Case report

A Case Report: Hepatic artery pseudoaneurysm causing life-threatening haemobilia

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ABSTRACT

Introduction & Importance: Hepatic artery aneurysms (HAA) are rare and it accounts 20% of all visceral artery aneurysms. Commonly HAAs are autopsy findings, but rupture and bleeding carrying significant morbidity and can manifest as haemobilia.

Case presentation: A 63-year-old Sri Lankan male presented with severe melaena upper abdominal pain and features of obstructive jaundice was found to have a giant pseudoaneurysm at the right hepatic artery with the possible arterio-biliary fistula. The etiology for the pseudoaneurysm was not identified. Despite massive transfusion, the patient died before the endovascular intervention.

Clinical discussion: Atherosclerosis is the leading cause of HAA formation but can be associated with connective tissue disorders and arteritis. Most of the HAA are asymptomatic. Aneurysms can be managed with surgical or endovascular interventions.

Conclusion: Life-threatening haemobilia is a notorious complication of the rapture of HAA into the biliary system. The incidents of hepatic artery aneurysms and pseudoaneurysms due to percutaneous transhepatic interventions and minimal invasive hepatobiliary surgeries are in the rising trend. Nonleaking VAA can be best treated with endovascular treatment. The knowledge on this topic is important for the early detection and intervention of this rare entity.

1. Introduction

Visceral artery aneurysms (VAA) are rare and it is defined as aneurysms involving the celiac artery, superior mesenteric artery (SMA), inferior mesenteric artery and/or their branches with an estimated prevalence of 0.1 to 2%. Among VAA hepatic artery aneurysms (HAA) and pseudoaneurysm represents approximately 20% next to splenic artery aneurysm which is about 60%. Rupture and bleeding of the VAA carry significant morbidity and mortality, but most of the aneurysms are found incidentally when performing abdominal imaging for other reasons [1–2]. The definitive cause for HAA is unclear. Unlike the early twentieth century, mycotic aneurysms are seldom seen nowadays due to early diagnosis and antibiotic treatment of infective endocarditis. Iatrogenic and traumatic causes, atherosclerosis, vasculitis, as sequelae of peri inflammation such as cholecystitis and pancreatitis are the most reported causes in the recent articles [3–5].

Here we report a case of ruptured idiopathic hepatic artery pseudoaneurysm into the biliary system and presented as haemobilia.

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This case report has been prepared according to the SCARE 2020 guideline [6].

2. Case presentation

A 63-year-old Srilankan male presented to the Emergency department of Teaching hospital-Jaffna, Sri Lanka, with the features of obstructive jaundice and severe melaena with symptoms of anemia for two days duration. He is a known patient with hypertension for sixteen years and was diagnosed with recurrent glioblastoma for two years. He underwent surgical excision of glioblastoma twice and completed radiotherapy and is now on oral chemotherapy. On examination, he was deeply icteric, not febrile to touch, pale and his heart rate was 128/min, Blood pressure was 100/70mmHg. He had mild upper abdominal tenderness with no mass. Digital rectal examination revealed melaena. After initial fluid resuscitation, 4 units of blood, fresh frozen plasma, and platelets were transfused for this patient. Intravenous Ceftriaxone 1g, IV tranexamic acid 1g, and vitamin K 10mg were given to the patient.
Hematocrit of 12.3 and normal white cell and platelet count. His Totalbilirubin was 204 μmol/L (0-17) with a predominant direct component of170 μmol/L (0-3). Alkaline phosphatase was 948 (46-116) withmildly elevated transaminases Alanine Aminotransferase (ALT): 116 U/L(16-63) Aspartate Aminotransferase (AST). Prothrombin time was11.9 with an INR value of 1.1. His inflammatory markers were normalwith the erythrocyte sedimentation rate (ESR) of 40 mm/1rst hour, andother blood investigations were not significant. After initial resuscita-tion, the patient improved symptomatically with the static Hb of 10.3 g/dL. He subsequently transferred to the Professorial Surgical Unit, theUniversity of Jaffna-Sri Lanka for further evaluation and management.

