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Hemorrhagic Cholecystitis: A Case Report

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Abstract

Hemorrhagic cholecystitis is a rare, and sometimes under considered, cause of acute cholecystitis. Hemorrhagic cholecystitis can be precipitated secondary to blunt abdominal trauma, malignancy, or various etiologies of bleeding or clotting disorder, including anticoagulation use, kidney failure, or liver failure. A combination of various imaging techniques and a high level of clinical suspicion is required to accurately diagnose hemorrhagic cholecystitis and prevent high-risk and possible complications that can result from delay in diagnosis and treatment. We present a case report involving spontaneous hemorrhagic cholecystitis, along with a review of imaging findings in various modalities. Our patient was a 69 y/o male with 12 hours of epigastric pain, nausea, and vomiting. Medical history was significant for venous thromboembolism currently on Coumadin. Lab results showed leukocytosis, elevated liver enzymes and bilirubin, and an INR of 4.1. Imaging with RUQ ultrasound and CT abdomen was consistent with acute cholecystitis with additional findings of internal debris, which raised suspicion for hemorrhagic cholecystitis. Management included reversal of anticoagulation followed by urgent minimally invasive cholecystectomy.

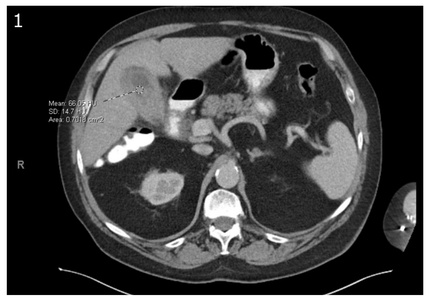
Introduction

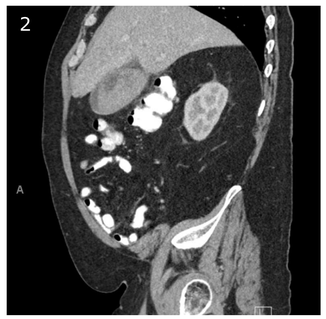
- The pathophysiology of hemorrhagic cholecystitis is still unclear. Two theories include spontaneous hemorrhage with obstruction of the cystic duct vs acute cholecystitis causing wall necrosis and hemorrhage.
- Hemorrhagic cholecystitis is a life-threatening disease process that requires a high index of suspicion to institute prompt treatment
- Imaging is key in the diagnosis of hemorrhagic cholecystitis
- Urgent cholecystectomy is recommended for treatment after correction of induced coagulopathy

