



Accessory liver lobe attached to the gallbladder wall preoperatively detected by ultrasonography: A case report

Shingo Ito^{a,*}, Ryohei Takeda^a, Ritsuo Kokubo^a, Yutaka Kojima^b, Michitoshi Goto^b, Yuichi Tomiki^b, Kazuhiro Sakamoto^b

^a Department of Surgery, Yotsukaido Tokushukai Hospital, Chiba, Japan

^b Department of Coloproctological Surgery, Juntendo University Faculty of Medicine, Tokyo, Japan

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ABSTRACT

INTRODUCTION: An accessory liver lobe is a rare developmental abnormality, which is often not diagnosed preoperatively, and is usually detected incidentally during abdominal surgery. This condition is often asymptomatic; here, we report on a case where the accessory liver lobe was diagnosed preoperatively using ultrasonography.

CASE PRESENTATION: A 59-year-old woman presented to our hospital with right upper abdominal pain. An abdominal ultrasonography indicated the presence of gallbladder debris and an accessory liver lobe. She underwent laparoscopic cholecystectomy and resection of the accessory liver lobe without any complications.

DISCUSSION: An accessory liver lobe is a rare anomaly of the liver. It is typically asymptomatic and is detected incidentally during surgery or autopsy in most cases. However, we diagnosed the accessory liver lobe using ultrasonography. An accessory liver lobe can occasionally result in complications, such as bleeding, portal vein obstruction, or malignant transformation to hepatocellular carcinoma.

CONCLUSION: An accessory liver lobe should be resected to prevent complications and malignant transformation. Ultrasonography is useful for preoperative diagnosis in cases with an accessory liver lobe.

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1. Introduction

Different anatomic variations of the hepatic vasculature and biliary ducts have frequently been reported; however, an accessory liver lobe is a rare congenital anomaly [1]. An accessory liver lobe is defined as morphologic variation of the liver and is caused by excessive development [2]. The presence of an accessory liver lobe is seldom detected preoperatively because this condition is usually asymptomatic. Although, in rare cases, it can cause abdominal pain and liver dysfunction [3], and is typically detected incidentally during surgery or autopsy. Here we report on a rare preoperative diagnosis of an accessory liver lobe using ultrasonography.

2. Presentation of case

A 59-year-old female with right upper abdominal pain was admitted to our hospital. She had no relevant past medical or surgical history. Her abdomen was soft with no palpable masses. Abdominal ultrasonography revealed a high echoic area which appeared to be debris in the gallbladder and a 15-mm ellipse-shaped section of liver tissue in front of the gallbladder (Fig. 1). The laboratory data showed slight hepatic dysfunction, with an aspartate transaminase (AST) level of 47 U/L (0–40) and an alanine transaminase (ALT) level of 57 U/L (0–41). An enhanced abdominal computed tomography (CT) scan also showed the accessory liver lobe at the surface of the gallbladder (Fig. 2). Magnetic resonance imaging (MRI) also revealed the accessory lobe at the surface of the gallbladder (Fig. 3). She underwent laparoscopic cholecystectomy for gallstones. During the laparoscopy, an accessory liver lobe, 15 mm in size, was noted on the serosal surface of the gallbladder body with a connection to the main liver sections (Fig. 4). The pedicle was clipped, and this accessory liver lobe was removed together with the gallbladder. The histopathological evaluation of the specimen revealed the diagnosis of an accessory liver lobe due to the presence of normal liver structures without any malignant transformation (Fig. 5). The patient was discharged on the fourth postoperative day without any complications.

* Corresponding author at: Department of Coloproctological Surgery, Juntendo University faculty of Medicine, 2-1-1 Hongo, Bunkyo-ku, Tokyo 113-8421, Japan.

E-mail addresses: sgitou@juntendo.ac.jp (S. Ito), daityokomon@yahoo.co.jp (R. Takeda), kokubowl@yahoo.co.jp (R. Kokubo), yutachan@juntendo.ac.jp (Y. Kojima), m-goto@juntendo.ac.jp (M. Goto), tomiki@juntendo.ac.jp (Y. Tomiki), kazusaka@juntendo.ac.jp (K. Sakamoto).

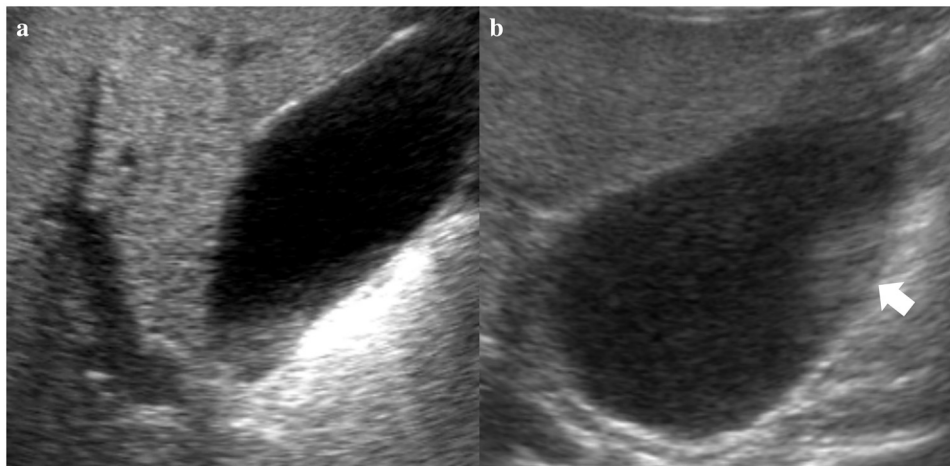


Fig. 1. Ultrasound sonography revealed a high echoic area which appeared to be debris in gallbladder (a) and a 15-mm ellipse-shaped section of liver tissue (arrow) attached in front of the gallbladder (b).

