

A case of an absent gall bladder presenting as biliary colic in a tertiary care hospital in Karachi

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Abstract

Gallbladder agenesis is a rare congenital anomaly occurring in 10-65 per 100,000 populations with the incidence being more common in females with a ratio of 3:1. Although asymptomatic, some patients present with symptoms like biliary colic and often indistinguishable from common conditions leading to unnecessary surgery. A 19-year old woman presented to the hospital with epigastric and right upper quadrant pain, other signs and symptoms consistent with biliary colic. However, on laparoscopy gall bladder was absent. Ultra-sound of the abdomen is the preferred for gallbladder diseases but due to scarcity of reports on gallbladder agenesis, it is often misread due to periportal tissue and sub-phrenic folds often reported as gallbladder or calculi leading to unnecessary surgery. Agenesis, a rare anomaly, poses a diagnostic dilemma to surgeons as it is usually diagnosed during a laparoscopic cholecystectomy. Clinicians should keep in mind this entity when the gallbladder is poorly visualized on ultrasound and think of more detailed investigations such as Magnetic resonance cholangiopancreatography.

Keywords: Gallbladder Agenesis, Congenital Anomaly, Biliary Colic, Laparoscopic Surgery, Karachi.

Introduction

Gallbladder agenesis (GA), first described by Bergman in 1701, is a rare entity with an incidence of 10-65 per 100,000 populations being more common in females (3:1).¹ There are familial forms of GA but most cases are sporadic in origin and often associated with other congenital abnormalities, including those of the bile system characteristic of a defect in an embryonic development.^{2,3} Patients are usually asymptomatic but approx. one-fourth present with abdominal pain, dyspepsia, nausea and vomiting, intolerance to fatty foods which are indistinguishable from common biliary conditions.⁴

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Case Presentation

A 19-year old woman presented to Jinnah Postgraduate Medical Centre (JPMC), a tertiary care hospital, on 12th July 2017, with epigastric and right upper quadrant pain. According to the patient, she was in a usual state of health eight months prior when she developed abdominal pain. The pain was located in the epigastrium and right upper quadrant (RUQ), sudden in onset, stabbing in nature, aching in quality, and radiated to right shoulder, was aggravated by eating fatty food and relieved by analgesics. Associated symptoms included nausea and vomiting which followed the pain and was about half a cup in quantity, sometimes green in color without blood.

Her past medical history was notable for cystitis. She had no prior surgical history. She was just taking painkillers and had no known drug allergy. She was transfused one pint of packed cell volume after giving birth to a child. Her social history was notable for lack of tobacco, alcohol or illicit drug use. Her family history was not significant.

The patient presented to the outpatient department seven months after symptom onset and given concern for the biliary nature of her pain was evaluated by the surgical team. Her physical exam revealed a non-toxic appearance with normal vital signs and non-tender abdomen on palpation. She had multiple ultrasounds

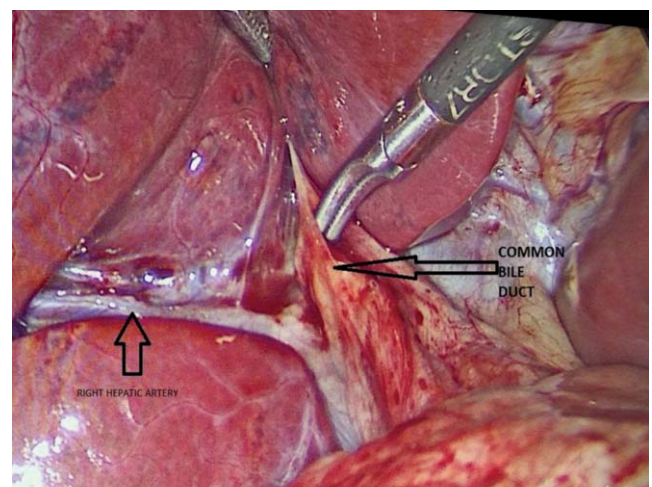


Figure: Laparoscopic image showing right hepatic artery, common bile duct, and other biliary structures but no gallbladder.

Table: Baselines.

