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مباحث پیشرفته یادگیری عمیق؛ شبکه های توجه گرافی (Graph Attention Networks)



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Case Report

Hepatic Artery Pseudoaneurysm; Simple or Difficult to Diagnose?

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Abstract

Ruptured hepatic artery pseudoaneurysm (HAP) generally leads to the hemobilia and can be diagnosed by endoscopy. This condition mostly occurs after an iatrogenic trauma. The management of the HAP is still a big challenge. Due to an increased rate of HAP cases over the last decade, appropriate management is necessary for the optimal outcomes achievement. Here, we report a 59-year-old woman presenting with hematemesis, melena, hematochezia, and epigastric pain. The CT scan of the abdomen showed intrahepatic biliary dilation with hypodense material, probably a clot inside it. Subsequently, the patient was transferred to an angiography unit. Celiac artery angiography demonstrated a right hepatic artery pseudoaneurysm, which subsequently embolized.

Keywords: Hemobilia, hepatic artery pseudoaneurysm (HAP)

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Introduction

Aneurysms of the visceral arteries are rare, but may become life-threatening vascular disorders due to the rupture. Over the last decade, the hepatic artery aneurysms have become the most prevalent among them. One half of reported cases with hepatic artery aneurysms are the false aneurysms (pseudoaneurysms). In contrast to the true aneurysms, cases with pseudoaneurysms is devoid of endothelium lining in their walls¹

Hepatic artery pseudoaneurysm (HAP) is an infrequent, but a serious pulsatile hematoma caused by the extravasation of blood through a disruption of the arterial wall into the surrounding tissue.² Early diagnosis and treatment lead to the best durable results.³ HAP is generally diagnosed due to the hemobilia.⁴

Hemobilia can present as upper gastrointestinal bleeding (GIB) from the hepatobiliary system.⁵ Ruptured HAP generally leads to hemobilia and can be diagnosed by endoscopy. This condition mostly occurs after the traumatic events around the hepatic hilum, such as liver biopsy, after percutaneous transhepatic cholangiography, and cholecystectomy. Other important causes of ruptured HAP, include gallstone disease, acalculous cholecystitis, vascular abnormalities, and tumors.⁶ In the previous studies, some cases of HAP have been reported.

Case Report

A 59-year-old woman was referred to our hospital for double balloon enteroscopy due to the obscure GIB. She had a 1-month history of hematemesis, melena, hematochezia, and epigastric pain. She had also become icteric in the past two weeks. Her laboratory tests at presentation to our hospital were: hemoglobin =

9.6 g/L; total bilirubin = 22.5 mg/dL; direct bilirubin = 16.4 mg/dL; aspartate transaminase = 116 IU/L; alanine transaminase = 57 IU/L; and alkaline phosphatase = 592 IU/L. Her past medical history includes hypertension, cholecystectomy (6 months ago), and a bladder surgery (2 years ago). She underwent upper endoscopy (five times) and colonoscopy (three times). The colonoscopy and endoscopy findings were unremarkable. During her three previous hospitalizations, she received 13 units of packed red cells due to recurrent low levels of hemoglobin.

On admission to our hospital, due to her active hematemesis, an emergent upper endoscopy was performed. All parts of esophagus, stomach and duodenal bulb were normal. A clot was seen to be coming out from inside the papilla in the second part of duodenum.

On the basis of endoscopic findings, hemobilia was suspected. The CT scan of the abdomen (Figure 1) showed intrahepatic biliary dilation with 14 mm common bile duct with a hypodense material, probably a clot, inside it. Subsequently, the patient was transferred to the angiography unit; Right femoral artery catheterization was performed; the selective angiography of the celiac, the main and the right hepatic artery and the superior mesenteric artery demonstrated a right hepatic artery pseudoaneurysm that was about 5 mm (Figure 2) which subsequently was embolized by the sandwich technique with methoxy butyl cyanoacrylate (MBCA).

After the embolization, the bleeding stopped and the patient discharged after a few days. In the follow up visits, the patient's bilirubin level was decreased slowly, and her hemoglobin increased and became normal after two months. Also, the common bile duct diameter became 8 mm in the follow-up ultrasonography.

Discussion

The term obscure GIB is used when the etiology of GIB is not determined after upper endoscopy and colonoscopy; it constitute 5% of all GIB. The most common causes of obscure GIB are diseases of the small bowel and the best available device to see them are double balloon enteroscopy.^{7,8} According to the evaluation of the small bowel, the upper endoscopy and colonoscopy were normal in our case. We saw the clot in the duodenal papilla, although the history of cholecystectomy (and possible hepatobiliary trauma) and

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Figure 1. Abdominal CT scan with oral and intravenous contrast demonstrate dilated intrahepatic biliary system (arrow head) and the common bile duct (arrow).



Figure 2. Celiac artery angiogram demonstrates the right hepatic artery pseudoaneurysm (arrow).

jaundice could guide the physician to the possible source. Since the patient was hospitalized earlier in nonacademic hospitals, she had no documentation of the previous conducted surveys, thus we had to repeat the endoscopy. Unfortunately, we do not have a national integrated medical record system.

Hemobilia is a rare cause of upper GIB. Hemobilia resulting by HAP is uncommon, but in some literatures was mentioned as a complication of the laparoscopic cholecystectomy, occurring with an estimated frequency of 0.06% of all cases with a mortality rate of 2.3%.⁹ The management of HAP is still a big challenge and due to an increased rate of HAP cases over the last decade, an appropriate management is necessary for optimal outcomes achievement.

There are several effective approaches for treatment of HAP, including the open surgery with a mortality rate of 21%, as well as the endovascular methods with low complications and fatalities.¹⁰ Particularly, endovascular embolization is the preferred treatment for intrahepatic aneurysms.¹⁰

According to the literatures, the angiography is a quick and safe diagnostic procedure for patients who have recently undergone the laparoscopic cholecystectomy and presents with hemobilia. Also, this method allows the urgent treatment of the friable arteries by endovascular embolization.⁹

In the vast majority of the reported cases of hemobilia, due to the pseudoaneurysm, the endovascular coil embolization considered as the best diagnostic and treatment approach.¹¹

Percutaneous transcatheter coil embolization used in our patient caused the complete treatment and she has no manifestation of the HAP recurrence.

We suggest the transcatheter embolization of HAP in patients as a first-line treatment, since it is a minimally invasive procedure

in unstable patients with a low frequency of morbidity. Also, we believe that the follow-up imaging is necessary to avouch aneurysm exclusion, lack of aneurysm lump, and rupture prevention.

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