Unusual gallbladder disease: spontaneous gallbladder haematoma

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In September 2020, a 29-year-old woman presented to the emergency department with a 2-day history of upper abdominal pain. The patient had no history of recent trauma around the abdominal area. The patient's vital signs were stable upon arrival but physical examination revealed tenderness over the right upper quadrant area. The patient reported moderate to heavy alcohol consumption (10-15 standard drinks per week). Laboratory findings revealed a white blood cell count of 3030/mm^3, haemoglobin level 12.8 g/dL, and low platelet count of 34 000/mm^3. The prothrombin time was mildly prolonged to 14.2 s. Elevated levels of liver enzymes, aspartate transaminase (113 U/L), direct bilirubin (6.18 mg/dL), and gamma-glutamyltransferase (350 U/L), were reported. Computed tomography (CT) scans showed a distended gallbladder with several gallstones and bile duct stones. Moreover, the intraluminal space of the gallbladder was filled with heterogeneous material, and extravasation of the contrast agent was suspected in the arterial phase (Fig 1). Emergency laparoscopic exploration was

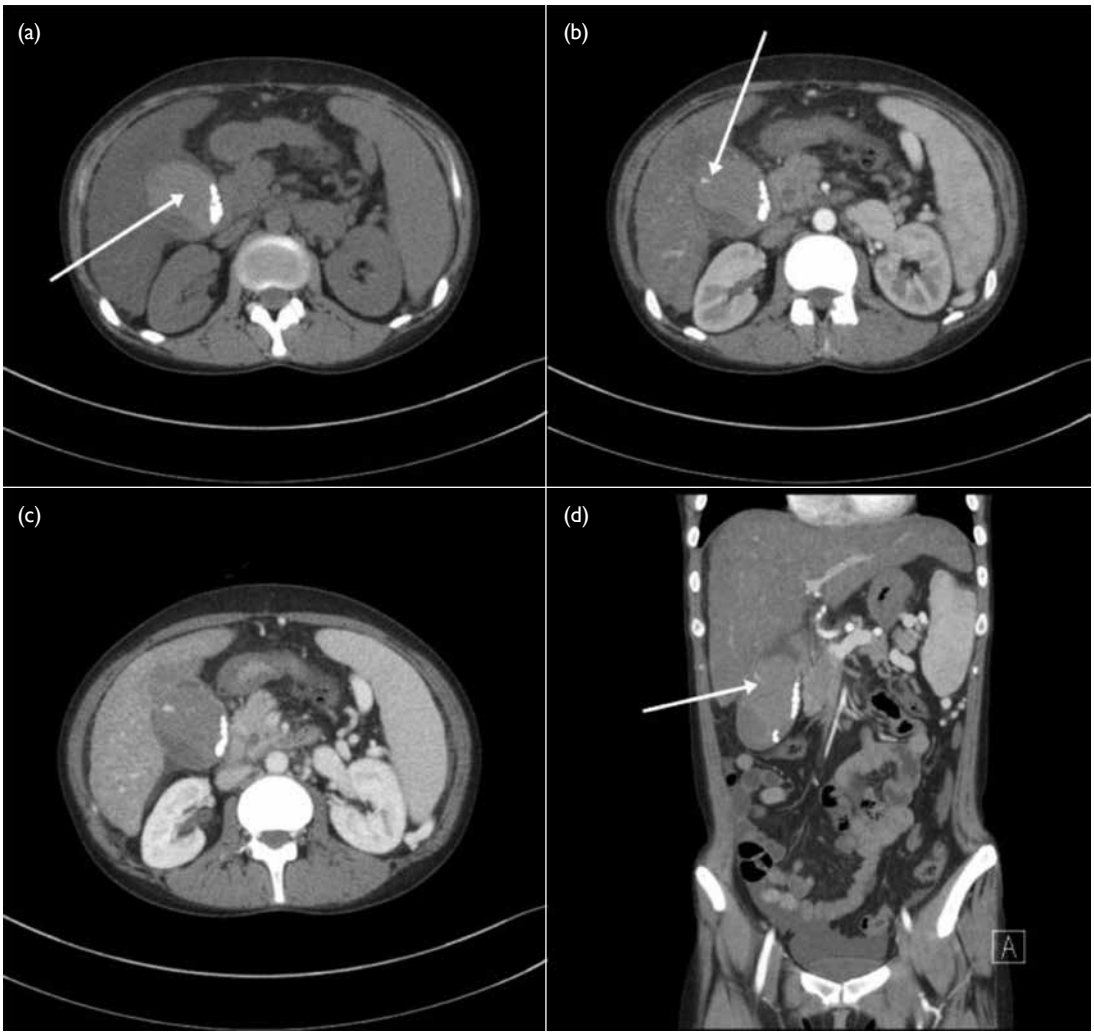

FIG 1. Computed tomography scans. (a) Non-enhanced image; heterogeneous shadow of intraluminal space (arrow). (b) Arterial phase image; extravasation of contrast was suspected (arrow). (c) Venous phase image. (d) Coronal section image (the arrow indicates contrast material)

