



# Ectopic liver tissue adherent to the gallbladder serosa: two cases report from Syria

Moatasem Hussein Al-janabi, MD<sup>a,\*</sup>, Nour Ibrahim Kenaan<sup>d</sup>, Sara Houssam Sulaiman<sup>d</sup>, Jana Ahmad Ibrahim<sup>e</sup>, Nour abd allatif Saoud<sup>d</sup>, Samir Kannan, Master<sup>b</sup>, Younes Issa, Master<sup>b</sup>, Issa Ahmad, MD, PhD<sup>c</sup>, Rabab Salloum, MD, PhD<sup>c</sup>

**Introduction and importance:** Ectopic liver tissue is an exceedingly rare anomaly in which the hepatic tissue is present extrahepatic site and has no connection to the true liver. Most cases of ectopic liver tissue were asymptomatic and discovered by an accident during abdominal surgery or autopsy.

**Case presentation:** Case 1 involved a 52-year-old man who was admitted to the hospital due to an abdominal grip in the right hypochondrium and epigastrium for 1 month. The patient underwent laparoscopic cholecystectomy. During the gross examination, a well-circumscribed brownish nodule with a smooth outer surface, located at the fundus region was found. Case 2 involved a 40-year-old man with 2 months history of epigastric pain radiating to the right shoulder. Calculus chronic cholecystitis was diagnosed by ultrasound. The patient undergoes elective laparoscopic cholecystectomy. A gross inspection showed a small nodule attached to the serosa of the gallbladder. Microscopically, both cases revealed ectopic liver tissue.

**Clinical discussion:** Ectopic liver tissue is an uncommon entity that occurs during the embryological development of the liver and can be found below and above the diaphragm, especially the gallbladder. Histologically, it usually has the normal architecture of the liver. Although ectopic liver tissue is an exceptional finding, pathologists should be aware of it because it has a high risk of transformation into malignancy.

**Conclusion:** Hepatic choristoma is a rare failure of embryological liver development. It should be removed when recognized and examined histologically to rule out malignancy.

**Keywords:** choristoma, ectopic, gallbladder, hepatic, liver

## Introduction

Ectopic liver tissue, also known as hepatic choristoma or hepar succenturiatum, is an extremely rare entity where liver tissue situates outside the liver with no connection to it<sup>[1]</sup>. The incidence of hepatic choristoma has been reported to be anywhere from 0.24 to 0.47%<sup>[2]</sup>. This condition can be intraperitoneum, retroperitoneum, or extra-peritoneum, most frequently on the gallbladder. Other sites include the gastrohepatic ligament, omentum stomach, pancreas, pylorus, splenic capsule, and adrenal gland<sup>[1,2]</sup>. Ectopic hepatic tissue is

<sup>a</sup>Department of Pathology, Cancer Research Center, Departments of <sup>b</sup>General Surgery, <sup>c</sup>Pathology, Tishreen University Hospital, <sup>d</sup>Tishreen University Faculty of Medicine, Lattakia and <sup>e</sup>Tartous University Faculty of Medicine, Tartous, Syria

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\*Corresponding author. Address: Department of Pathology, Cancer Research Center, Tishreen University Hospital, Lattakia, Syria. Tel.: 00963992420677. E-mail address: dr.3esami2022@gmail.com (M. Hussein Al-janabi).

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## HIGHLIGHTS

- Ectopic liver tissue is an uncommon entity that occurs during the embryological development of the liver.
- Most cases of ectopic liver tissue were asymptomatic and discovered by an accident during abdominal surgery or autopsy.
- We report two cases of ectopic liver tissue adherent to the gallbladder serosa.
- Pathologists should be aware of it because it has a high risk of transformation into malignancy.

sometimes associated with other congenital anomalies, such as biliary atresia, agenesis of the caudate lobe, omphalocele, bile duct cysts, or cardiac anomalies; nevertheless, these abnormalities are absent when the heterotopic tissue is attached in the surface of gallbladder wall<sup>[1,2]</sup>. Although ectopic liver tissue is diagnosed accidentally, it has the potential to transform into malignancy<sup>[1]</sup>. In this study, we report two cases of an ectopic liver issue on the gallbladder.

This case report has been reported in line with the SCARE criteria 2020<sup>[3]</sup>.

