



## CONGENITAL AGENESIS OF GALL BLADDER: A RARE CASE WITH REVIEW OF LITERATURE

### General Surgery

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### ABSTRACT

Gallbladder congenital agenesis is an uncommon biliary system abnormality. It happens as a result of embryologic abnormality during the hepatobiliary system's development. Bergman initially described the uncommon condition known as agenesis of gallbladder (AGB) in 1702. We report a 24-year-old male patient whose congenital gall bladder agenesis was discovered by chance during a laparoscopy. On the basis of clinical presentation and ultrasound finding diagnosis of symptomatic cholelithiasis was made and patient was planned for laparoscopic cholecystectomy. After introducing the laparoscope, gall bladder was absent and procedure was abandoned. Magnetic resonance cholangiography was done after procedure and congenital agenesis of gall bladder was confirmed. Here we describe the diagnostic difficulties and review of literature of this rare condition.

### KEYWORDS

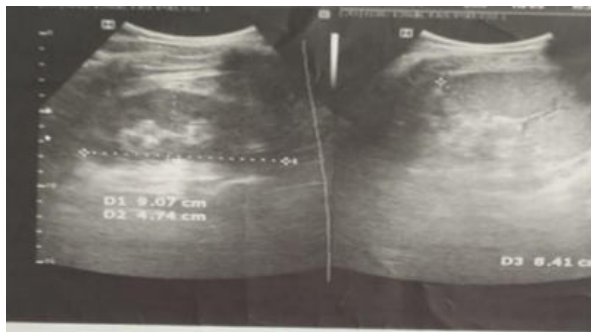
Gall bladder agenesis, Biliary tract anomalies, Congenital malformation of hepatobiliary system.

### INTRODUCTION

Congenital agenesis of gall bladder is a rare Disorder due to failure of development of cystic Duct in 4th week of intrauterine life, seen in approximately 0.01 to 0.04 patients.[1] First case was reported in human in 1702 by Bergman. In 1890 Courvoisier described 25 cases of gall bladder agenesis. [2] The cause of gall bladder agenesis is unknown; it occurs sporadically in around 70% of instances. Gall bladder agenesis has two possible explanations. One is the failure of the foregut's hepatic diverticular bud to mature into the gall bladder and cystic duct. There is another possibility that the gall bladder and cystic ducts have failed to recanalize. It is usually associated with other congenital malformations (extrahepatic bile duct atresia, absence of quad-rate lobe, cardiovascular anomalies) [4] . About 25% of the patient present with pain and discomfort in right upper quadrant suggestive of symptomatic cholelithiasis of cholecystitis [5]. We report the case of 24-year male with isolated finding of gall bladder agenesis.

### Case Presentation

A 24-year male presented to our hospital with complain of right upper abdominal pain and discomfort from 6 months. On physical examination vitals were normal and mild tenderness present in right hypochondrium. An abdominal ultrasound was performed suggesting "contracted gall bladder with multiple calculi of size 2 to 3 mm" [figure 1].



**Figure: 1**

Laboratory tests, including PT-INR, liver and kidney function tests, full blood counts, and random blood sugar checks. Chest X-ray and ECG testing were conducted. A planned laparoscopic cholecystectomy was made in response to these clinical manifestations and radiological confirmation of cholelithiasis syndrome. Under general anesthesia, pneumoperitoneum was created after inserting Veress needle through infraumbilical incision, laparoscope was inserted other ports were created, liver retracted and there was no visualization of gall bladder.