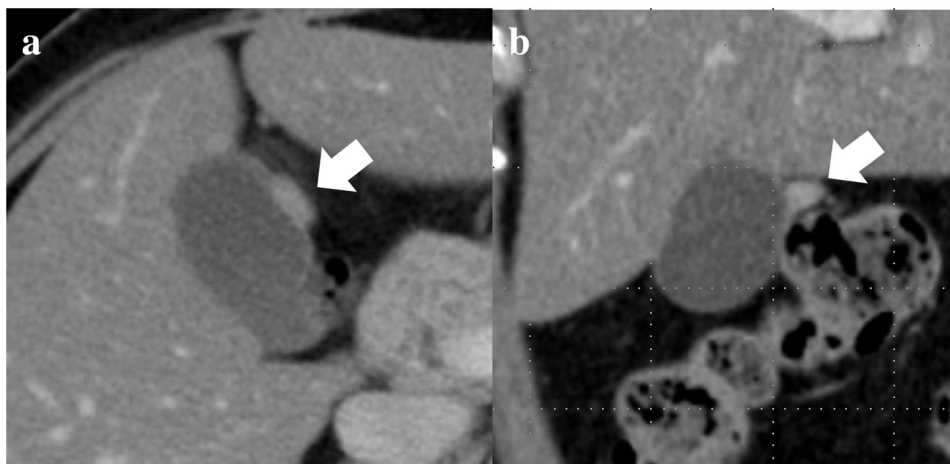


Fig. 2. Computed tomography shows the accessory lobe at the surface of gallbladder (arrows) in the (a) transverse plane and (b) the coronal plane.

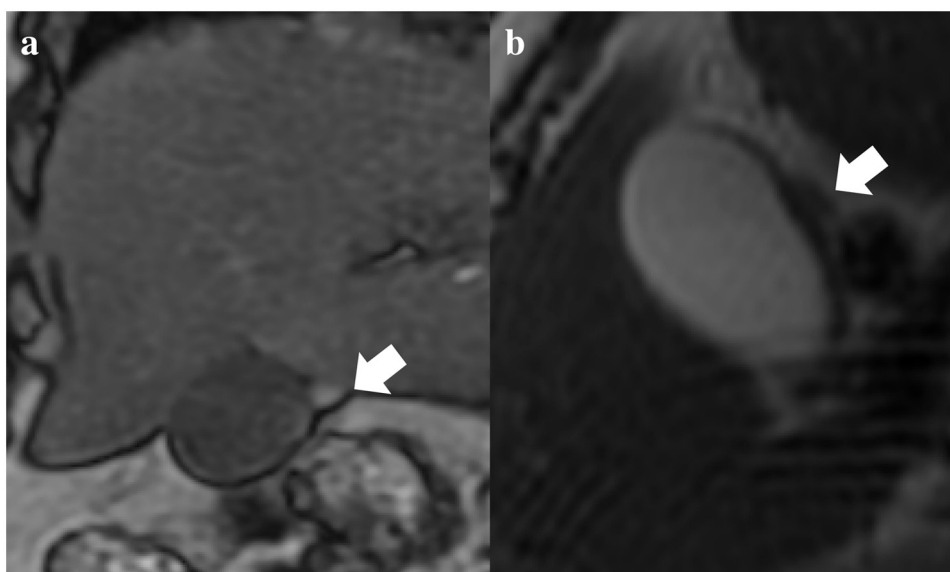


Fig. 3. A magnetic resonance imaging (MRI) scan shows the accessory lobe at the surface of gallbladder (arrows): (a) T1WI and (b) T2WI.

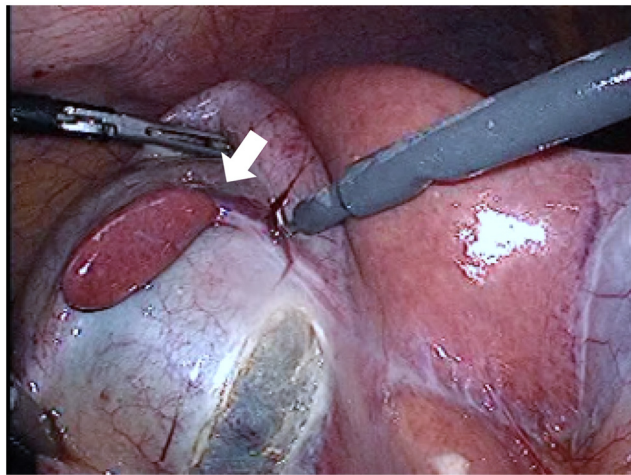


Fig. 4. An intraoperative photograph shows the accessory liver lobe at the surface of gallbladder as well as the vascular pedicle and bile duct (arrow).

