

RADIOINTERVENTION IN PSEUDOAEURYSM OF THE HEPATIC ARTERY AFTER BILIARY TRACT MANIPULATION: CASE REPORT

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Abstract: Hemobilia causes symptoms such as pain in the upper abdomen, upper gastrointestinal bleeding, and jaundice, the combination of which is known as Quincke's triad, which occurs due to bleeding within the biliary tree. **Clinical case:** Male patient, 44 years old, sought the General Surgery Service of the Federal Hospital of Andaraí with an indication for elective cholecystectomy after clinical resolution of cholecystitis. Due to an iatrogenic injury to the biliary tract, he was submitted to a choledoco-duodenal biliodigestive bypass. With the shunt stenosis, he evolved with jaundice, temporarily resolved with percutaneous drainage. After a new biliodigestive anastomosis (Hepp-Couinaud), hemobilia was diagnosed, whose investigation with arteriography revealed the presence of a pseudoaneurysm in the right hepatic artery. After the follow-up responsible for the nutrition of the pseudoaneurysm was embolized, the story had a positive outcome and the patient was discharged. It is not possible, however, to associate the pseudoaneurysm with just one of the many events surrounding this case.

Keywords Hemobilia; Bile duct manipulation; Radiointervention in hepatic artery pseudoaneurysm

INTRODUCTION

Hepatic artery pseudoaneurysm and its branches occur from trauma to the arterial wall, causing rupture between the media and adventitia layer, generating high-flow blood extravasation, commonly manifested by hemobilia. Its main etiology is iatrogenic injuries that may occur after percutaneous, endoscopic hepatobiliary or even surgical procedures. Among the percutaneous procedures, we can mention in order of prevalence: external biliary drainage, followed by percutaneous transhepatic cholangiography and percutaneous liver

biopsy. In addition to complex hepatobiliary surgeries, cholecystectomy is one of the causes of formation of pseudoaneurysms in the right hepatic artery and its branches, and its incidence is increased in cases where there is injury to the biliary tract.^{9,10} It is also possible to associate endoscopic retrograde cholangiography and transjugular intrahepatic portosystemic shunt (TIPS) with the presence of hepatic pseudoaneurysms, but the predisposition for this event to occur cannot be attributed to tissue manipulation alone. Recurrent cholangitis, increased pressure in the biliary tree and inflammation itself can influence the fragility of the vascular wall⁵.

The main clinical manifestations include intermittent digestive hemorrhage, pain in the right upper quadrant and jaundice, but the condition may, eventually, occur silently. The interval between the triggering event and the manifestation of hemobilia is variable and can range from several weeks to months.^{6,9}

CASE REPORT

Male patient, 44 years old, with a diagnosis of previous cholecystitis, underwent elective laparoscopic cholecystectomy in 2021. During surgery, an iatrogenic lesion of the bile duct was found, with total section of the common bile duct (Strasberg E1). At the time, we opted for conversion to conventional surgery and end-to-side choledocoduodenal biliodigestive bypass. After one year of outpatient follow-up, he developed jaundice due to stenosis of the common bile duct, having received percutaneous hepatic drainage in May 2022. He evolved with episodes of fluctuating jaundice and intermittent functioning of the drain. Then, a second Hepp-Couinaud biliodigestive anastomosis was performed in May 2023. During the surgery, a large number of clots was seen in the biliary tract, washing with saline solution was performed to clear

the obstruction. On the first postoperative day, the patient developed massive bleeding through an external biliary drain (Figure 1) with a drop-in hemoglobin and hemodynamic instability. We opted for removal of the biliary drain at the bedside, aiming at bleeding control. She presented clinical stability until the seventh postoperative day, when she returned to bleeding episodes, exteriorized by melena, generating clinical and hemodynamic instability. Urgent tomography without contrast was performed, with evidence of hyperdense content in the jejunal loop of the biliodigestive tract (Figure 2), suggesting the hypothesis of hemobilia. An urgent arteriography was chosen, which showed a pseudoaneurysm in the posterior branch of the right hepatic artery (Figure 3). Selective chemoembolization was performed, with complete occlusion of the pseudoaneurysm and recanalization of the distal branches by intrahepatic collaterals (Figure 4).



Figure 1: Hemobilia after Hepp-Couinaud biliodigestive.

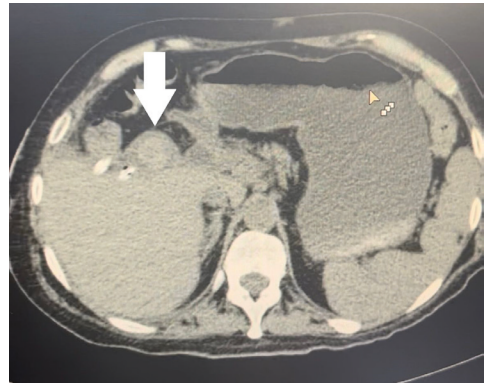


Figure 2: CT scan of the abdomen showing hyperdense content (white arrow) in the jejunal loop of the digestive tract.



Figure 3: Arteriography showing pseudoaneurysm in the right hepatic artery.



Figure 4: Arteriography showing successful embolization of the pseudoaneurysm.

DISCUSSION

Hemobilia is a rare condition of upper gastrointestinal bleeding, characterized by bleeding into the biliary tree from a splanchnic vessel fistula.¹ The focus of therapy in hemobilia is primarily on stopping

bleeding and maintaining bile flow. However, the most important variables in managing the case are the patient's degree of instability and determining the arterial or venous etiology of the hemorrhage.^{2,3} Arteriography is the main resource in the diagnostic and therapeutic arsenal for this complication. This test has the highest diagnostic sensitivity for detecting hemobilia (90%) and is the gold standard in these cases, especially in those with severe bleeding.⁴ Once the location of the pseudoaneurysm is identified, chemoembolization can be performed, with a success rate ranging from 80-100%, adding less morbidity and mortality compared to the surgical approach^{7,8}.

Although rare, pseudoaneurysm of the right hepatic artery and its branches can be a complication of many procedures performed with great frequency, such as videolaparoscopic cholecystectomy and endoscopic retrograde

cholangiopancreatography. Its clinical manifestations may eventually be silent, but they may also present with hemodynamic instability and risk of death, if there is no intervention.⁹.

CONCLUSION

This case refers to a patient submitted to some procedures potentially causing hepatic artery pseudoaneurysm, including videolaparoscopic cholecystectomy associated with choledochal lesion, percutaneous biliary drainage and biliodigestive bypass. Chronologically, the manifestations occurred after the last Hepp-Couinaud surgery, but it cannot be said that this is its etiology, given that sometimes the existence of this pathology occurs in a different way.

Surgery should be reserved only for cases in which radiointervention is not available.

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