International Surgery Journal
Alaradi BM et al. Int Surg J. 2021 Feb;8(2):710-712
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: https://dx.doi.org/10.18203/2349-2902.isj20210100

Case Report

Gallbladder agenesis diagnosed intraoperatively complicated by common hepatic duct injury

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Received: 01 January 2021
Accepted: 15 January 2021

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ABSTRACT

Gallbladder agenesis is a rare congenital anomaly among biliary abnormalities, and its preoperative diagnosis has been considered very difficult. Gallbladder agenesis becomes symptomatic in almost 23% of cases mostly with symptoms mimicking biliary colic, which is poorly understood. Initial workup for suspected gallbladder diseases, such as abdominal ultrasound, can be misleading or inconclusive. Often it is misinterpreted as other diseases leading to unnecessary surgery. We reported a case of a 31-year-old Bahraini male presenting with recurrent symptoms, suggesting biliary colic. Abdominal ultrasound showed False-positive contracted gallbladder. The patient was then taken to the operative theater for laparoscopic cholecystectomy. Intraoperatively, the gallbladder could not be seen, and eventually the decision was made to converted to open surgery which was complicated by common hepatic duct injury. Gallbladder agenesis was confirmed postoperatively by magnetic resonance cholangiopancreatography (MRCP).

Keywords: Gallbladder, Aagenesis, Cholecystectomy

INTRODUCTION

Congenital absence of the gallbladder is rare among biliary abnormalities, which was reported for the first time in human beings by Bergman back in 17021,6,7. Its prevalence has been estimated to be around 9 per 10,000.[1] Gallbladder agenesis remains asymptomatic throughout a lifespan, and around 23% of patient can present with symptoms of right upper quadrant pain mimicking biliary colic.[2,3] Gallbladder develops from hepatic diverticulum during the fourth week of intrauterine life. Two buds can be recognized in the hepatic diverticulum; the caudal bud develops into superior and inferior buds. From the superior bud, the gallbladder and cystic duct appear. The pathogenesis is related to failure of embryonic development of the gallbladder and cystic duct to bud off from the superior bud.[4] Gallbladder agenesis may be associated with other system malformations such as gastrointestinal, genitourinary, cardiovascular, musculoskeletal or other congenital syndromes.[8] Most of the previously reported cases were unexpectedly diagnosed during surgery. Preoperative diagnosis includes imaging modalities that may be falsely interpreted (U/S, CT, ERCP, etc.).[5,6]

CASE REPORT

A 31-year-old Bahraini male presented with recurrent epigastric pain for two months. Abdominal ultrasound reported contracted gallbladder containing small gallstone. His laboratory testing was notable for an unremarkable basic metabolic panel, CBC and liver enzymes. Based on symptoms and the ultrasound, the decision made was for surgical intervention. The patient then underwent laparoscopy for planned cholecystectomy. During surgery, the gallbladder could not be identified in its normal anatomical location. The gallbladder fossa appeared empty. There were minor adhesions of duodenum and omentum to the deep surface of the liver. The decision was made to convert it to open

cholecystectomy. During open surgery, the gallbladder could not be identified as well. During the search for the ectopic gallbladder, the hepato-duodenal ligament was skeletonized and further exhaustive dissection was done, where the common hepatic duct was injured. An intra-operative cholangiogram revealed complete division of common hepatic duct with proximal right and left hepatic ducts, which shows to be intact and normal (Figure 1).

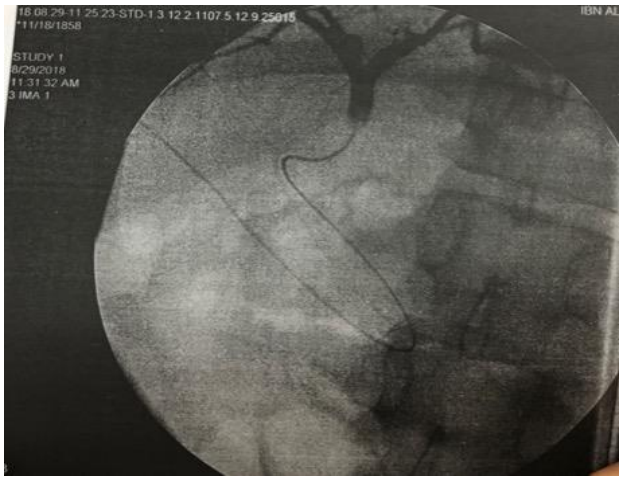

Figure 1: Intraoperative cholangiogram showing complete division of common hepatic duct with proximal right and left hepatic ducts safe and normal.

