Ruptured Gallbladder in Elderly Patient with Massive Liver Hematoma and Hemoperitoneum in Behcet’s Disease

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Abstract

Hemorrhagic cholecystolithiasis with subsequent transhepatic perforation and massive hematoma formation is an exceedingly rare event. Prompt identification and treatment are vital in ensuring a favorable outcome. There are multiple imaging modalities available to identify hemorrhagic cholecystolithiasis including computed tomography and selective angiography. Computed tomography was utilized in this case and the decision to proceed with surgery was made based on clinical presentation and imaging findings.

We report a case of an 85-year-old female with a past medical history significant for self-reported Behcet’s disease who was admitted to the ED with signs of acute peritonitis. She was found to have a posterior wall rupture of the gallbladder that required emergent laparotomy. This patient’s history of Behcet’s disease may have led to cystic artery wall rupture of the gallbladder that required emergent laparotomy.

The coexistence of Behcet’s disease might be a significant risk factor complicating acute cholecystitis with perforation and bleeding, increasing the urgency of surgical management.

Keywords: Cholecystitis; Cholecystolithiasis; Hepatic hematoma; Perforation; Oral ulcers; Gallbladder; Vasculitis

Introduction

Hemorrhagic cholecystitis with gallbladder rupture is an emergent complication of acute cholecystitis [1,2]. Gallbladder perforation itself is rare in acute cholecystitis, with published data showing the incidence being not more than 2.8% [3]. The clinical presentation is non-specific and may be easily mistaken for the acute cholecystitis, particularly early in its course. While ultrasound may be used to assess acute cholecystitis, in cases of hemorrhagic cholecystitis, CT scan with contrast can show areas of active bleeding and the extent of a perforation [4].

This unique case presents the possibility of Behcet’s disease being a contributing factor to hemorrhagic cholecystolithiasis with perforation. To the best of our knowledge a link has never been established in the literature and deserves future exploration.

Case Report

An 85-year-old female, with prior hospitalizations for recurrent oral ulcers, presented to the ED after 24 hours of increasing right upper quadrant pain that was aggravated by deep breathing and changes in body position. She reported episodic nausea and vomiting, with subjective fever, but denied chills, sweating, weight loss or recent trauma. Three weeks prior, she was hospitalized for an exacerbation of her painful oral ulcers and dysphagia. The patient had a medical history of diabetes mellitus, hypertension, hyperlipidemia, hypothyroidism, deep vein thrombosis, pulmonary embolism and chronic aphthous ulcers suspicious for Behcet’s disease. Her medication list included hydrocortisone, metformin, acyclovir, omeprazole, levothyroxine, losartan and metolazan.

Admission vital signs were as follows: temperature: 97.8°F, pulse: 87 bpm, respiratory rate: 18 bpm, blood pressure: 142/72 mmHg. The patient’s abdomen was distended, diffusely tender with rebound tenderness in the RUQ. Bowel sounds were present but hypoactive.

During initial evaluation a CT of the abdomen and pelvis was obtained showing a markedly distended, hemorrhagic gallbladder with a complex intraluminal mass suspicious for hematoma. The anterior wall of the gallbladder was poorly defined (Figure 1). Free fluid was visualized in the lateral paracolic gutter and in the pelvis (Figure 2).

The patient was diagnosed with hemorrhagic cholecystolithiasis with possible gallbladder rupture and general surgery was consulted. Consideration was given to using percutaneous drainage however, in view of the patient’s acute cholecystolithiasis, downward trend of blood pressure (106/58 mmHg), tachycardia (98 bpm) and signs of large volume intra-abdominal bleeding, a decision was made to proceed with an urgent open surgical procedure.

A right subcostal incision was made and the massively distended gallbladder with intraluminal clots was identified. A ragged-edged 6 cm disruption of the posterior gallbladder wall was found extending down to the Calot triangle, where an actively bleeding cystic artery was identified and controlled with hemoclips. The gallbladder was removed and sent for pathological examination. The clots of blood from the liver hematoma mixed with the gallstones were removed. The hemostasis to the oozing liver was achieved by application of the electrocautery energy as well as topical agents including...
thrombin with and absorbable gelatin sponge. The 19 FR round Blake drain was placed towards the sub-hepatic space and the wound was closed in layers. Liposomal bupivacaine (20 ml) was injected into the incisional area for postoperative pain control.

The pathology report showed findings consistent of intrahepatic hematoma, chronic cholecystitis with superimposed acute cholecystitis, associated blood clots and gallbladder rupture. The aggregate of the clot fragments was 12 × 12 × 4 cm. The microscopic examination of the gallbladder blood vessels was not performed.

Patient recovered from surgery and was followed in outpatient setting. Her Behcet’s Disease symptoms persist that requires frequent medical interventions and chronic corticosteroids use.

Discussion

The mechanism of hemorrhagic cholecystitis is not well established. It is postulated that the transmural inflammation of acute cholecystitis may result in hemorrhage from damaged blood vessels by causing infarction and necrosis to the gallbladder mucosa. Another possible cause of hemorrhage may be from a pseudoaneurysm caused from direct erosive damage to the cystic artery wall by a large gallstone or from vessel thrombosis from inflammatory processes [5]. In our patient, the inflammatory process of the cholecystitis, presence of a cholelith and her suspected Behcet’s disease, may each have contributed to wall damage causing the bleeding cystic artery.

The variable vessel vasculitis of Behcet’s disease has multisystemic manifestations and may be a significant contributing factor in this unique case [6]. Vascular involvement in Behcet’s affects between 5–28% of cases, typically manifesting 10 years after diagnosis with the development of venous or arterial occlusions and arterial aneurysms [7]. Aneurysms occur less frequently than occlusions but with more severe complications. Aortic aneurysm rupture is the leading cause of sudden death in Behcet’s disease. Other common sites of arterial aneurysm in Behcet’s disease include pulmonary, subclavian and popliteal arteries [8]. Similarly, arterial aneurysms have been noted in visceral arteries, but with much less frequency [7].

In cases of hemorrhagic cholecystitis, CT with contrast can show areas of active bleeding and gives the best assessment of the extent of a perforation [4]. Selective angiography (SA) is currently the most sensitive test for detecting hepatic artery pseudoaneurysm. In a study by Tobben et al, selective angiography achieved 100% sensitivity as compared to 67% for CT and 33% for ultrasound [9]. In our case CT was chosen for its ease and speed, allowing us to reasonably localize the bleeding to the area of gallbladder by using the distribution of tissue density manifested by Hounsfield units.

Several surgical approaches have been utilized in the management of a ruptured cystic artery pseudoaneurysm, however, there is no standardization of a clinical approach to management. Radiological selective embolization with coil has been used to abate active bleeding prior to elective cholecystectomy, with the goal of avoiding an emergent procedure [10].

Transarterial embolization was not used in our case because of the co-existing infectious process related to the gallbladder. Surgery was done with open procedure in view of the potential active liver bleed and large volume of hepatic hematoma associated with hemoperitoneum. It is likely that the observed bleeding was secondary to arterial aneurysm or pseudoaneurysm, causing the hepatic hematoma and hemoperitoneum. A case study by Loizides et al described a similar pseudoaneurysm rupture causing intrahepatic hematoma [10].

In a patient with Behcet’s disease a massive hemoperitoneum associated with perforated cholecystolithiasis may be caused by vasculitis leading to rupture of the cystic artery. Co-existence of Behcet’s disease should be considered an additional risk factor for increasing the urgency of surgical treatment of patients with acute cholecystitis.

Conflict of Interest

The authors declared they have no conflict of interest.

References

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