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Acute cholecystitis with intraluminal gallbladder bleeding: Case report and literature review

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ABSTRACT

Background: Hemorrhagic cholecystitis is an infrequent complication of acute cholecystitis associated with high mortality rate. Recognition of this acute abdominal condition is often challenging. Authors present a case of acute intraluminal gallbladder bleeding with a consequential gallbladder wall perforation and hemoperitoneum requiring emergency surgery in a patient on anticoagulant therapy.

Case Presentation: An 80-year old woman with atrial fibrillation on warfarin was presented to abdominal surgeon due to acute abdominal pain with hemodynamic instability and active intraluminal gallbladder bleeding on CT-scan. An emergency laparotomy with cholecystectomy was performed. Despite intensive treatment patient died on the third postoperative day.

Conclusions: Hemorrhagic cholecystitis is a potentially life-threatening condition. Patients on anticoagulant therapy with clinical signs of acute cholecystitis are more prone to develop bleeding into the gallbladder. Contrast-enhanced CT of the abdomen is the diagnostic modality of choice and cholecystectomy definitive therapy in patients with hemorrhagic cholecystitis.

Keywords: hemorrhagic cholecystitis, anticoagulant therapy, hemoperitoneum, abdominal CT, emergency surgery.

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Introduction

Intraluminal bleeding of the gallbladder is a seldom described condition usually arising from the acute gallbladder inflammation. It presents a potentially fatal complication of acute cholecystitis.^[1] Use of anticoagulants may increase the risk of hemorrhage.^[2-5]

Authors present the clinical and radiological findings in a patient on anticoagulant therapy with intraluminal bleeding from gangrenous gallbladder wall due to the acute cholecystitis leading to gallbladder wall perforation with hemoperitoneum and hemodynamic instability.

Case Presentation

An 80-year-old Caucasian female, hospitalized in the internal medicine ward due to bradycardia and syncope, was presented to the abdominal surgeon due to acute abdominal pain and vomiting. Patient had a history of alcoholic liver cirrhosis and was abstaining for at least 15 years, further more she had a history of atrial

fibrillation on warfarin, aortic stenosis and diabetes mellitus.

Upon clinical examination patient was hypotensive, abdomen was rigid with diffuse abdominal pain that was most prominent in the upper right quadrant. Laboratory data showed mild anemia (hemoglobin 126 g/L, hematocrit 0.387), normal platelet count ($285 \times 10^9/L$), normal bilirubin levels, elevated serum liver enzymes (alanine aminotransferase $0.78 \mu\text{kat/L}$, aspartate aminotransferase $1.28 \mu\text{kat/L}$, gamma-GT $3.03 \mu\text{kat/L}$, alkaline phosphatase $1.70 \mu\text{kat/L}$) leukocytosis ($14.7 \times 10^9/L$) and slightly elevated C-reactive protein (34 mg/L).

Patient underwent urgent CT of the abdomen where an enlarged gallbladder ($14.8 \times 5.7 \text{ cm}$) with acute intraluminal hemorrhage was described (Figures 1, 2). Additionally liver cirrhosis with normal sized hepatic ducts was observed. No hemobilia, free fluid, ileus or free air in the abdomen was described.



Figure 1: Abdominal CT with contrast, axial plane: Distended gallbladder with extravasation of the contrast into the gallbladder lumen, indicating active intraluminal hemorrhage. No signs of hemoperitoneum.



Figure 2: Abdominal CT with contrast, coronal plane: distended gallbladder with active extravasation of the contrast in the lumen. No signs of hemobilia, free fluid, ileus or free air in the abdomen.

Emergency explorative laparotomy was performed. Upon the operation, patient was hemodynamically unstable and in need of high dose vasopressor support. Hemoperitoneum with the free rupture of the gangrenous gallbladder wall into the peritoneal cavity and liver cirrhosis were found. Exploration of the abdominal cavity was performed and no additional source of active bleeding was discovered. Open cholecystectomy with evacuation of the intraperitoneal hematoma was performed. Sample of the gallbladder was sent for pathological examination. Microscopical examination with hematoxylin and eosin staining (HE) revealed chronic cholecystitis with acute exacerbation.

