Recurrent gastrointestinal bleeding and hepatic infarction after liver biopsy

Faraz Bishehsari, Peng-Sheng Ting, Richard M Green

Abstract

Hepatic artery pseudoaneurysms (HAPs) are rare events, particularly after liver biopsy, but can be associated with serious complications. Therefore a high suspicion is necessary for timely diagnosis and appropriate treatment. We report on a case of HAP that potentially formed after a liver biopsy in a patient with sarcoidosis. The HAP in our case was virtually undetectable initially by angiography but resulted in several complications including recurrent gastrointestinal bleeding, hemorrhagic cholecystitis and finally hepatic infarction with abscess formation until it became detectable at a size of 5-mm. The patient remains asymptomatic over a year after endovascular embolization.

Key words: Gastrointestinal bleed; Abnormal liver enzymes; Hepatic artery pseudoaneurysms; Liver biopsy; Angiography

Core tip: We describe a case of a 43-year-old woman with a small hepatic artery pseudoaneurysm (HAP) that was persistently symptomatic and avoided radiographic detection at an early stage. High clinical suspicion and close clinical/radiological follow-up is required for patients with risk factors such as previous liver biopsy, even if an initial workup is negative. These small HAPs may cause symptoms as late as several weeks after a liver biopsy, and have the potential to afflict severe complications such as hemobilia and thrombosis of the hepatic artery branches, resulting in hepatic infarction and abscess formation.

INTRODUCTION

Hepatic artery pseudoaneurysms (HAPs) are false aneurysms formed when a tear of a hepatic arterial wall leads to a peri-artery hematoma and HAPs can be caused by medical procedures, trauma, inflammatory or infectious conditions[1]. Though well described, HAPs are rare occurrences[2-4], even more so when caused by a liver biopsy and hence few liver biopsy related HAPs have been reported in the literature[5-8]. HAPs most commonly present...
with abdominal pain, hematemesis, anemia, hypovolemia and jaundice. In spite of being rare, HAPs can be a deadly complication if not diagnosed and can lead to massive gastrointestinal (GI) bleeding from hemobilia and aortoenteric fistulas.

Diagnosis of HAPs requires a high index of suspicion especially after iatrogenic procedures, and angiography should be performed when HAPs are suspected. At present, the most effective treatment for HAPs is endovascular embolization, with rare instances of surgeries performed when embolization fails. We report on a patient with a small HAP following liver biopsy that was initially undetectable by angiography and had been increasingly symptomatic for three months before being detected by angiography. This was treated successfully with endovascular embolization.

CASE REPORT
A 43-year-old woman presented with right upper quadrant (RUQ) pain and hematemesis. She had a past medical history of hypertension, hematemesis one year ago from an endoscopically proven Mallory-Weiss tear and sarcoidosis for several years involving her lungs and liver. A month prior, she had a percutaneous liver biopsy for a prolonged course. This diminutive HAP was complicated by recurrent episodes of hemobilia, hemorrhagic cholecystitis and treated successfully. A review of the literature did not reveal any case reports of HAPs as small as 1-mm in size.

DISCUSSION
HAPs are rare conditions and are usually due to iatrogenic causes, including liver biopsies, cholecystectomy, transcatheter biliary drainage, and inadvertent surgical injuries. Percutaneous liver biopsy (PLB) is a common and safe procedure with low mortality and morbidity. There have been only a few case reports on HAPs caused by liver biopsy, but they describe larger pseudoaneurysms that are severely symptomatic shortly after the procedure. Angiography is the most sensitive method that is available to detect HAPs. Our patient, however, remained increasingly symptomatic for three months before the HAP could be detected by imaging and treated successfully. A review of the literature did not reveal any case reports of HAPs as small as 1-mm causing persistent and recurrent symptoms for a prolonged course. This diminutive HAP was complicated by multiple episodes of hemobilia, hemorrhagic cholecystitis requiring cholecystectomy, and RHA thrombosis, which led to abdominal pain, elevation of liver enzymes, and
hepatic infarction complicated by liver abscess formation. This case demonstrates that a small HAP can avoid detection by angiography at an early stage. A high clinical suspicion and close clinical/radiological follow up is needed in symptomatic patients with history of liver biopsy despite an initial negative work up. In spite of the rarity of HAPs, the high prevalence of liver biopsies and the severity of the consequences of not detecting them make the recognition of this complication crucial in clinical practice.

Therapeutic modalities to treat HAPs include open surgery and endovascular approach. In light of the rarity of the disease, there have been no randomized comparisons between the two approaches. Open surgical repair is usually associated with complications such as intra-abdominal infection and hepatobiliary diseases, leading to higher morbidity and mortality associated with this approach\(^5\). Therefore, the endovascular approach has become the first line treatment for HAPs, leaving surgical repair as the salvage therapy only if the former fails\(^6\). The most commonly used endovascular technique is the endovascular ablation of the proximal feeding artery of the HAP either by coil or glue\(^7\). After ablation therapy, patients should be closely monitored for sac reperfusion and any potential end-organ ischemia that responds to a repeat endovascular treatment\(^8\). However, the risk of end-organ damage is clinically significant only if the embolization procedure involves major arterial supplies\(^9\). In these cases, stent placement of the major artery followed by coil embolization of collateral feeding arteries can be used to reduce the risk of ischemia\(^10\).

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