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Case Report

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Incidental Intraoperative finding of a True Left-Sided Gallbladder during Cholecystectomy: Case report

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Abstract

Background: True left-sided gallbladder (LSG) is a rare congenital anomaly in which the gallbladder is located to the left of the ligamentum teres without situs inverses. Its reported incidence ranges from 0.2% to 1.1%, and it is often associated with biliary and vascular anatomical variations that may complicate cholecystectomy. Preoperative diagnosis is uncommon, with most cases identified incidentally during surgery.

Case Presentation: A 45-year-old male presented with colicky right upper quadrant pain and nausea. Ultrasonography revealed cholelithiasis with a 12 mm gallstone, while laboratory investigations were normal. During laparoscopic cholecystectomy, the gallbladder was unexpectedly found to the left of the ligamentum teres, confirming a true LSG without situs inverses. No significant biliary or vascular anomalies were identified. Cholecystectomy was successfully performed using the standard four-port laparoscopic technique, and the patient had an uneventful postoperative recovery and was discharged on the second postoperative day.

Conclusion: True LSG is an uncommon anatomical variation that may pose intraoperative challenges and increase the risk of biliary injury. Surgeons should be aware of this anomaly when the gallbladder is not visualized in its normal position. Careful dissection and identification of biliary anatomy allow safe laparoscopic management, and a standard laparoscopic approach remains feasible in most cases.

Keywords: Left sided gall bladder; Situs-Inverses; Cholecystectomy; Ligamentum teres; Laparoscopy; Biliary system.

Introduction

Left sided gall bladder is a rare anomaly with reported incidences of 0.2 to 1.1%. Normally gallbladder is present in gallbladder fossa between hepatic segments 4 and 5. LSG is defined as gallbladder located to left of ligamentum teres [1]. There are three recognised varieties of LSG; LSG with situs inverses, an ectopic left sided gallbladder(true LSG) and gallbladder located on the left of abnormally located right sided ligamentum teres.

True LSG is the most common type of LSG without situs inverses. In true LSG gallbladder is positioned to the left of a ligamentum teres and falciparum ligament under the surface of left lobe of liver [2]. There are several theories pertaining to the embryological origin of true LSG. According to one theory, gallbladder develops from the hepatic diverticulum at its normal site, however it's gets attached to the developing lobe of liver results in migration of gallbladder to the left lobe [2], which results in a long cystic duct that crosses

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hepatic duct from left to right and joins the common hepatic duct at its right side. According to second theory,

A second gallbladder develops directly from the left hepatic duct with regression of main gallbladder. In such cases, a cystic duct either drains into the left hepatic duct or joins the common bile duct from the left side.

This anomaly is not always detected by imaging studies or clinical examination [3,4]. The presentation of true LSG is similar to that or normally positioned gallbladder. In most cases it is discovered incidentally during surgery and is accompanied by anatomic variations that can prove quite challenging during cholecystectomy.

Case Report

A 45 year old male patient presented to department of general surgery with chief complaint of colicky pain in right upper quadrant associated with nausea from last few weeks. There was no history of fever,jaundice and weight loss,and family history was unremarkable. He had no history of medical illness, allergies or any previous surgery. On physical examination abdomen was soft and non tender, Murphy sign negative. Complete blood count, liver and renal function tests were normal. An abdominal ultrasound scan showed an echogenic focus measuring 12mm, with cholelithisis. CBD was normal in caliber no calculus seen in it. So laparoscopic cholecystectomy was scheduled. On exploration the gallbladder was not visualised in it's normal anatomical position on the right side.

It was found that gall bladder was towards the left side of falciparum ligament as shown in figure 1. No anomalies of biliary tree were observed. Situs inverses was not present confirming the diagnosis of true LSG. Standard four port technique was used for cholecystectomy [figure 2]. The patient remained well with no post operative complications. The patient was discharged on second day without any complaints.