Labs	Values	Labs	Values
Hemoglobin	13.3 g/dl	Serum Sodium	139 mEq/L
Hematocrit	38.9 %	Serum Potassium	3.5 mEq/L
M.C.V	87.2 fl	Serum Chloride	101 mEq/L
M.C.H	29.8 pg	Total Bilirubin	0.54 mg/dl
M.C.H.C	34.2 g/dl	Direct Bilirubin	0.08 mg/dl
RBC	4.46x10 ¹² /L	Gamma GT	25 U/L
Platelet	304x10 ⁹ /L	SGPT	53 U/L
WBC	13x10 ⁹ /L	ALP	154 U/L
Neutrophils	67%	Urea	28 mg/dl
Lymphocytes	26%	Creatinine	0.5 mg/dl
Eosinophils	04%	Prothrombin time	11.1 seconds
Monocytes	03%	INR	1.01

(US) done from different facilities whose reports showed the impression of a contracted gallbladder with multiple echogenic foci most likely being calculi. Her laboratory testing was notable for an unremarkable basic metabolic profile, Complete blood count, and liver enzymes as shown in Table.

Due to the presence of recurrent abdominal pain, the possibility of chronic cholecystitis could not be excluded and the patient underwent laparoscopic surgery for removal of the gallbladder. During laparoscopic cholecystectomy, gallbladder could not be identified but right and left hepatic duct, common bile duct was normal as shown in Figure which lead to a confusion whether the gallbladder is congenitally absent or is present intrahepatic.

Discussion

Agensis of the gallbladder, first diagnosed by Bergman in 1701, is rare in man occurring in 10-65 per 100,00 population. On autopsy, the incidence increases up to 90 per 100,000 population.¹ The condition is often misread by transabdominal ultrasonography as cholecystitis leading to unnecessary surgery as was the case with our patient.⁵

The pathogenesis is a relation to embryological abnormality happening in the 4th week of an embryological period of failure of a ventrocaudal bud to develop from the hepatic diverticulum, or failure of the gallbladder and cystic duct to recanalize.⁶

Authors have classified the cases into three groups. The first group consists of patients who are asymptomatic and are diagnosed on autopsy. The second group consists of patients who present with classic symptoms of cholelithiasis such as biliary pain, vomiting, dyspepsia and/or jaundice. The last group presents in childhood

with other abnormalities involving cardiovascular and gastrointestinal systems.⁷ Our patient had symptoms of biliary RUQ pain and vomiting, which is characteristic of cholecystitis.

US of the abdomen is the preferred modality for gallbladder diseases but due to scarcity of reports on GA, it is often misread due to periportal tissue and subphrenic folds often reported as gallbladder or calculi leading to unnecessary surgery as was the case with our patient whose US report showed contracted gallbladder with multiple echogenic foci most likely being calculi.⁸

As the radiological imaging for gallbladder has less than 100% sensitivity for identification of organ, diagnosis of GA is usually made during surgery. The surgeon must prove GA by examining the most common sites for ectopic gallbladder in detail which are intrahepatic, retro-hepatic, on the left side, within lesser omentum or within the falciform ligament, retro-duodenal, retro-pancreatic and retroperitoneal which increases the chances of iatrogenic injury.^{9,10}

MRCP (Magnetic resonance cholangiopancreatography) can help prevent unnecessary operation by evaluating the biliary tract and providing precise anatomical details excluding ectopic gallbladder but unfortunately, due to lack of resources in our country, MRCP was not advised and CTS (Computed Tomography Scan) was done whose report showed absence of the gallbladder and the diagnosis of GA was made.¹⁰ The patient is doing well on conservative treatment with antispasmodics.

Limitation and Conclusions

GA, a rare anomaly, poses a diagnostic dilemma to surgeons as it is usually diagnosed during a laparoscopic cholecystectomy. Patients are usually operated because of incorrect interpretation of gallbladder on US which reveals a contracted / Scleroatrophic gallbladder. It is important to mention however that since our hospital is a government funded hospital, we are short on resources and the US operator writes down his/her impression of the US in a report which does not contain the printed images for the consultant or surgeon to have a second look at and perhaps prompt them to recommend another imaging modality like a CTS before operating. Lack of availability of US images may be a potential limitation in this educational case report never the less with the lack of reported cases on GA it is essential to raise awareness for it and share our experience of dealing with it.

Clinicians should keep in mind this entity when the gallbladder is poorly visualized on US and think of more detailed investigations such as MRCP which cannot

replace US but can represent a complementary study to inconclusive US studies, allowing a preoperative diagnosis of GA and avoiding unnecessary surgeries.

Informed consent was taken from the patient about writing a case report on her case and she was assured that her identity will not be revealed. The patient approved her case being used for research publication.

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