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Incidental Finding of Ectopic Liver during Laparoscopic Cholecystectomy

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Data Collection B
Statistical Analysis C
Data Interpretation D
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Case series

Patients: Female, 44-year-old • Female, 62-year-old
Final Diagnosis: Ectopic liver
Symptoms: Asymptomatic
Medication: —
Clinical Procedure: Laparoscopic excision during cholecystectomy
Specialty: Surgery

Objective: Rare co-existence of disease or pathology
Background: Incidental finding of ectopic liver is gaining more attention especially during laparoscopic cholecystectomy. It is reported to be found in different locations as gallbladder, stomach, spleen, umbilical ligament and other intra-peritoneal and intra-thoracic sites.
Case Reports: We present 2 cases of ectopic liver found on gallbladder during elective laparoscopic cholecystectomy for 2 Lebanese females. Our findings were consistent with previous reports. The ectopic liver tissues measured 0.9 cm and 0.5 cm respectively, which were smaller than other reports. The liver tissue lacked a biliary system, which was similar to what has been previously reported in the literature. However, no malignant histological signs were seen when excised.
Conclusions: These 2 cases highlight the fact that ectopic liver tissue may be encountered on the gallbladder during laparoscopic cholecystectomy. Awareness of this potential entity is beneficial to widen the differential diagnosis when identified on imaging studies pre-operatively or when found incidentally during surgery as in this case.

MeSH Keywords: Cholecystectomy, Laparoscopic • Hepatocytes • Laparoscopy

Abbreviations: ELT – ectopic liver tissue; HCC – hepatocellular carcinoma

Full-text PDF: <https://www.amjcaserep.com/abstract/index/idArt/921410>



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Background

Congenital liver anomalies are rare [1], however, ectopic liver tissue (ELT) is starting to be a significant topic as more cases are reported. The incidence of ELT is not well studied, but some reports show that it ranges between 0.27% and 0.47% [1]. Moreover, Ahmet et al. in a study of 932 patients showed that the prevalence was around 0.1% and the real incidence was not estimated accurately due to the lack of awareness to this anomaly [2]. In front of this asymptomatic entity, most – if not all – diagnoses are done post-operatively [1] or on autopsy, whereas some reports showed that it can be diagnosed pre-operatively if a high index of suspicion is involved [3,4]. On the other hand, when symptoms occur, they manifest as abdominal right upper quadrant pain due to torsion, hemorrhage, and necrosis or rupture [1]. Moreover, ectopic liver has been reported in different body organs. For instance, gallbladder is the most common location of ELT [1–5]. Other locations reported include the lower peritoneal cavity [6], stomach [5,7], spleen [8,9], umbilical ligament [9], and thorax [10]. Here we describe 2 cases of ectopic liver on the gallbladder, encountered during laparoscopic cholecystectomy.

Case Reports

Case 1

Case 1 was a 44-year-old Lebanese female presented with a 3-month history of recurrent right upper quadrant pain. Workup showed multiple microlithiasis by ultrasound, which did not detect any other abnormal finding. As a result, the patient was scheduled for laparoscopic cholecystectomy. During the procedure a maroon colored, about 1-cm mass was detected incidentally. It was attached only to the fundus of the gallbladder and had a similar consistency to the liver (Figure 1A).

Cholecystectomy with resection of the mass was done and the patient was discharged home after an uneventful 1-day hospital stay. Histological evaluation showed this mass to be an ectopic liver parenchyma with preserved structure and normal hepatocytes without biliary tract and without any sign of dysplasia or malignancy (Figure 1B).

Case 2

Case 2 was a 62-year-old Lebanese female who presented for recurrent abdominal right upper quadrant pain. Workup was done and was significant for multiple gall stones with no signs of acute cholecystitis with normal liver function tests. The patient was scheduled for a laparoscopic cholecystectomy. During the operation an incidental maroon colored, about 0.5-cm mass was detected attached to the gallbladder (Figure 2A).

Cholecystectomy was done with resection of the mass for histological examination, and the patient was discharged home on the second day with no complications. The pathology report showed the mass to be ectopic liver parenchyma with developed portal system, however, no biliary tract was identified (Figure 2B).

Discussion

Ectopic liver is associated with hepatocellular carcinoma (HCC) outside of the mother liver [1,5,6,11]. For instance, it can present as a stomach mass in the sub-mucosa [7] or as an intra-peritoneal mass [6]. The carcinomatous transformation of ELT is possible due to malfunction outside of the liver [7]. Interestingly, when ELT is on the gallbladder, it has a lower propensity to develop HCC than when present in other ectopic locations [5]. It has been shown that ELT is more likely to have malignant than benign transformation than the intact mother