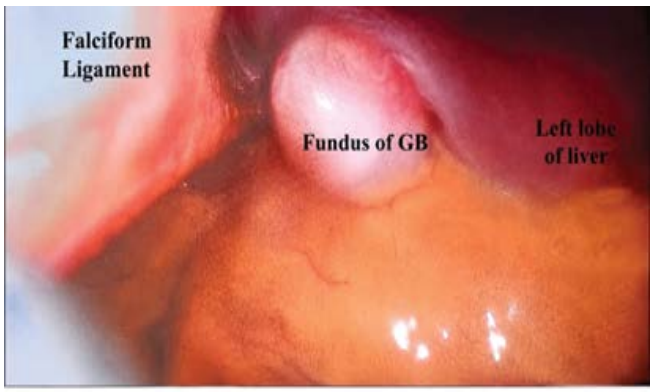

Figure 1: Showing gall bladder to left of falciparum ligament.

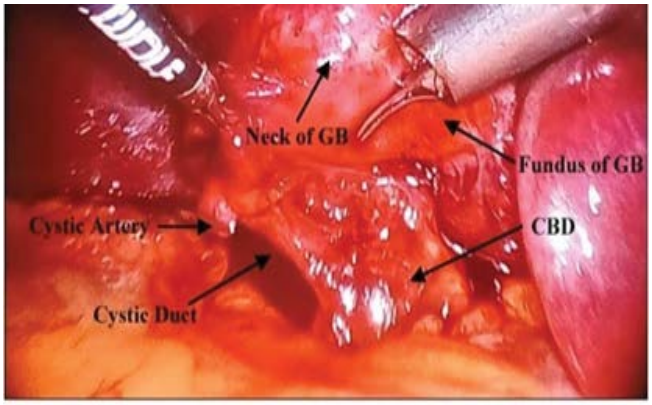

Figure 2: Showing cystic artery which is clipped and cystic duct entering into CBD.

Discussion

Among wide range of biliary anatomical variations, LSG is a rare variation with reported incidence ranging from 0.2 to 1.1% [2]. Since the first published case in 1866 fewer than 150 cases have been reported in literature [5]. Retrospective study of published cases 1966 to 2014 Abongwa et.al reported 55 cases of LSG without situs inverses [6,5].

Normally gall bladder is located between liver segment 4b and 5.Sinis troposition (true LSG) it is located to left of falciparum ligament between 4b and 3. The etiology could be either migration of nascent gall bladder to the left of falciparum ligament or duplication of gall bladder with regression of right sided gallbladder. Mediposition (false left sided gallbladder) the etiology could be atrophy of normal left dominant falciparum ligament, creating and illusion of left sided gallbladder due to right dominant falciparum ligament [5-8]. According to literature LSG is associated with biliary tract and vascular anomalies in 60% of the patients. These include anomalies of portal veins,hepatic vein and hepatic artery [9,10]. Further variation in portal system have been noted to include a left lateral portal vein lacking an umbilical portion; as well as right umbilical portion forming after branching of left lateral portal vein [9]. No vascular anomalies were observed in patient discussed in presented case,other than cystic artery coursing anterior to common bile duct from right to left.

Gallbladder malposition does not affect the visceral pain fibers causing right sided symptoms as reviewed by Iskander et al. [7]. Our patient presented with right upper quadrant symptoms and ultrasonography was not able to detect left sided position of gallbladder. Preoperative imaging studies such as computed tomography or magnetic resonance imaging, can aid in diagnosing true LSG.However most cases are discovered intra-operative.

So there is higher risk of operative injury to bile duct. Several studies have shown the modification of laparoscopic

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ports as change in the position [8]. The sub xhiphoid port to the left of falciparum ligament, left sub costal and left anterior axillary port during laparoscopic removal of LSG.

Conclusion

True LSG is a significant and rare anomaly which when encountered during surgery can present significant risk and challenges. Incidental findings of true LSG during cholecystectomy should not preclude a laparoscopic approach. It requires meticulous dissection and advanced surgical skills to perform a safe cholecystectomy and avoid inadvertent biliary injury. Although modification to the laparoscopic technique will help in safe removal of gall bladder, a standard laparoscopic approach is feasible in most cases, conversion to open surgery may be considered if the biliary anatomy cannot be clearly identified or some other complications arises.

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