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**Case Report**

# Laparoscopic management of acute cholecystitis with hepatic choristoma of the gall bladder wall: case report and review of the literature

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## ABSTRACT

Choristoma is a term which refers to the presence of histologically normal tissue in a heterotopic location; hepatic choristoma is a condition in which hepatic tissue can be found in abnormal locations above or below the diaphragm, the gallbladder wall being the most frequent heterotopic site for implantation, this disease is usually asymptomatic and is rarely detected preoperatively with imaging studies due to a general lack of knowledge of this entity. We present the case of a 37 year old male patient who presented with acute abdominal pain in the right upper quadrant, colicky in nature, accompanied by nausea and vomiting; a HIDA 99 mTc scan revealed gallbladder diskynesia as well as a radiolucent bilobulated image. Upon laparoscopy, we encountered two masses on the superoanterior gallbladder wall and Hartmann´s pouch, which upon histopathological specimen examination revealed the presence of hepatic choristoma. This entity should be considered whenever a soft tissue mass is reported on the anterior gallbladder wall on imaging studies; It has been reported that hepatic choristoma is at higher risk for development of hepatocellular carcinoma and should be removed en bloc with the gallbladder.

**Keywords:** Hepatic choristoma, Heterotopy, Laparoscopy, Gallbladder, Gallbladder dyskinesia, Acute cholecystitis, Liver

## INTRODUCTION

The term choristoma refers to the presence of a mass of histologically normal tissue in an abnormal location, this term has also been referred to as ectopy or heterotopy, and can be related to different organs and tissue throughout the body. There have been reports of pancreatic, pulmonary and mammary choristoma in different anatomical regions.[1] Hepatic choristoma has also been reported in 8 cases as an abnormal mass in the umbilical cord of newborns, which can be detected upon ultrasonographic or surgical inspection.[2]

Hepatic choristoma is a rare condition, in which hepatic tissue can be found above or below the diaphragm, the gallbladder wall being the most frequently occurring site for abnormal implantation.

Several theories have been proposed to describe the origin of hepatic choristoma. The most generally accepted theory has suggests that it originates from an abnormal cranial migration or displacement of hepatic diverticulum during the 4th week of embryogenesis, which explains the location of these implants, usually adjacent to the liver.[3]

## CASE REPORT

We present the case of a 37 year old male who presented to the emergency department complaining of acute onset abdominal pain in the right upper quadrant, related to ingestion of deep fried foods, colicky in nature, which migrated to the back, and presented with nausea and vomiting, the patient reported it as a recurring pain, which happened whenever he ate fatty food or dairy. Laboratory findings reported neutrophil left shift and an increase in white blood cell count, liver function test reported no increase in bilirubin or hepatic or pancreatic enzymes. An upper abdominal ultrasound reported the presence of billiary sludge, with apparent microlithiasis, with a diffuse posterior wall and no evident thickening of the anterior or posterior gallbladder wall. A cholescintigraphy (HIDA 99 mTc scan) reported the presence of gallbladder dyskinesia with an ejection fraction of 19.7%, as well as a bilobulated image which appeared adhered to the gallbladder wall, which we suspected could either be neoplastic or a hepatic choristoma.

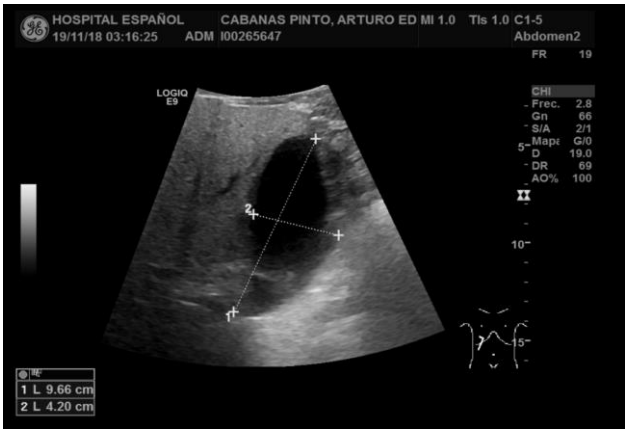


**Figure 1: Ultrasound image which revealed apparently normal gallbladder, with billiary sludge, no signs of acute cholecistytis.**

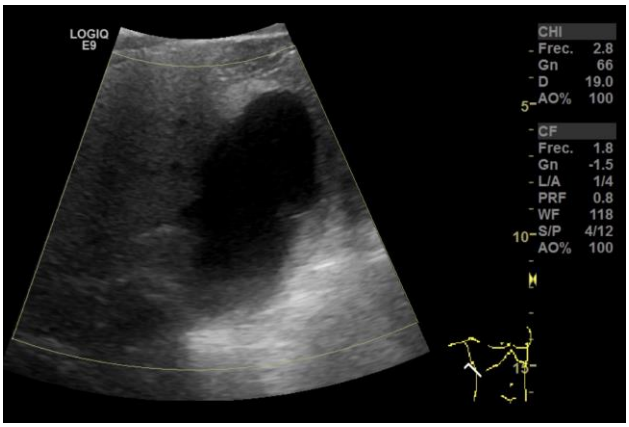


**Figure 2: Ultrasound image which revealed apparently normal gallbladder, with billiary sludge, diffuse posterior wall, with no anterior wall thickening.**

