CASE REPORT

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Hepatic artery pseudoaneurysm as a cause of gastrointestinal system bleeding: A case report with a brief review of the literature

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A hepatic artery pseudoaneurysm is, by definition, a pulsatile hematoma due to a leakage of blood through a tear or disruption of the arterial wall, and the blood is contained only by the hepatic parenchyma or surrounding hematoma. It can be a very rare cause of gastrointestinal system bleeding. These pseudoaneurysms are usually very well managed by angiographic intervention. However, in some cases, surgery is inevitable. Herein, we present a 63-year-old female presenting with gastrointestinal system bleeding 45 days after surgery for cholangiocarcinoma. She was found to be bleeding from a pseudoaneurysm of the hepatic artery and underwent surgical intervention.

Key words: Hepatic artery, pseudoaneurysm, bilioenteric anastomosis

Gastrointestinal sistem kanamasının bir nedeni olarak hepatik arter pseudoanevrizması: Olgu sunumu ve literatürün gözden geçirilmesi

Hepatik arter psödo anevrizması tanım olarak arter duvarındaki bir yırtık veya kesintiden kanın sızması nedeniyle oluşan ve yalnızca çevre karaciğer parenkimince sınırlanan pulsatil bir hematomdur. Bu durum oldukça nadir olarak gastrointestinal sistem kanamasının bir nedeni olabilir. Bu psödoanevrizmalar anjiografik girişimle genelde oldukça iyi yönetilirler. Ancak bazı olgularda cerrahi kaçınılmaz olabilir. Burada kolanjiokarsinom nedeniyle geçirilmiş cerrahiden 45 gün sonra gastrointestinal sistem kanaması ile başvuran 63 yaşında bir kadın olguyu sunmaktayız. Hastanın hepatik arter pseudo anevrizmasından kanadığı tespit edilip cerrahi olarak müdahale edilmiştir.

Anahtar kelimeler: Hepatik arter, pseudo anevrizma, bilioenterik anastomoz

INTRODUCTION

A hepatic artery pseudoaneurysm is, by definition, a pulsatile hematoma due to a leakage of blood through a tear or disruption of the arterial wall, and blood is contained only by the hepatic parenchyma or surrounding hematoma. This clinical entity has been reported in relation to iatrogenic and traumatic cases, arteriosclerotic disease, vasculitis, pancreatitis, cholecystitis, and surgery of the hepatobiliary system (1-3). To our best knowledge, a description of this condition as a source of gastrointestinal system bleeding dates to the late 1980's, with a case report by Hugel et al. (4).

Herein, we present a 63-year-old female patient with a hepatic artery pseudoaneurysm due to previous hepatobiliary system surgery who presented with gastrointestinal system bleeding.

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CASE REPORT

A 63-year-old female patient admitted with hematemesis and melena for one week. She had a history of resection of the external biliary tree and left hepatic lobe and a reconstruction with hepaticojejunostomy 45 days before due to a Bismuth type 3b cholangiocarcinoma. She had no known medical comorbidities except for hypertension, which was under control with calcium channel blockers.

She had mild tachycardia on admission as 110 beats per minute and was normotensive. Blood count revealed deep anemia, with a hemoglobin value of 7.3 g/dl and hematocrit of 25.2%. International normalized ratio (INR) value and platelet count were in normal range; hence, she was transfused with red blood cell suspensions and an upper gastrointestinal system endoscopy was performed to reveal the source of bleeding. The endoscopy was unable to reveal a source or any sign of bleeding. As the clinical signs indicated that the patient continued to bleed, she was scheduled for a computerized angiographic examination. The computed tomography (CT) scan revealed a pseudoaneurysm adjacent to a branch of the hepatic artery running into the previous left lobectomy site (Figure 1). The patient then underwent conventional angiography for further examination and treatment of the pseudoaneurysm if possible. The presence of the aneurysm was validated with angiography and was treated by coil embolization (Figure 2). The patient did well for 8 hours after the embolization, but her hemodynamics and vital functions began to deteriorate suddenly. A profuse bleeding of the lower gastrointestinal system followed and the patient underwent surgical intervention to prevent further bleeding.

