

# Intramural Gallbladder Hematoma Mimicking Gallbladder Neoplasm in a 33-Year-Old Male

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We report a case of intramural gallbladder hematoma mimicking gallbladder neoplasm in a 33-year-old male; bleeding was confined to the gallbladder wall without rupture into the lumen. The patient presented with sudden onset of right upper quadrant pain, with no history of abdominal trauma. The abdomen was soft, with mild tenderness over the right upper quadrant, and a positive Murphy's sign. Abdominal sonography, computed tomography, and endoscopic retrograde cholangiopancreatography all revealed the presence of a mass lesion in the gallbladder wall. Thus, a gallbladder tumor was highly suspected. Laparoscopic cholecystectomy was performed, and intramural hematoma was found intraoperatively. The cause of intramural hemorrhage was obscure. [*J Chin Med Assoc* 2005;68(3):146–149]

**Key Words:** gallbladder, intramural hematoma

## Introduction

Ultrasonography has proved to be a highly accurate method for evaluating gallbladder disorders. The identification of an echogenic, non-movable mass in the gallbladder elicits a specific differential diagnosis, such as gallbladder neoplasm, tumefactive biliary sludge, and sloughed mucosa from gangrenous cholecystitis.<sup>1</sup> In addition, gallbladder hematomas have been reported previously:<sup>1–4</sup> patients generally had hemobilia secondary to trauma or bleeding diathesis.

We present a rare case of intramural gallbladder hematoma, of which we could not make a definitive diagnosis preoperatively. Indeed, our patient had not experienced previous abdominal trauma, and had no history of obvious bleeding disorders. The cause of intramural gallbladder hematoma remains unknown in our case.

## Case Report

A 33-year-old male had right upper quadrant pain the

night before hospital admission. The pain was dull in character, sudden in onset, and did not radiate to the back. It was not aggravated by food intake or related to movement. The patient had no history of abdominal trauma or of duodenal ulcer with bleeding. On admission, the patient was febrile with right upper quadrant tenderness and a positive Murphy's sign. There was no pallor or jaundice. Laboratory examinations revealed abnormal hepatic enzyme levels (aspartate aminotransferase 141 IU/L [normal, < 23 IU/L]; alanine aminotransferase 85 IU/L [normal, < 23 IU/L]), but normal total bilirubin (0.8 mg/dL [normal, < 1.6 mg/dL]) and alkaline phosphatase levels (80 IU/L [normal, 25–80 IU/L]). The patient had leukocytosis (15,900/ $\mu$ L), with a normal hemogram (hemoglobin, 15.9 g/dL; hematocrit, 44.7%) and platelet count ( $242 \times 10^3$ / $\mu$ L). However, prothrombin time (11.3 sec [INR, 0.92]; control, 12 sec) and partial thromboplastin time (25.4 sec; control, 31.2 sec) were both normal. Serum amylase (76 U/L) and lipase (19 U/L) levels were also within normal limits.

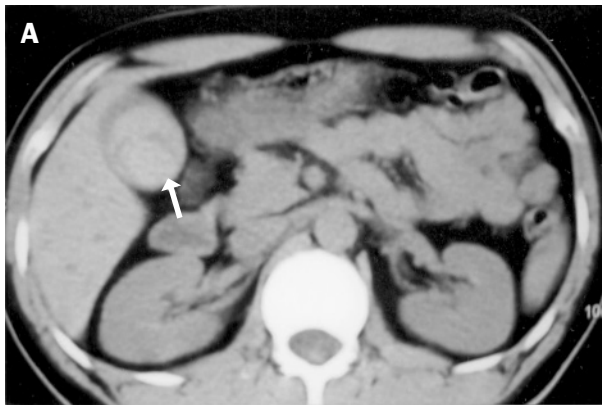
Abdominal ultrasonography and computed tomography were performed. Abdominal ultra-

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sonography (Figure 1) showed diffuse thickening of the gallbladder wall; an echogenic mass measuring about 3.5 cm was noted in the gallbladder lumen and was immovable during real-time imaging. Computed tomography (Figure 2) revealed similar findings, including gallbladder wall thickening and an intraluminal mass, which was not enhanced by contrast



**Figure 1.** Abdominal ultrasonogram demonstrating diffuse thickening of the gallbladder wall (arrowhead) with a fixed echogenic mass (arrow) in the gallbladder lumen.