After the surgery patient was transferred to the surgical ward where, at first was hemodynamically stable but in need of high vasopressor support. On the second postoperative day patient deteriorated, became dyspnoic, somnolent and hemodynamically

unstable, therefore she was intubated and transferred to the intensive care unit. Patient remained hemodynamically unstable. Follow-up CT of the abdomen revealed a small, localized fluid collection in the area of removed gallbladder with no signs of active bleeding in the abdominal cavity. Despite aggressive fluid resuscitation, vasopressor support and antibiotic therapy patient status progressively worsened. Patient died on the third postoperative day.

Discussion

Hemorrhagic cholecystitis is a very infrequent complication of acute cholecystitis. The reported incidence rate varies from 2% to 11%.^[6] It is associated with high mortality rate of more than 60%, particularly when it is followed by gallbladder perforation and hemoperitoneum.^[2, 6] Recognition of hemorrhagic cholecystitis is often very challenging.^[3, 7]

Only a small number of cases of hemorrhagic cholecystitis have been reported.^[1-14] Intra-

luminal bleeding of the gallbladder is in the majority of cases a result of gallbladder wall inflammation that leads to mucosal ulceration with necrosis and is usually associated with the presence of gallstones although acalculose hemorrhagic cholecystitis has also been described in the literature. [3,4] Factors predisposing a patient to spontaneous hemorrhage are trauma, biliary neoplasm, vascular abnormalities, anticoagulation therapy and bleeding diathesis of which use of anticoagulants is predictably the main risk factor for hemorrhagic cholecystitis. [2-5] Use of anticoagulants in combination with liver cirrhosis accompanied by acute cholecystitis probably resulted in intraluminal hemorrhage of the gallbladder in our patient. The increasing pressure lead to gallbladder wall perforation, hemoperitoneum and hemodynamic instability that resulted in life-threatening condition necessitating emergency surgery.

Diagnosis of the hemorrhagic cholecystitis can be demanding as the clinical presentation is often identical to the one in the settings of acute cholecystitis (upper right quadrant pain, fever, leukocytosis). [3,7] In some cases, because of hemobilia, condition can present with the symptoms of upper gastrointestinal bleeding. [13] While perforation of the gallbladder wall in the settings of intraluminal bleeding results in hemoperitoneum with hemodynamic instability rapid deterioration of the patient's condition is to be expected. [7-9]

Abdominal ultrasound is a diagnostic standard when facing a patient with upper abdominal pain. [1] In the settings of hemorrhagic cholecystitis it can be nonspecific and inaccurate. [13, 14] Therefore the great importance of the CT has been described when a patient with suspected hemorrhagic cholecystitis with potential hemoperitoneum is evaluated. [1, 3, 7, 15] As compared to reported cases in the literature in our patient contrast-enhanced CT of the abdomen was performed describing active extravasation of the contrast material into the gallbladder lumen indicating active hemorrhagia

(Figures 1, 2). At the time of the scan perforation of the gallbladder with consequent hemoperitoneum was not yet described. According to the literature, with the use of CT scan the site of gallbladder perforation can be detected, moreover hemoperitoneum can be observed as hyperdense fluid surrounding the gallbladder. [14, 15]

Hemorrhagic cholecystitis necessitate prompt surgical intervention. In our case patient was hemodynamically instable so open cholecystectomy with exploration of the abdominal cavity was performed. As laparoscopic cholecystectomy is a viable option in stabile patients reports from the literature suggest that in the majority of cases patients are hemodynamically instable and clinically rapidly deteriorating which usually require an emergency laparotomy. [2, 3, 5, 7, 8]

Conclusion

Hemorrhagic cholecystitis is a potentially life-threatening complication of acute cholecystitis. Diagnosis is often challenging. Special attention should be aim at patients on anticoagulant therapy with clinical signs of acute cholecystitis as they are more prone to develop bleeding into the gallbladder with potential life-threatening perforation resulting in hemoperitoneum and hemodynamic instability. In patients with suspected hemorrhagic cholecystitis contrast-enhanced CT of the abdomen is the diagnostic modality of choice and cholecystectomy definitive therapy.

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