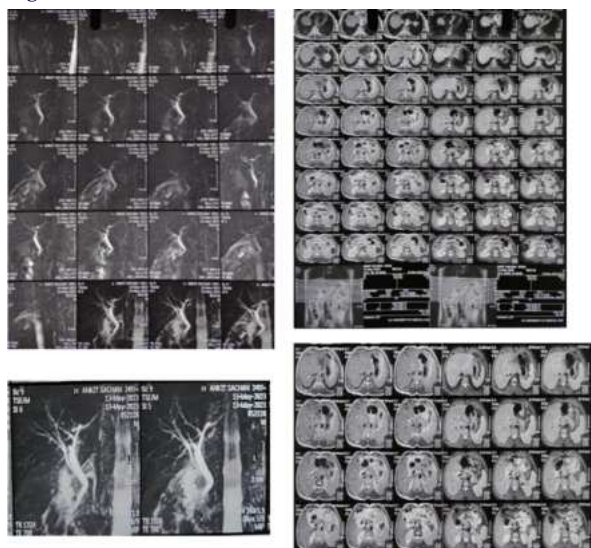
The CBD was located and observed moving from the porta hepatis to behind the duodenum [figure 2]. The falciform ligament, the smaller sac, the posterior inferior surface of the liver, the left lobe of the liver, the ectopic gall bladder, the retroperitoneal, the retrohepatic, and the retroduodenal regions were all carefully searched, but to no avail. Our facility did not have access to endoscopic ultrasonography or intraoperative cholangiography. Based on the surgical results, a diagnosis of gall bladder agenesis was determined, and the treatment was stopped.



Figure: 2



Figure: 3



On Post Operative Mrcp – Gall Bladder Was Not Visualised

## DISCUSSION

Congenital agenesis of gall bladder is a rare anomaly reported in (0.007–0.027%) patients undergoing cholecystectomy.[6] Fewer than 400 cases [7] are documented worldwide. There are 3 group of patients described by Bennion et al [8] First the symptomatic group (50%) patient of age 4th and 5th decades present with symptom of right upper quadrant pain (90%), nausea and vomiting (65%), fatty food intolerance (36%), dyspepsia (30%), jaundice (35%) [9] [10]. Second group include asymptomatic AGB [35%] discovered at laparotomy for unrelated cause, identified on autopsy, screening of family members of AGB. Third group includes patients with multiple congenital anomalies such as absence of quadrate lobe of liver, tracheoesophageal fistula, imperforated anus, cardiovascular and central nervous system anomalies, these patients are mostly incompatible with life. Symptom of acute cholecystitis or cholelithiasis in AGB patient is due to biliary dyskinesia and increased pressure of sphincter of Oddi resulting into increase in pressure in common bile duct. There is another possible mechanism of pain due to adhesion in gall bladder fossa and periportal region with during laparoscopy were lysed and symptoms were alleviated [11] The pre operative diagnosis of agenesis of gall bladder is challenging and most diagnosis are made during laparoscopy. In our case two ultrasound report of patient were present suggesting

contracted gall bladder with multiple calculi. It was on laparoscopy agenesis of gall bladder was established after carefully inspecting sites of ectopic gall bladder i.e., within lesser omentum, intrahepatic, retro hepatic, retroperitoneal, falciform ligament [12][13]. Intra operative cholangiogram and endoscopic ultrasound was not available at our center so further intraoperative findings were noted and procedure was terminated. Few surgeons convert into open procedure to establish diagnosis of gall bladder agenesis.[14][15] It was wise to remain at simple laparoscopy and not to convert into open procedure and do extensive dissection and result into bile duct injury rather abandon the procedure and do post operative MRCP to establish Agenesis of gall bladder. Pre-operative MRCP should be used to confirm the diagnosis in cases when the radiological assessment of the gall bladder based on USG (95–98% sensitivity) shows either constricted gall bladder or non-visualization of the gall bladder. In individuals with choledocholithiasis and gallbladder agenesis, ERCP should be performed. There were some pre operative diagnosed case of agenesis of gall bladder and operations were avoided.[16][17][18].

## CONCLUSION

Agenesis of gall bladder is a condition diagnosed most commonly during operation. In case of diagnostic dilemma on USG further investigation with MRCP should be done. In case of intraoperative diagnosis of agenesis of gall bladder, diagnostic procedure such as intraoperative cholangiography and endoscopic ultrasound should be preferred over converting into open to prevent biliary duct injury. Post operative MRCP should be done.

**Conflict of Interest:** The authors confirm there are no conflicts of interest.

**Funding:** The study did not receive any financial support.

**Consent:** Written informed consent was obtained from all participants and securely archived.

**Ethical Approval:** The study received ethical clearance, adhering to the required institutional protocols.

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