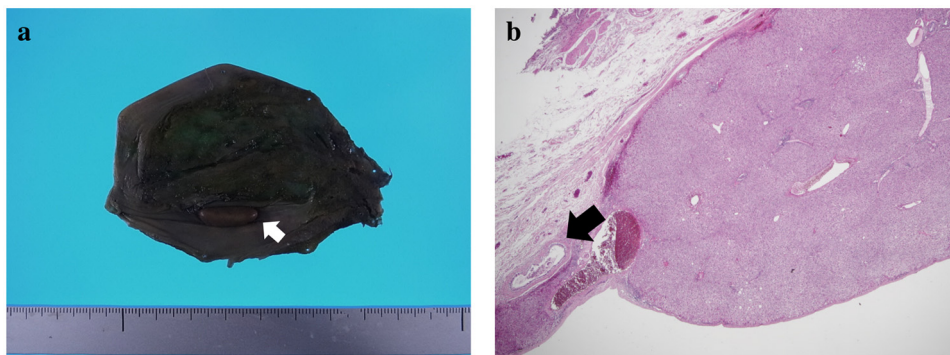


Fig. 5. (a) Postoperative macroscopic findings of the resected specimen showed an accessory liver lobe on the gallbladder (arrow). (b) Microscopic findings of the resected specimen showed normal hepatic tissue with a bile duct (arrow). (H.E. $\times 40$).

3. Discussion

An accessory liver lobe is a very rare entity; it is usually asymptomatic and is found incidentally during abdominal surgery or autopsy [1]. They have been detected in patients who presented with recurrent abdominal pain and impaired liver functions [1]. The occurrence of accessory liver lobe is caused by an error in the formation of the endodermal caudal foregut during the third gestational week and segmentation of the hepatic bud [4]. An accessory liver lobe remains in communication with the main liver, while an ectopic liver has no communication [5]. The left liver lobe is connected to the anterior abdominal wall in a small area of the epigastrium [6]. In the present case, this abnormality may be associated with anterior abdominal wall development, although the patient had no history of malrotation and repair of the anterior abdominal wall. An accessory liver lobe is generally found at a number of locations, such as the liver undersurface, gastrohepatic ligament, gallbladder, near the umbilicus, adrenal glands, or pancreas; moreover, this lobe has also been detected in the left thoracic cavity and other distant places in the abdominal cavity [7]. In this case, the accessory liver lobe was attached to the wall of the gallbladder. On the other hand, ectopic liver can be found in any area, such as the intra-thoracic cavity, spleen, umbilicus, vena cava, heart, or lung [8]. An observational laparoscopic study revealed that the incidence of accessory liver lobe and ectopic liver was 0.7% [9].

An accessory liver lobe is classified into three types based on the biliary drainage and the presence or absence of a common capsule. Type I has a separate accessory lobe duct which drains into

an intrahepatic bile duct of the normal liver. Type II has a separate accessory lobe duct which drains into an extrahepatic bile duct of the normal liver. Type III has an accessory lobe and a common capsule with the normal liver; the bile duct of the accessory lobe drains into an extrahepatic duct [10]. According to this classification, the present case was similar to Type II. Moreover, there is the another classification based on the position of the accessory liver lobe [5]: (A) an accessory hepatic lobe that can reach a considerable size and is attached to the liver by a stalk, (B) a small accessory hepatic lobe attached to the liver (approximately 10–30 g in weight), (C) an ectopic liver, which is situated outside the liver without any connection to the liver, and (D) a microscopic ectopic liver, which is occasionally found in the wall of the gallbladder. This case was classified as type D.

The detection of an accessory liver lobe is clinically important because it can be a source of liver dysfunction, torsion, bleeding, and hepatocellular carcinoma formation [11]. However, the preoperative diagnosis of an accessory liver lobe is difficult. One recent case report about an accessory liver lobe was not diagnosed preoperatively and was incidentally found in cholecystectomy specimens after treatment for lithiasis [12]. Conversely, the accessory liver lobe was preoperatively diagnosed by magnetic resonance cholangiopancreatography and CT in another case report [13]. These abnormalities that were preoperatively diagnosed by ultrasonography have not been reported until now. It is very rare that a preoperative abdominal ultrasonography could detect an accessory liver lobe. Moreover, laparoscopic surgery is particularly well-adapted for the resection of these accessory liver lobes [14].

4. Conclusion

An accessory liver lobe should be resected to prevent complications, including malignant transformation. Ultrasonography can be useful for preoperative diagnosis in these cases. Preoperative diagnosis of this abnormality may help reduce complications during laparoscopic surgery, such as biliary duct injury and overall morbidity associated with abdominal surgery.

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