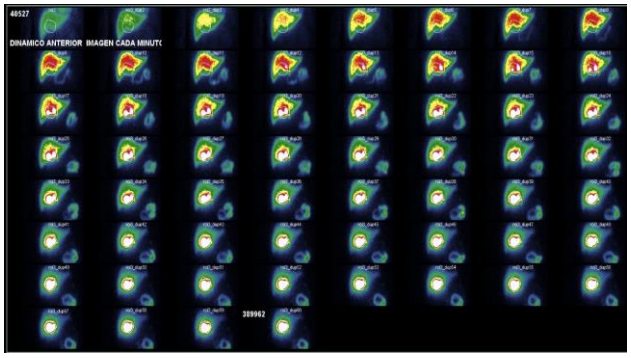

**Figure 3: HIDA scan (cholescintigraphy) revealing gallbladder dyskinesia with a reported ejection fraction of 19.7%.**

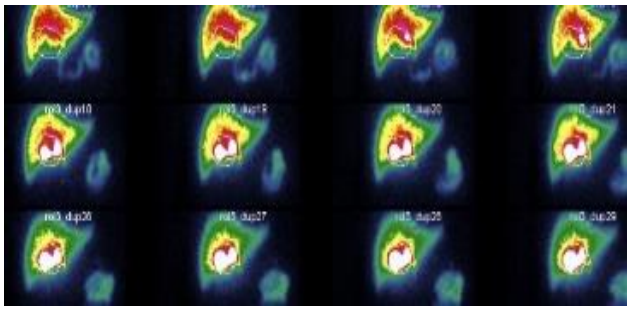

**Figure 4: HIDA scan (cholescintigraphy) revealing bilobulated image adhered to the anterior gallbladder wall.**

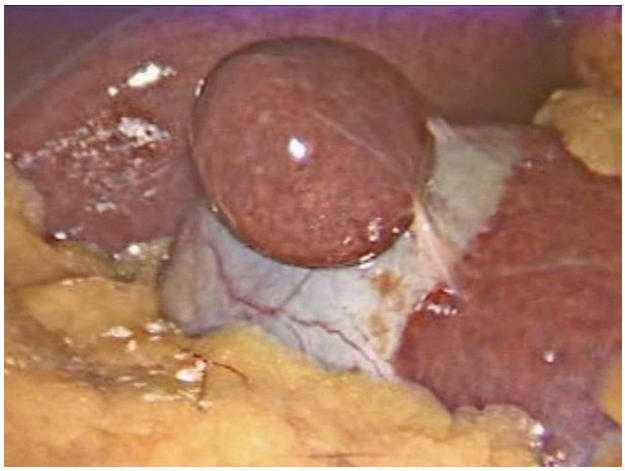

**Figure 5: Choristoma of the superoanterior gallbladder wall.**

The patient underwent laparoscopy, which revealed multiple adherences to the gallbladder wall as well as surrounding inflammatory liquid surrounding the gall bladder and the liver. Three 5 mm trocars were placed conventionally for cholecistectomy, and upon freeing adhesions to the gallbladder wall we encountered a 2.5×1.5 cms round mass adhered to the superoanterior gallbladder wall, and a 3.5×2 cms round mass adhered to Hartmann´s pouch, which appeared to be hepatic tissue, We decided to perform en bloc resection of the mass with

conventional cholecistectomy using harmonic ace scalpel for hemostasis, and extracting the gallbladder as well as the choristoma in an endobag through the umbilical port site.