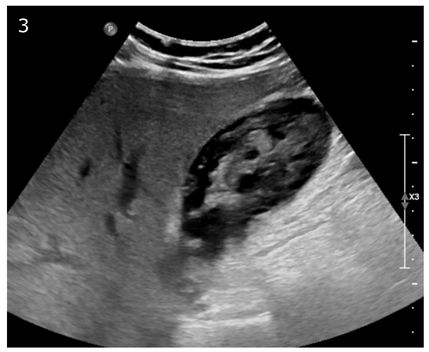
Case Details

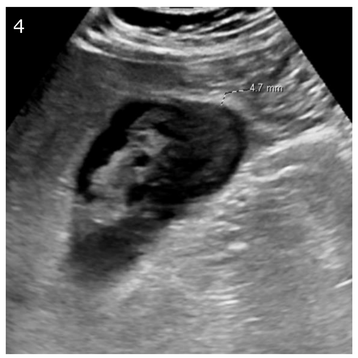
- This is a 69 year old male presented with acute onset, severe epigastric and right upper quadrant abdominal pain with associated nausea, vomiting, and diarrhea
- He has a past medical history significant for COVID-19 infection with associated bilateral femoral DVT treated with anticoagulation with warfarin following mechanical thrombectomy over one year prior
- In the Emergency Department, his vitals included: Temp of 36.7 °C, BP 107/78, HR 96, RR 17, SpO2 94% RA. Laboratory investigations include WBC count of 12.4 k/µL, Hgb 13.0 g/dL, Platelet count 249 k/µL. Basic metabolic panel was unremarkable. ALT/AST of 479 and 739 IU/L, respectively, total bilirubin of 1.4 mg/dL, and alkaline phosphatase of 147 IU/L. Coagulation profile showed supratherapeutic INR at 4.12.
- Imaging obtained included CT Abdomen/Pelvis with IV contrast as well as RUQ Ultrasound **(Fig. 1-4)**
- Due to supratherapeutic INR, his warfarin was reversed with FFP, however, he experienced a non-hemolytic transfusion reaction. Therefore, his coagulopathy was reversed with 10mg vitamin K and 3500 mg of Prothrombin complex concentrate with repeat INR of 1.09.
- He then proceeded for robot assisted cholecystectomy, which revealed dense inflammatory rind and RUQ adhesions. A critical view of safety was achieved with fluorescence cholangiography. There was spillage of bile and clot requiring copious irrigation, confirming hemorrhagic cholecystitis. Hemostasis was achieved and hemostatic agent was placed in the gallbladder fossa.
- Post-operatively, his ALT/AST did elevate, with a peak of 752 and 1001 IU/L respectively, and a total bilirubin of 1.9 mg/dL
- This prompted concern for choledocholithiasis or common bile duct clot, prompting MRCP **(Fig. 5)**, as well as a gastroenterology consultation. Given his reassuring MRCP and down trend in his laboratory values, no further intervention was required.
- Regarding his anticoagulation, since it had been a significant amount of time since his provoked DVT episode, a repeat lower extremity duplex was completed showing no residual thrombus. A vascular surgery consultation was obtained and recommended no further need for anticoagulation.
- He was discharged on post-operative day 3

Imaging









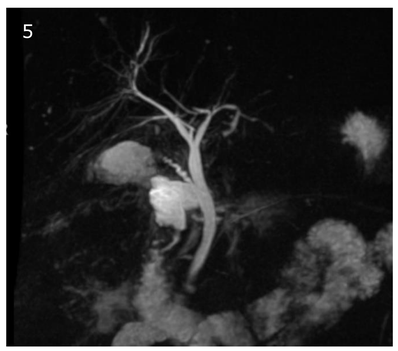


Figure 1-5. (1) Axial CT showing cholecystitis with internal debris and Hounsfield units consistent with hemorrhage (66 HU). **(2)** Sagittal CT showing acute cholecystitis with wall thickening and internal debris. **(3)** RUQ Ultrasound showing wall thickening, internal debris with lack of posterior shadowing, and pericholecystic fluid. **(4)** RUQ Ultrasound with wall thickening measuring 5mm with internal debris. **(5)** Post-operative MRCP showing no evidence of biliary obstruction, a post-operative gallbladder fossa fluid collection without connection to the cystic duct.

Discussion

- Hemorrhagic cholecystitis is a rare cause of cholecystitis. Causes include blunt trauma, malignancy, or bleeding and clotting issues, such as anticoagulation use (as in our case), antiplatelet use, renal failure, or liver failure.
- Hemorrhagic cholecystitis usually presents similarly to and can be confused with acute calculous cholecystitis, but can be accompanied by hemobilia, melena, or hematemesis
- Abdominal imaging is key in differentiating hemorrhagic cholecystitis. Ultrasonography remains the initial study of choice, and can demonstrate focal gallbladder wall irregularities, intraluminal membranes, and non-shadowing, non-mobile intraluminal debris.
- CT imaging is also useful in identifying hemorrhagic cholecystitis, including fluid-fluid levels, and increased bile density as identified by Hounsfield units
- Diagnosis of hemorrhagic cholecystitis can be confirmed by presentation (signs and symptoms) that are consistent with acute cholecystitis, PLUS signs, symptoms, or evidence of hemorrhage (hypotension, melena, imaging)

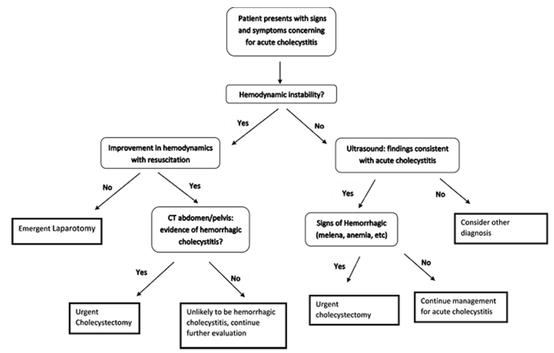


Figure 6. Treatment algorithm for suspected hemorrhagic cholecystitis

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