The hepaticojejunostomy anastomosis was reopened and the mentioned pseudoaneurysm was found to be arising from the proper hepatic artery and bleeding directly into the jejunum lumen (Figure 3). The aneurysm was excised and the wall defect of the hepatic artery was closed with primary sutures (Figure 4).

The patient did well on follow-up without any transfusion or intervention need. She was discharged on the 8th postoperative day and is still being followed without any further complications.

DISCUSSION

Pseudoaneurysms arise as a result of visceral inflammation adjacent to the arterial wall that leads to weakening of the vessel wall due to damage to the adventitia. Specifically speaking, digestion of the hepatic arterial wall due to infectious bile from anastomotic leakage, arterial irritation due to a localized abscess in the inferior hepatic space and mechanical injury of the artery during the operation (mainly due to lymph node dissection for malignancy) are the three predisposing factors that are proposed in the literature for pseudoaneurysm formation after surgery (5,6). Despite the relative

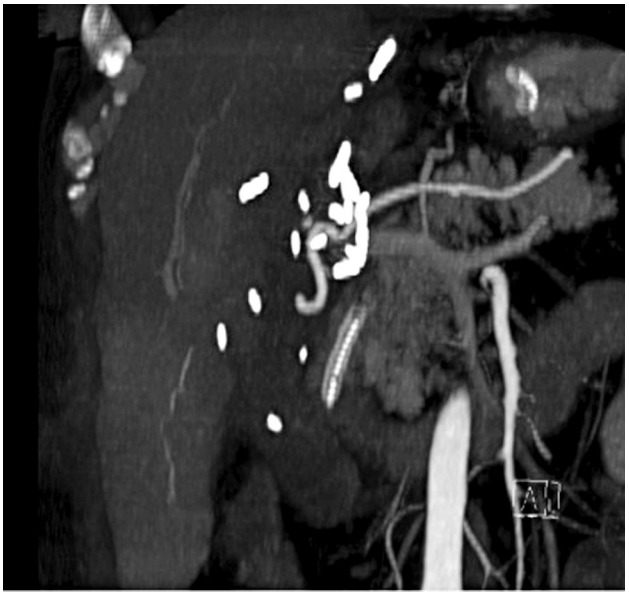

Figure 1. Appearance of the pseudoaneurysm on the CT imaging.

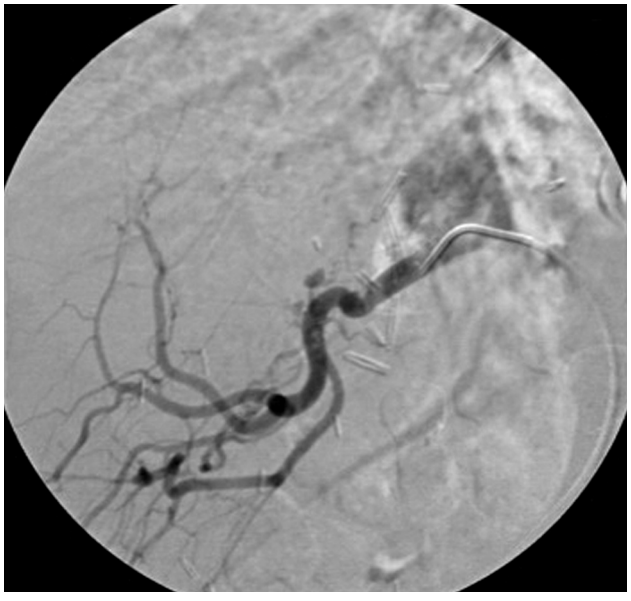

Figure 2. Appearance of the pseudoaneurysm on the angiographic imaging.

