heparin Used: 1000 IU for vascular sheath.

Volume of contrast used: 100ml.

IMPRESSION:

Under strict aseptic precautions and local anesthesia, right common femoral artery was punctured using 18G needle and access was secured using 6F vascular sheath.

The celiac artery was cannulated using 5F sim- 1 catheter and micro catheter.

Angiogram revealed large pseudo aneurysm arising from the celiac artery (9.3 x 4.4cm).

Embolization of the artery distal and proximal to pseudo- aneurysm was done using 6 coils (6/2 and 3/4).

Check angiogram revealed non- visualization of pseudo aneurysm.

Post embolization Doppler ultrasound showed normal perfusion of the spleen.

Patient tolerated the procedure well. Post procedure hemostasis was achieved.

No intra / immediate post procedural complications noted.

Figure 7: Digital substraction angiography (DSA) of the coeliac artery procedural report.

DISCUSSION

Coeliac artery pseudoaneurysms are uncommon clinical scenarios, which remain as one of the rarest types (4%) of VAA, with an incidence of 0.01%. The etiology is usually atherosclerosis or medial degeneration, with infectious causes (e.g. syphilis), which were common in the 19th century, now very rare.[1]

In our patient, the most likely contributing factors were hypertension, atherosclerosis and smoking leading to medial degeneration. Most are asymptomatic, with approximately 85 percent discovered incidentally on imaging, while only 7 percent are discovered by autopsy.[2]

The pseudoaneurysm in itself can masquerade a state of complete wellbeing, or at most cause vague abdominal discomfort or backache. The catastrophic rupture into the peritoneal cavity, retroperitoneum or thorax, can cause a myriad of subsequent impediments to organs such as end-organ infarction. Unusual presentations of celiac artery aneurysms include extrinsic compression of the pancreatic duct, palpable abdnominal mass, bleeding gastric varices as a result of splenic vein compression, and hepatic and portal obstruction as a result of extrinsic compression.[3-5]

In our patient, the etiological diagnosis of pseudoaneurysm was delayed, due to rarity of the pathology. The underlying pathogenesis, could be attributable to pressure necrosis of the lesser curvature of the stomach by the expanding hematoma. No other mechanisms have been postulated.

Owing to the headways made in the fields of Diagnostic and Interventional Radiology and early Surgery, the incidence of rupture rates has significantly reduced in the 20th century. Early diagnosis and intervention remain essential, leading to decreased morbidity and mortality rates.[6]

Traditional surgical treatments-especially in emergency cases likes resection of the end organ have been used for many years. Endovascular management has been described and may be appropriate in high-risk patients without liver dysfunction and without disease of the collateral circulation including the SMA and gastroduodenal arteries.

Most small (<2.0cm) asymptomatic aneurysms can be monitored effectively with serial imaging. The advent of endovascular techniques to embolize aneurysms has gained popularity over the last decade. Trans catheter embolization can be performed with a myriad of radiological techniques. Yet, open surgical exploration and aneurysmectomy remain the gold standard in the management of aneurysms.[7] Open surgery is essentially the only resort in cases with giant, ruptured aneurysms, and/or with complicated local and regional pathologies. Terrinoni and coworkers reported the 1st successful embolization of a true aneurysm of the celiac artery with immediate occlusion of all afferent vessels of the celiac axis and suggested that this is a safe alternative to surgical intervention in high-risk patients.[8]

In our patient, owing due to a combination of clinical risk factors and comorbid illnesses, the decision was made, to adopt trans catheter embolization using coils as the

approach rather than open surgery, after obtaining informed consent.

Most complications reported in the literature of endovascular embolization, concern end-organ ischemia, pain, fever and a transient increase in pancreatic or hepatic enzymes (i.e. post-embolization syndrome). One of the major problems following coil embolization is the risk of recanalization, occurring with an incidence of 9-42.9%.[9]

Length of the neck, tortuosity of the arteries, precise location of the aneurysm, and angulation of the aneurysmal tract remain pivotal factors in determining the success of the procedure.

Celiac artery aneurysms are associated with abdominal aortic aneurysms in 18% of cases and with splanchnic artery aneurysms in as many as 50% of cases.[10]

Our patient did not have any concomitant aneurysms, after thorough evaluation. The take home messages warranted, include the importance of evaluation of the entire abdominal aorta and its branches to exclude out aneurysms of other visceral arteries, which go hand in hand, easily done by a CT Angiography of the Abdominal Vasculature, and early intervention, based on clinical judgement taking into consideration, all patient risk factors and comorbidities.

CONCLUSION

The aforementioned case highlights the purely medical and interventional radiological management of an UGIB, making the case unique. Usually, management includes a trifecta of medical and surgical intervention. Endoscopy and ultrasonography are not always of help in excluding an aneurysm an in-depth work up is warranted in such cases. The patient should be kept on follow up with the possibility of re-rupture kept in mind, which is preventable by the lifestyle modifications and concomitant treatment of risk factors like hypertension. Although rare, aneurysms can also result in intragastric ruptures with catastrophic gastrointestinal bleeding

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