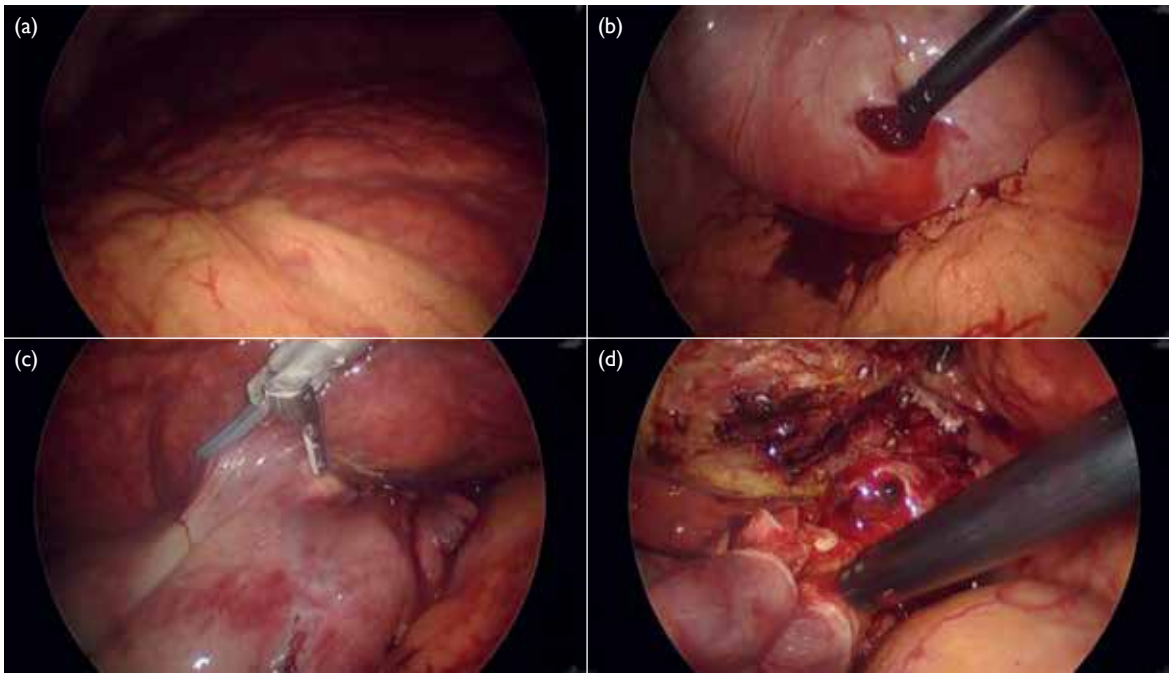

FIG 2. Operative findings. (a) The first laparoscope view revealed a cirrhotic change to the liver with ascites. (b) A small opening to remove the blood. (c, d) Laparoscopic cholecystectomy was performed

planned with a preoperative diagnosis of gallbladder haematoma. At the first laparoscope view, cirrhotic change to the liver with ascites and an oedematous gallbladder were evident (Fig 2a). The surgeon tried gallbladder decompression by needle aspiration and made a small opening to remove the blood but it was unsuccessful (Fig 2b). Laparoscopic cholecystectomy was successful without complications such as perforation (Fig 2c and d). Endoscopic retrograde cholangiopancreatography with endoscopic sphincterotomy was performed 5 days after the initial surgery and remnant common bile duct stones were removed. Pathological evaluation revealed a gallbladder haematoma with 30 to 40 gallstones (Fig 3). Moreover, venous vessels were remarkably dilated in the vicinity of the haemorrhagic site on CD31 immunostaining. The patient was discharged on postoperative day 10 with no complications.

FIG 3. Resected gallbladder with haematoma and gallstones

The gallbladder is normally physiologically empty or filled with bile juice. Gallbladder haematoma is defined as filling of the gallbladder with blood. The definition can vary from gallbladder bleeding that comprises active bleeding inside the gallbladder to gallbladder haematoma when already-formed blood clots are evident. Haemorrhagic cholecystitis may be an appropriate term in cases of a gallbladder showing inflammation with blood. Reported risk factors for spontaneous bleeding include atherosclerosis or aneurysm, biliary malignancy, renal failure, cirrhosis, and coagulopathy, or anticoagulant medication.[1-3] Moreover, abdominal blunt trauma can lead to gallbladder injury and cause gallbladder bleeding.[3] Clinical manifestations of gallbladder haematoma similarly represent acute gallbladder disease.[2] Upper abdominal pain is frequent due to distension of the gallbladder, and melena or haematemesis may also be present. In cases of cholecystitis, fever may develop, and laboratory study will demonstrate inflammation. The conventional radiological methods to evaluate gallbladder disease like ultrasonography or CT scan have diagnostic value.[3] Ultrasonography may reveal a blood clot in the lumen with wall thickening and fluid accumulation around the gallbladder.[2] In the CT scan, hyperdense blood and bile shadow with or

without fluid level may be suspicious of gallbladder haematoma. Extravasation of contrast material into the lumen of the gallbladder during the arterial phase of contrast-enhanced CT is related to active bleeding.[3,4] Surgical treatment produces superior results and the minimally invasive method of a laparoscopic approach has been widely adopted.[1,3] Other endoscopic or percutaneous approaches for decompression may be considered before surgery.[1] Gallbladder haematoma is associated with high morbidity and mortality. Delayed management potentially increases the risk of perforation and concomitant unfavourable outcomes.[4,5]

Author contributions

Concept or design: WY Nho.
Acquisition of data: D Je.
Analysis or interpretation of data: SK Kee.
Drafting of the manuscript: SK Kee.
Critical revision of the manuscript for important intellectual content: WY Nho.

All authors had full access to the data, contributed to the study, approved the final version for publication, and take responsibility for its accuracy and integrity.

Conflicts of interest

All authors have disclosed no conflicts of interest.

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Ethics approval

The study was reviewed and approved by the Institutional Review Board (IRB) of CHA Gumi Medical Center (GM20-11).

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