An ultrasound scan (USS) of the abdomen showed a cystic structuremeasuring 6.2 × 6.9 cm with the bi-directional colour flow (Ying-Yang sign)near the pancreatic head suggestive of a hepatic artery aneurysm. Thecommon bile duct and the intrahepatic ducts were dilated due to compression by the aneurysm. Heterogenous material filling the gallbladder suggestive blood. There was no free fluid in the abdomen. Upper GI endoscopy revealed there was a pulsatile mass within the gastric body and the first part of the duodenum. The second part of the duodenum is filled with blood (Fig. 1). The findings of the Contrast-enhanced Computed tomography of the abdomen and Angiogram was compatible with hepatic artery pseudoaneurysm (Fig. 2).

The 2D ECHO cardiogram revealed the left ventricular ejection fraction was 45% and no vegetations in the valves. Blood cultures were negative for the bacteria and fungi. The patient had not undergone any hepatobiliary procedures in the past. He did not have a past medical history of infective endocarditis, vasculitis, or connective tissue disorders.

The multidisciplinary discussion was carried out including Vascular surgeons, Hepatobiliary surgeons, interventional radiologists, and family members. The possibilities of surgical correction, coil embolization, and angioembolization were discussed. Considering the size of the aneurysm and the broad neck, and the patient’s preexisting glioblastoma, endovascular coil embolization had been proposed as the best option than open surgery. The patient was decided to be managed conservatively as the patient and the family members refused any sort of option than open surgery. The patient was decided to be managed conservatively, depending on the clinical status and comorbidities. Treatment options can be surgical such as aneurysmectomy, ligation, and bypass with a venous graft or prosthetic vascular graft, laparoscopic surgery (mainly ligation), EVT (embolization and endo grafting), or a combination of treatments.

Though there are no randomized control trials that have been able to identify EVT as being superior to open repair, considering the surgical trauma associated with open procedures and mortality rate, non-leaking VAA favor endovascular treatment using covered stents or stent-grafts.

If an aneurysm develops in the common hepatic artery, surgical ligation or endovascular coil embolization can be performed because the Gastro-duodenal arteries (GDA) facilitate collateral circulation to the liver. When the aneurysm is in the proper hepatic artery or the left or right hepatic artery, peripheral to the GDA branch, arterial reconstruction is generally required to maintain hepatic blood flow. In practice, the right and left hepatic arteries have intraparenchymal communication; thus, major complications arising from the use of coil embolization via EVT or ligation of one of the hepatic arteries (right or left) are rare. Most intrahepatic artery aneurysms are treated with embolization using EVT. Image-guided human thrombin injection has been widely used in peripheral false aneurysms. The recurrence rate is high after thrombin treatment for pseudoaneurysms when the neck is wide.

Though the open surgery was the better option for our patient as he had an aneurysm at the terminal right hepatic artery with the wide neck. Considering his life expectancy due to the pre-morbid condition and intraoperative mortality. Endovascular coil embolization was thought to be the better treatment option for this giant Hepatic artery pseudoaneurysm.

Fig. 1. Budding mass in the first part of the duodenum.
4. Conclusion

A rare cause of obstructive jaundice and Malena can be due to rupture of giant Hepatic artery pseudoaneurysm into the biliary system. Life-threatening haemobilia is a notorious complication of this rare entity. Early intervention is necessary to prevent mortality. The incidents of hepatic artery aneurysms and pseudoaneurysms due to percutaneous transhepatic interventions and minimal invasive hepatobiliary surgeries are in the rising trend. Nonleaking VAA can be best treated safely and effectively with endovascular treatment. The knowledge on this topic is important to general and hepatobiliary surgeons for the early detection and intervention of this rare entity.

Informed consent

Informed written consent was obtained from the patient’s next of kin for publication of the data and clinical images. A copy of the written consent is available for review by the Editor in chief of this journal on request.

Authors’ contributions

Authors JS and SR (Clinical supervisor) have equally contributed to the concept, design, data collection, and writing the case report.

Declaration of competing interest

Both authors disclose any financial and personal relationship with other people or organizations that could inappropriately influence their work.

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Guarantor

Professor S Raviraj-Board-certified consultant surgeon and professor in surgery, Department of Surgery, Faculty of Medicine, University of Jaffna, Sri Lanka.

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Ethics approval

All procedures followed were in accordance with the ethical standards of the institution (University surgical unit, Teaching hospital Jaffna). Institution exempts ethics approval for reported cases.

Registration of research studies

Not applicable.

Provenance and peer review

Not commissioned, externally peer-reviewed.

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