## Case presentations

### Case 1

A 52-year-old man presented to the emergency department of Tishreen University in 2022 with complaints of abdominal pain in

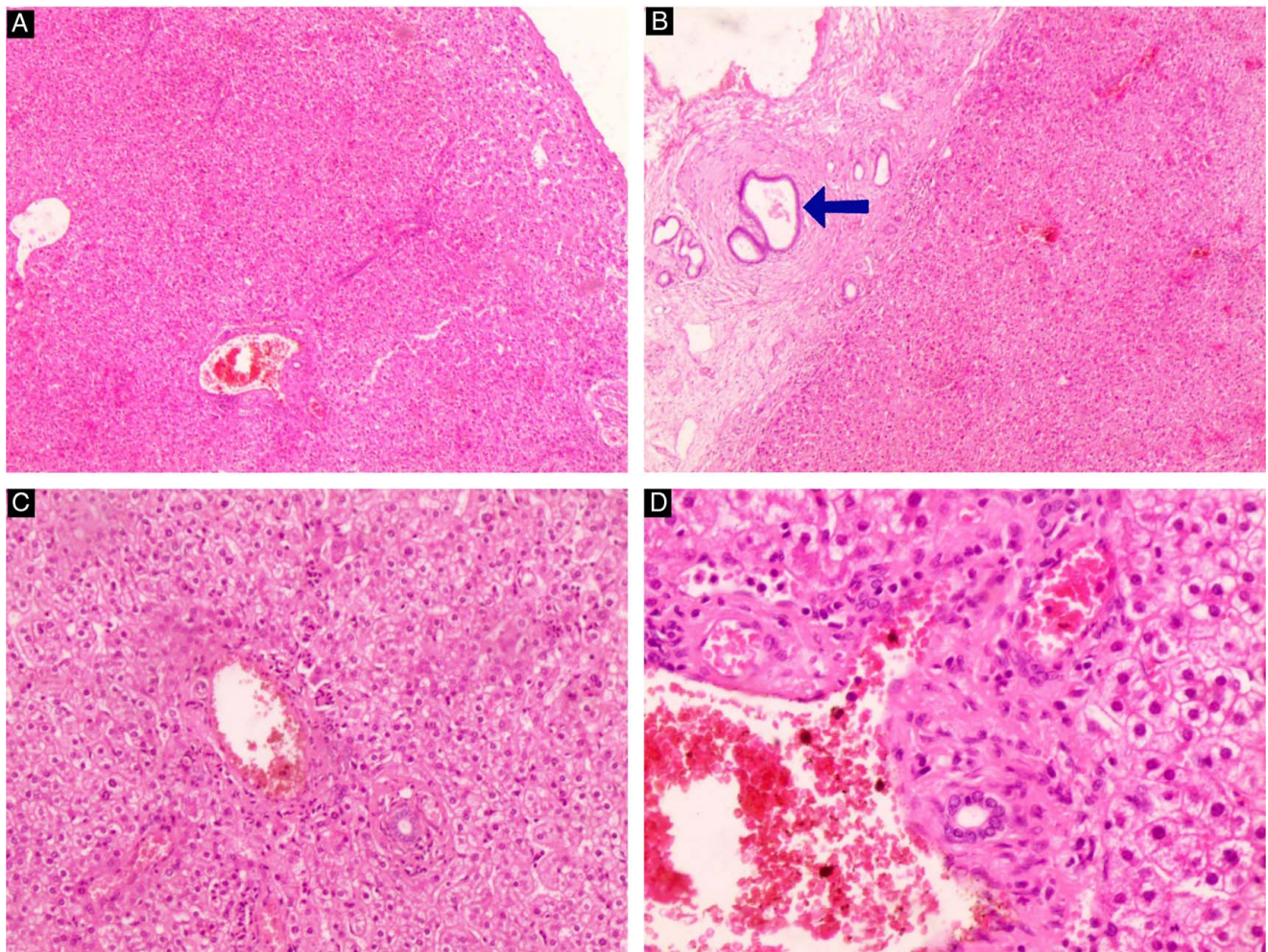


**Figure 1.** Gross image of the opened gallbladder revealed a 1.3 cm measured, well-circumscribed brownish nodule, located at the fundus region (black arrows).

the right hypochondrium and epigastrium that were intermittent and coliform for ~1 month. It was radiating to the right shoulder and was responsive to analgesics. He was a smoker and a non-alcoholic. The patient’s medical history did not show anything out of the ordinary. Laboratory values were within normal limits. The patient underwent laparoscopic cholecystectomy. The specimen was sent to the pathology department. The excised gallbladder measured 7.5 × 2.5 cm with a wall thickness of about 0.5 cm. Inspection of the serosa aspect revealed a 1.3 cm measured, well-circumscribed brownish nodule with a smooth outer surface, located at the fundus region (Fig. 1). Microscopic examination of the nodule revealed liver parenchyma with normal architecture: portal triad (bile ducts, artery, vein), and normal hepatocytes (Fig. 2). Ectopic liver tissue diagnosis was made based on the histological features. The postoperative period was uneventful and the patient was discharged on the first day, without any complications.