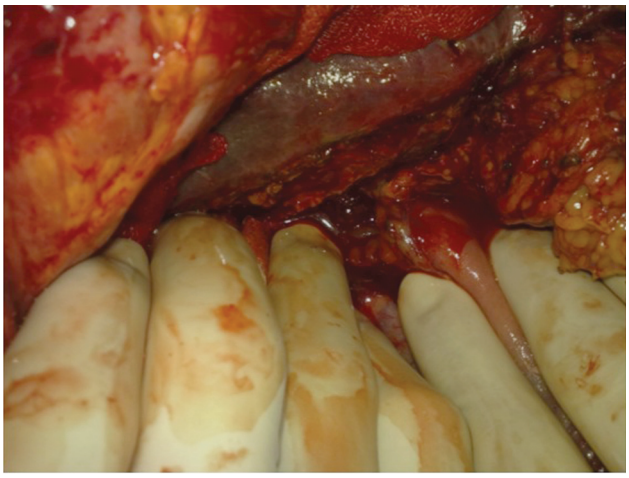

Figure 3. The pseudoaneurysm in situ.

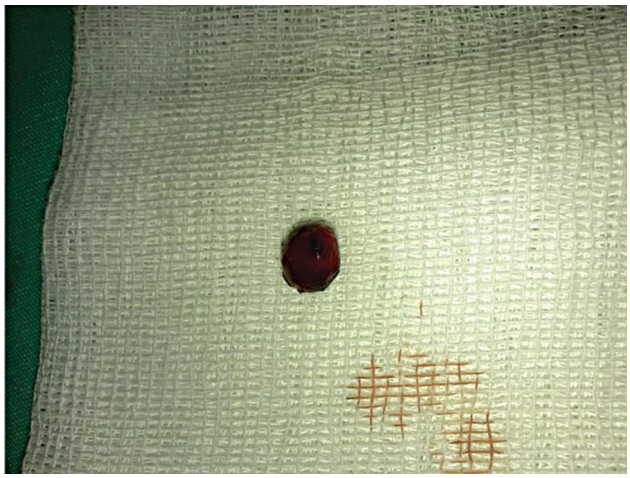

Figure 4. The resected pseudoaneurysm.

commonness of these factors, pseudoaneurysms of the hepatic artery are rare and life- threatening (7). Additional predisposing factors for hepatic artery pseudoaneurysms are blunt or penetrating abdominal trauma, percutaneous interventional procedures involving the liver (biopsy or biliary stent placement), pancreatitis, and cholecystitis (8-11).

Hepatic artery pseudoaneurysms following pancreaticoduodenectomy are rare complications and associated with high morbidity and mortality rates. Late bleeding after pancreaticoduodenectomy is usually massive and associated with peripheral circulatory impairment. It usually has a sudden onset, mostly after the second or third postoperative weeks, even sometimes after an apparently uneventful postoperative course (12). All these clinical features are very well matched with our case; however, in most of these reported cases, the bleeding occurs from pancreaticoenteric anastomosis. To our best knowledge, our case is only the second case reported in the literature to bleed from a pseudoaneurysm adjacent to the biliodigestive anastomosis (13).

A multi-slice angiographic examination with CT can be accurately utilized for determining the source of gastrointestinal bleeding, especially when conventional endoscopic studies fail to do so (14). Likewise, in our case, the upper gastrointestinal system endoscopy failed to show the source of bleeding in our patient, but CT imaging successfully detected the pseudoaneurysm and also guided the conventional angiographic intervention.

After detection of the pseudoaneurysm as the source of bleeding, interventional angiography can be utilized for selective embolization of the aneurysm. Based on the latest studies, interventional angiography with selective embolization of the pseudoaneurysm is a safe and definitive treatment in most cases (6). Various techniques of embolization have reported success rates reaching 85% (15). In this case, the interventional angiography failed to stop the bleeding and the patient required emergency surgery.

In conclusion, pseudoaneurysms of visceral arteries are rare but fatal complications following hepatobiliary surgery. It is vital to remember that these complications can be encountered even after unproblematic postoperative follow-up periods. This complication can present as free intraperitoneal bleeding as well as gastrointestinal bleeding. It is important to promptly evaluate the patient and intervene early.

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