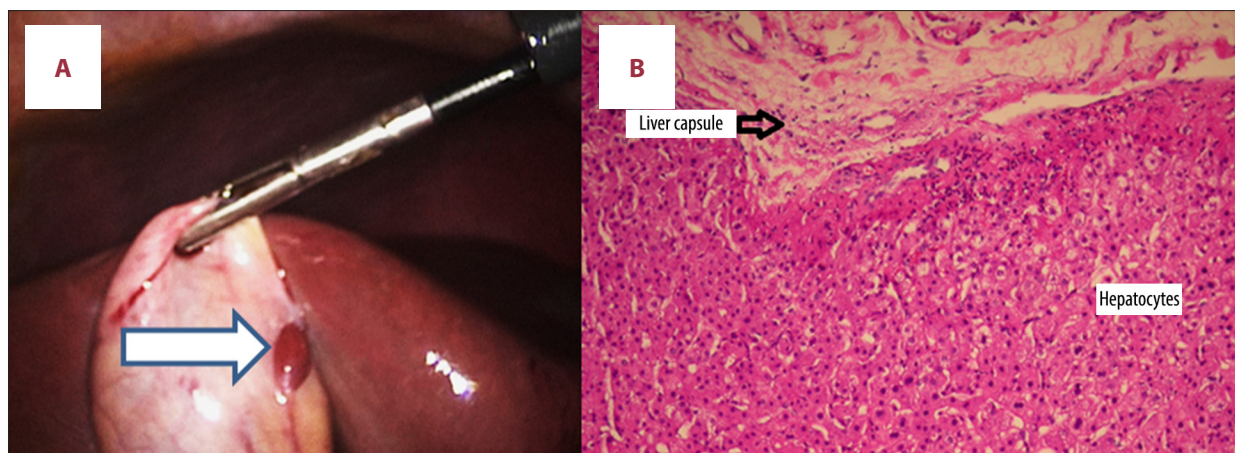


Figure 1. Macroscopic and microscopic image of ectopic liver: (A) during surgery, arrow denotes ectopic liver fused to the gall bladder; (B) denotes the tissue at 20× magnification, showing hepatocytes and liver capsule.

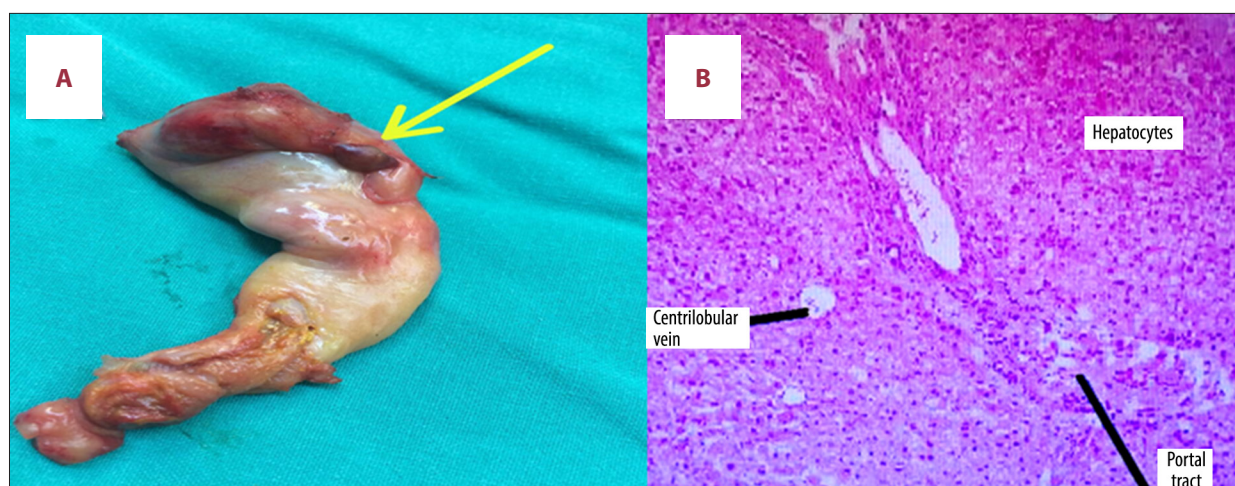


Figure 2. Ectopic liver fused to the gall bladder: (A) illustrates the tissue as observed during surgery (yellow arrow); (B) illustrates the tissue at 20× magnification showing the hepatocytes, centrilobular vein, and portal tract.

liver [7]. Furthermore, ELT is reported to be correlated to other biliary tract anomalies such as biliary atresia, agenesis of caudate lobe [1], acute cholecystitis, or cholelithiasis [2]. This latter finding originates from the fact that it is almost always found incidentally during laparoscopic cholecystectomy procedures. There are many theories to explain the occurrence of ELT; it may be due to a lost connection to an accessory liver lobe [7] or due to aberrant migration of the liver proper during embryological development [2]. A report of ELT in the thorax showed that this anomaly happened after a trauma to the liver in which a fragment lost connection to the mother liver [10] and thus evolved to be regarded as ELT. Furthermore, the size of our ELTs were 0.9 cm and 0.5 cm, which was consistent with previous reports of ELTs that tended to be less than 3.7 cm [3]. However, a 12 cm ELT was reported [8] and it is believed to be the largest. To date, the association between size and malignancy risk has not yet been determined. Moreover, it was reported that the blood supply of ELT can be an artery arising from cystic artery, vascular pedicle arising from liver parenchyma (as was the finding in our cases), or in a form of a mesentery lying from hepatic site [2]. In our specimens, histologically, no efferent bile duct system could be identified; this is similar to previous reports [8]. Our specimens did not show any malignant signs on histological examination when excised.

Study limitations

Correlation studies are needed to elicit a significant approach towards such an entity. Our study included two case reports that aimed to draw attention to ELT pathology, which has malignant potential.

Conclusions

ELT may be encountered on the gallbladder during laparoscopic cholecystectomy. If such tissue is encountered, it is recommended to excise it and send it for histopathological examination to exclude malignant transformation. On the other hand, one should widen the differential diagnosis of intra-peritoneal or intra-thoracic masses on imaging studies that are widely used such as computed tomography scans and ultrasounds.

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Conflict of interest

None.

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