**Case 2**

A 40-year-old man with a 2-month history of epigastric pain radiating to the right shoulder. Calculus chronic cholecystitis was



**Figure 2.** H&E stain (A–D): Microscopic images of the nodule. (A) Encapsulated nodule of liver parenchyma (black arrow refers to capsule) (× 40). (B) Bile ducts (ducts of Luschka), in the serous of the gallbladder, are seen (blue arrow) (× 40). (C) Liver parenchyma with normal architecture: portal triad (bile ducts, artery, vein) (× 100). (D) Normal hepatocytes with distinctive membrane, abundant cytoplasm, and regular oval nuclei (× 200). H&E, hematoxylin and eosin.

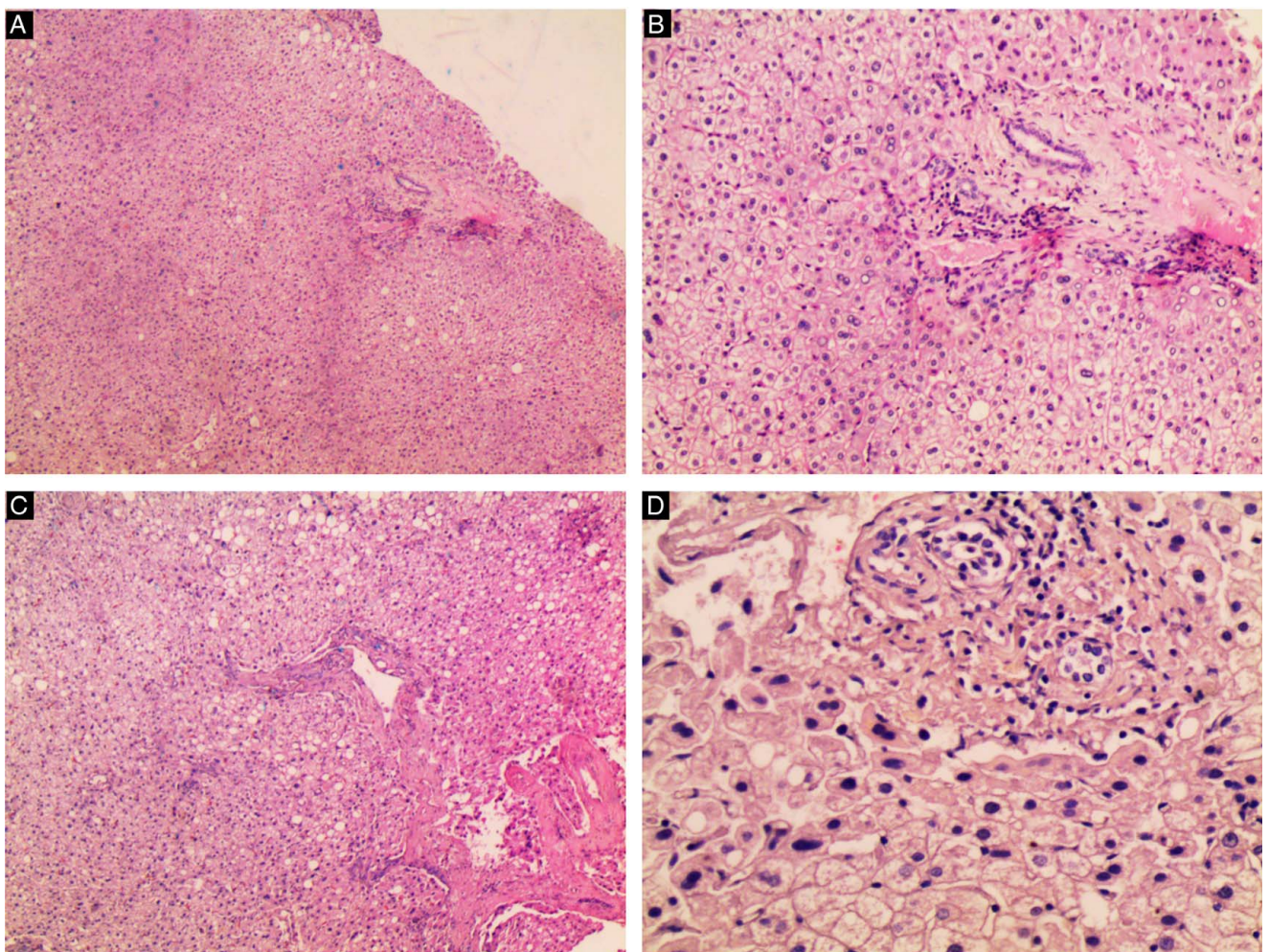


**Figure 3.** Gross image of the opened gallbladder showed a well-defined small brown nodule after dissection (black arrows).