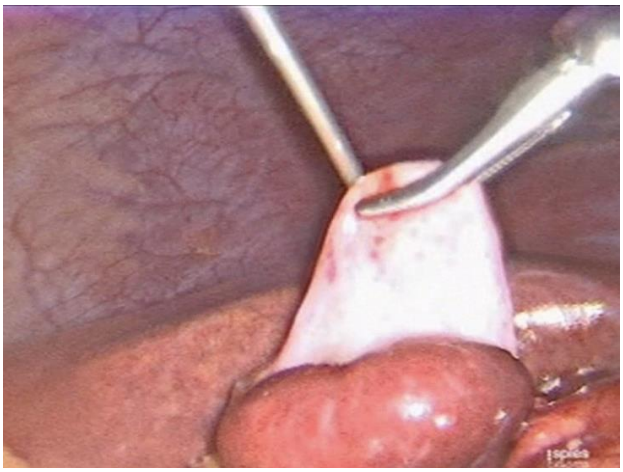

**Figure 6: Choristoma of the superoanterior gallbladder wall.**

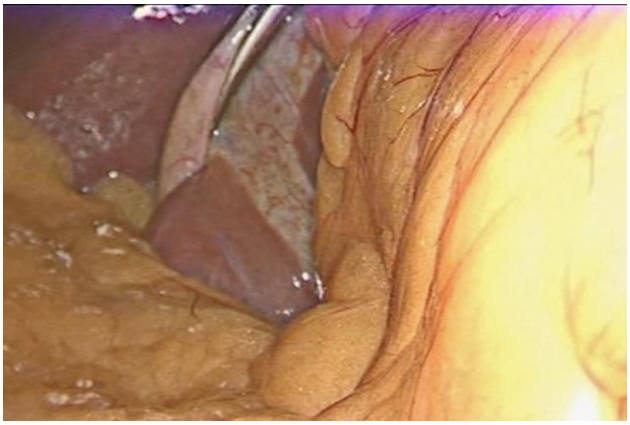

**Figure 7: Choristoma implanted in Hartmann´s pouch.**

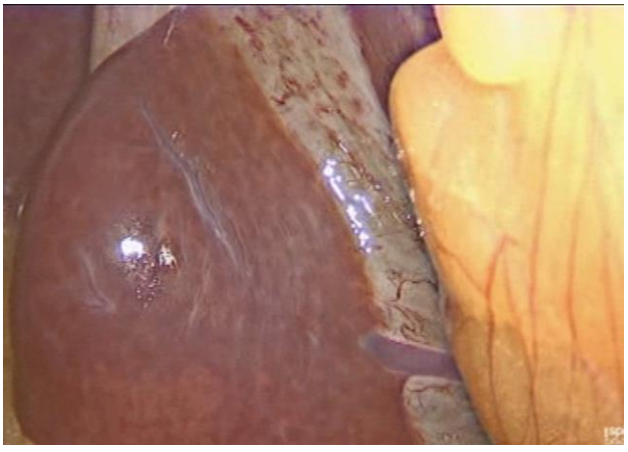

**Figure 8: Vascular pedicle of choristoma adhered to Hartmann´s pouch branching from the hepatic parenchima**

The patient had an uneventful post-operatory period. He was prescribed liquids 8 hours after the procedure and bland diet on the morning after. He was discharged 36 hours after surgery.

## DISCUSSION

Anatomic abnormalities of the liver can be classified as accesory hepatic lobules which communicate with the liver through normal hepatic tissue and heterotopic hepatic tissue or hepatic choristoma without vascular, biliary or parenchimal connection to the native liver, the latter being considered the least common of these abnormal implantations. These abnormalities are related to an alteration in cranial migration of hepatic liver during embryogenesis, which apparently occur during the fourth week of embryogenesis, when the liver and the biliary tract origin in the liver bud, and migrate towards the septum transversum.[4]

Smyth et al reported in 2015 an incidence of hepatic choristoma of 0.26% (2 in 7639 excised gallbladders analysed histopathologically Watanabe et al reported 5 cases of ectopic liver tissue in the anterior gallbladder wall in a review of 1060 laparoscopic cholecystectomies.[5,6]

Hepatic choristoma is usually asymptomatic, but can be associated with abdominal pain or portal hypertension, Preoperative detection of hepatic choristoma is rare, given that there is a general lack of knowledge of this entity by radiologists and because it is usually small and difficult to detect in conventional imaging studies like ultrasonography; it should be considered whenever a soft tissue mass is reported on the anterior gallbladder wall on imaging studies.[7] It has been reported that ectopic liver tissue is prone to developing hepatocellular carcinoma earlier and more frequently that mother liver (9 out of 70 reported ectopic hepatic tissue by Arakawa et al) apparently due to its lacking complete vasculature or ductal system which in return causes an impairment in its functionality and may lead to regional chronic inflammation or cirrhosis and eventually potential development of hepatocellular carcinoma.[8]

The increase in laparoscopic procedures has made detection of hepatic choristoma more frequent. When encountered, it should be removed en bloc with the diseased gallbladder and extracted preferably using a plastic bag. Upon histopathological examination if an invasive hepatocellular carcinoma is detected, the surgeon should consider completing hepatic margins of resection and lymphadenectomy.

## CONCLUSION

Hepatic coristoma is a rare condition that is seldom thought of and hence seldom detected preoperatively, but should be suspected intraoperatively whenever ectopic liver tissue is found. Given its proclivity to develop

hepatocellular carcinoma, histopathologic study and patient follow up should always be part of the management of this condition.

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