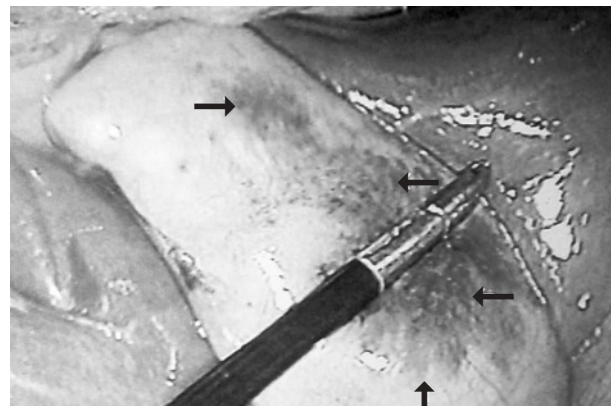
**Figure 2.** Abdominal computed tomogram demonstrating gallbladder wall thickening and an intraluminal mass (arrow): (A) pre-contrast; (B) post-contrast.

media. The initial clinical impression was gallbladder tumor or acute cholecystitis. On day 2 of hospitalization, the patient complained of passing black-colored stools. A stool guaiac examination was strongly positive. Endoscopic examination of the upper gastrointestinal tract revealed an ulcer measuring 0.6 × 0.3 cm, with protuberant discoloration on the floor of the duodenal bulb. Endoscopic retrograde cholangiopancreatography (ERCP) was performed on day 3 of hospitalization: the common bile duct appeared normal, but a filling defect was noted in the gallbladder wall, suggesting a space-occupying lesion in the lumen (Figure 3).

Laparoscopic cholecystectomy was performed under the impression of gallbladder tumor. There was no sign of fresh blood or old blood clot in the peritoneal cavity. The gallbladder was distended, and ecchymosis was noted on the gallbladder wall (Figure 4). Disruption of the serosal layer of the gallbladder wall occurred accidentally during the dissection procedure. Old blood clot was then drained from the



**Figure 3.** Endoscopic retrograde cholangiopancreatography shows incomplete filling of the gallbladder (arrow), suggesting a space-occupying lesion in the lumen.



**Figure 4.** Laparoscopic cholecystectomy reveals ecchymosis (arrows) on the gallbladder wall.

lacerative hole (Figure 5). However, no active bleeding was noted. Upon opening the gallbladder postoperatively, neither fresh nor old blood clot was noted. Microscopically, there was evidence of mild, chronic inflammation, although the dominant finding was a recent, focal submucosal hemorrhage with some fibrin deposition. There was no evidence of fibrosis or hematin-containing macrophage infiltration. The patient tolerated the operation well and was discharged on the third postoperative day.

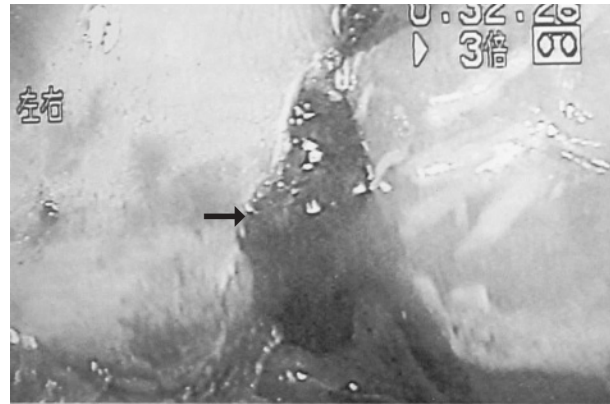
## Discussion

Hemorrhage into the biliary tract is very rare. Nevertheless, Sandblom et al<sup>5</sup> first reported hemobilia in 1948: they described 9 patients with acute abdomen and shock after trauma. Hemobilia was usually associated with biliary colic, jaundice,<sup>5</sup> and a mobile echogenic mass in the gallbladder.<sup>1-4,6</sup> In contrast, our patient had a hematoma confined to the gallbladder wall, and indeed, the occurrence of intramural gallbladder hematoma is even rarer than that of hemobilia. In a review of the English scientific literature, only 1 case was identified: a report, in 1979, of hematoma formation in the gallbladder wall in a 10-year-old boy after minor abdominal trauma.<sup>7</sup>

Hemorrhage in the gallbladder is usually associated with cholecystitis, gallbladder neoplasm,<sup>1,2,6</sup> trauma,<sup>2,3,6-8</sup> hemophilia,<sup>1,4</sup> and/or cystic artery aneurysm.<sup>6</sup> In our patient, hemorrhage was unlikely to result from gangrenous cholecystitis or bleeding diathesis. Patients with hemophilia are usually diagnosed shortly after birth because of an extensive cephalohematoma, and often have pain, followed by swelling, in a weight-bearing joint such as the hip, knee, or ankle. In our patient, hemostasis tests, including platelet count, bleeding time, prothrombin time, and partial thromboplastin time, were normal. Typically, a patient with hemophilia would have a prolonged partial thromboplastin time. Thus, we cannot explain what might have contributed to spontaneous hemorrhage in the gallbladder wall in our patient.

Hemobilia, which frequently presents with a triad of jaundice, right upper quadrant pain, and gastrointestinal blood loss,<sup>1,5,8</sup> was unlikely to be the cause of black-colored stools in our patient. Indeed, our patient presented with right-sided abdominal pain only; he had no jaundice, and no blood clot in the gallbladder lumen. Thus, gastrointestinal bleeding was most probably due to duodenal ulcer.