diagnosed by ultrasound scan. He was a non-smoker and a non-alcoholic. The patient underwent elective laparoscopic cholecystectomy. The gallbladder was excised and sent for histopathological study. On macroscopic examination, the excised gallbladder measured  $5.5 \times 2$  cm with a wall thickness of about 0.5 cm. A well-defined small brown nodule adherent to the posterior surface of the gallbladder measuring 1 cm was noted (Fig. 3). Microscopically, the hematoxylin and eosin (H&E)-stained sections of the nodule revealed liver parenchyma with normal architecture: portal triad (bile ducts, artery, vein), and normal hepatocytes (Fig. 4). A hepatic choristoma diagnosis was made based on histological features. The postoperative period was uneventful and the patient was discharged on the same day, without any complications.

### Discussion

Ectopic liver tissue (ELT) is an uncommon entity that occurs as a result of the failure of embryological liver development<sup>[4]</sup>. Only a few cases have been described in the world medical literature<sup>[5]</sup>. In a study that covered 1060 laparoscopic samples, the incidence



**Figure 4.** H&E stain (A–D): Microscopic images of the nodule. (A) Well-defined nodule of liver parenchyma ( $\times 40$ ). (B) Liver parenchyma with normal architecture: portal triad (bile ducts, artery, vein) ( $\times 100$ ). (C) Central vein is seen ( $\times 100$ ). (D) Normal hepatocytes with distinctive membrane, abundant cytoplasm, and regular oval nuclei ( $\times 200$ ). H&E, hematoxylin and eosin.

of ELT was reported to be 0.47% only<sup>[6]</sup>. The most common site of ELT is the gallbladder<sup>[2]</sup>. Other sites are gastrohepatic and umbilical ligaments, omentum stomach, plural cavity, mediastinum, lungs, and heart<sup>[7]</sup>. Several theories have been suggested concerning what determines the location of the ELT and it is all based on embryonic development. For example, ELT occurrence in the gallbladder can be explained by the close relationship of the developing hepatic parenchymal cell cords to the pars cystica and early foetal duodenum<sup>[1]</sup>. Most cases of ELT are diagnosed accidentally during surgeries performed for another reason<sup>[2]</sup>. Ectopic hepatic tissue is almost always clinically silent, and only a few patients were reported in literature representing symptoms such as recurrent abdominal pain due to torsion, compression of adjacent organs, intraperitoneal bleeding, obstruction of the oesophagus, portal vein, neonatal gastric outlet, and pylorus<sup>[1]</sup>. Ectopic liver tissue is affected by the same risk factors that affect the normal liver, such as; fatty infiltration, cirrhosis, chronic active hepatitis, hemosiderosis, and metastatic tumour<sup>[6,8]</sup>. In a few cases, ELT may be related to other congenital anomalies such as biliary atresia, omphalocele, cardiac anomalies, and caudate lobe agenesis<sup>[9]</sup>. No abnormalities were observed in our cases. Histologically, the findings of ectopic liver tissue are similar to those of the liver proper including regular lobules, central veins, and normal portal triad<sup>[1,2]</sup>. Although ectopic liver tissue is an exceptional finding, pathologists should be aware of it because it has a high risk of transformation into malignancy<sup>[4]</sup>.

## Conclusion

Ectopic liver tissue in the gallbladder is an uncommon developmental anomaly that is usually asymptomatic; disclosed incidentally during surgery or autopsy. ELT has a risk of malignant transformation to hepatic cell carcinoma and other complications. Therefore, ELT should be recognized, removed, and examined histologically.

## Ethical approval

No ethical approval was needed for this case report.

## Consent for publication

Written informed consent was obtained from the patient for the publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

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## Author contribution

M.H.A.: study design, data collection, data analysis, and writing. N.K., S.S., J.I., and N.S.: study design and writing. S.K. and Y.I.: perform the surgery. I.A. and R.S.: in reviewing the manuscript.

## Conflicts of interest disclosure

The authors have no conflicts of interest to declare.

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Not applicable.

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