The common hepatic duct was drained using an umbilical catheter providing continuous drainage of liver secretions, and the distal end was ligated with prolene suture. The wound was closed and surgery was concluded, planning to repair the damage. Post operatively, MRCP shows complete division of common hepatic duct with empty gallbladder fossa (Figure 2).

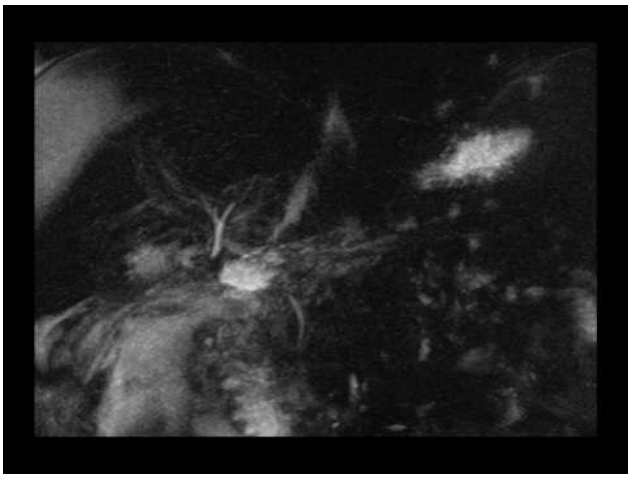

Figure 2: MRCP shows complete division of common hepatic duct with empty gallbladder fossa.

Later, the patient underwent a laparotomy and roux-en-Y choledocho-jejunostomy and jejunojejunostomy was performed. The post-operative period was uneventful and the patient was discharged from the hospital on seventh day post-operative. The patient did well and is asymptomatic with normal liver function two-year post-op.

DISCUSSION

Gallbladder agenesis is rare and congenital, with an incidence of 9 per 10,000. However, research papers based on the evaluation of autopsy material show increased incidence up to 90 per 100,000.[2,3,7] with a difference in frequency between females and males in a ratio 3:13.

For unclear reasons, despite the absence of a gallbladder, about 23% of patients are present with symptoms similar to biliary colic.[3,7] Some postulate that an associated sphincter of Oddi dysfunction may be the cause of biliary colic in these patients. In other cases, associated development of common bile duct stones may be the cause.[7]

The diagnosis of gallbladder agenesis is rarely deduced preoperatively. Approximately a quarter of patient with gallbladder agenesis demonstrate symptoms of biliary colic and consequently undergo an operation which is unnecessary due to the preoperative investigations that failed to demonstrate the exact diagnosis.[2,3]

It is important to consider the presence of this rare disease when we have inconclusive ultrasound findings, keeping in consideration that ultrasound is highly dependent not only on the operator, but also on other factors such as body habitus or presence of bowel gas obscuring visualization. Cases of gallbladder agenesis have been reported as 'contracted/fibrotic/sclerotic gallbladder' on ultrasound.[7]

Surgery in these patient is not without risk. If the gallbladder is not found in its normal anatomical location upon entry into the abdominal cavity, especially in patients where there is high index of suspicious of biliary disease, ectopic locations need to be explored.[3,10] The most common ectopic positions of the gallbladder are intrahepatic, retroplaced (retrohepatic or retroperitoneal), within the lesser omentum or falciform ligament.[10] It is easy to imagine how damage to the liver, biliary tree, hepatic vessels and adjacent bowel could result from this dissection as one searches for a gallbladder that does not exist increasing the risk of poor outcome.[2,3] Intraoperative cholangiogram can help to localize the ectopic gallbladder or any damage.[3]

according to the opinion of quite big number of surgeons if gallbladder could not be identified during laparoscopy there is no need to convert to open surgery, because laparoscopy allows performing a complete visualization of the abdominal cavity.[7,9] once gallbladder agenesis is confirmed, current treatment recommendations include conservative management with smooth muscle relaxant.

If conservative treatment fails, a sphincterotomy may be warranted.[2]

CONCLUSION

Gallbladder agenesis is a rare abnormality that can present with symptoms that mimic those of common surgical condition cholecystitis or biliary colic. Such cases can be diagnosed without the need for surgical intervention.

Clinicians should be aware of gallbladder agenesis when imaging studies is inconclusive. Once a surgeon encounters such situation, it is wiser to do nothing further in the operating theater and abort the procedure as the patient often is exposed to complications from prolonged exploration, and try then to establish the accurate diagnosis postoperatively with more advanced imaging modalities. MRCP is considered the test of choice if there is any suspicion.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Alaradi BM, Jawad AE, Patil DC. Gallbladder agenesis diagnosed intraoperatively complicated by common hepatic duct injury. Int Surg J 2021;8:710-2.