The preoperative diagnosis of gallbladder hematoma is very difficult, or even impossible, to make in the



**Figure 5.** An old blood clot (arrow) being drained from a lacerative hole in the gallbladder wall during laparoscopic cholecystectomy.

absence of a history of trauma or bleeding diatheses, such as hemophilia or patients taking anticoagulants. Ultrasonography is the main tool for diagnosing gallbladder disease, and gallbladder hematoma may present as a mobile, intraluminal echogenic mass.<sup>3</sup> The hematoma in our patient was confined to the gallbladder wall, and did not gravitate with changing position, thus making diagnosis difficult.

Differential diagnoses for an echogenic mass in the gallbladder lumen include gallbladder carcinoma, tumefactive sludge, and gangrenous cholecystitis.<sup>1</sup> However, gallbladder carcinoma is usually associated with gallbladder stones and often extends into adjacent tissues.<sup>1,9</sup> Secondary sonographic characteristics may be used for differential diagnosis, and gallbladder sludge is generally found in patients with long-term fasting, extrahepatic biliary obstruction,<sup>1,10</sup> or sickle-cell disease or other causes of hemolysis.<sup>10</sup> Characteristically, biliary sludge produces non-shadowing, low-amplitude echoes that tend to form a fluid–fluid level; the sludge moves very slowly when changing position; it may accumulate to form a polypoid mass; and it does not always change position on real-time imaging. This is referred to as “tumefactive sludge”.<sup>10</sup> In empyema or gangrenous cholecystitis, intraluminal echogenic materials do not show acoustic shadowing or gravity dependence.<sup>11</sup> These echogenic materials might arise from purulent fibrin debris. The lack of layering and gravity dependence is attributed to increased bile viscosity.<sup>11</sup>

In our patient, the clinical course was uneventful. No jaundice, fever or gallbladder stones were noted that might support a diagnosis of empyema or gangrenous cholecystitis. However, there was diffuse thickening of the gallbladder wall with a homogeneous polypoid mass protruding into the lumen. This is a common echographic feature of gallbladder neoplasm.

ERCP revealed an incomplete filling of the gallbladder that resembled a neogrowth. Thus, we could not rule out the possibility of gallbladder neoplasm in this young adult.

The incidence of gallbladder hematoma is very rare. However, gallbladder hematoma should always be considered in the differential diagnosis of gallbladder tumor. Although the ultrasonographic and computed tomographic findings of gallbladder hematoma might not be exactly the same as those of gallbladder carcinoma and tumefactive sludge, a definitive diagnosis often cannot be made confidently. Magnetic resonance imaging will be useful for differential diagnosis.<sup>4</sup> Indeed, hematomas are similar in signal intensity to skeletal muscle on T1-weighted imaging, with conversion to marked hypointensity on T2-weighted imaging.<sup>4</sup>

For a simple case of definitively diagnosed intramural gallbladder hematoma, with stable vital signs and no clinical evidence of continuous bleeding, conservative treatment should be adequate. However, in our case, gallbladder tumor could not be totally ruled out, based on available clinical evidence and imaging studies. In such a situation, surgical intervention is needed for further patient evaluation and management.

## References

1. Scharling ES, Geisinger KR. Case of the day. Hemobilia: intraluminal gallbladder hematoma. *J Ultrasound Med* 1993;4:240-9.
2. Grant EG, Smirniotopoulos JG. Intramural gallbladder hematoma: sonographic evidence of hemobilia. *J Clin Ultrasound* 1983;11:507-9.
3. Kaulzaric D, Barneir E. Sonography of intraluminal gallbladder hematoma. *J Clin Ultrasound* 1985;13:291-4.
4. Shimura T, Kajima T, Tsutsumi S, Yoshida T, Uchiumi H, Kuwano H. Gallbladder hematoma in a patient with hemophilia B: report of a case. *Hepatogastroenterology* 2000;47:939-41.
5. Sandblom P. Hemorrhage into the biliary tract following trauma — "traumatic hemobilia". *Surgery* 1948;24:571-86.
6. Berland LL, Doust BD, Foley WD. Acute hemorrhage into the gallbladder diagnosed by computed tomography and ultrasonography. *J Comput Assist Tomogr* 1980;4:260-2.
7. Pilling DW. Hematoma of the wall of the gallbladder. *Br J Radiol* 1979;52:840-1.
8. Levinson JD, Olsen G, Terman JW, Graham CP, Breen KJ. Hemobilia secondary to percutaneous liver biopsy. *Arch Intern Med* 1972;130:396-400.
9. Yum HY, Fink AH. Sonographic findings in primary carcinoma of the gallbladder. *Radiology* 1980;134:693-6.
10. Fakhry J. Sonography of tumefactive biliary sludge. *AJR Am J Roentgenol* 1982;130:717-9.
11. Kane RA. Ultrasonographic diagnosis of gangrenous cholecystitis and empyema of the gallbladder. *Radiology* 1980;134:191-4.