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Case Report

Laparoscopic cholecystectomy in an unsuspected left sided gallbladder: a rare case report with review of literature

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ABSTRACT

Left sided gallbladder (LSG) is a very rare clinical entity and most are diagnosed at operation. The patients usually present with features of biliary colic or pain in the right upper abdomen similar to normally positioned gallbladder. Ultrasonography is not a good diagnostic modality for diagnosing LSG and CT scan is better for the pre-operative diagnosis of the condition. Laparoscopic cholecystectomy can be done in patients with LSG and antegrade or fundus first technique is usually advocated.

Keywords: Gallbladder, Left sided, Aberrant, Laparoscopic cholecystectomy

INTRODUCTION

Left sided gallbladder (LSG) with no situs inversus is a very rare clinical entity and defined as a gallbladder located on the left side of round ligament or ligamentum teres.[1] About 211 cases have been reported in the literature since its first description by Hochstetter in the year 1886.[2] The reported incidence of LSG in literature ranges from 0.2 to 1.1%.[3]

Three variants of LSG have been described in literature: i) LSG seen in patients with situs inversus, ii) true LSG where the gallbladder is positioned in between segments III and IV of liver to the left of falciform ligament and iii) gallbladder situated to left of an abnormally located right-sided round ligament.[4] LSG without situs inversus is usually discovered incidentally during surgery.[1] True LSG even though a very rare entity, is the most common type in patients without situs inversus.[1]

CASE REPORT

A 31-year-old male patient presented to surgery department with complaints of pain in the right upper abdomen off and on since the last 1 month with dyspepsia. Clinically, no tenderness could be elicited. Abdominal ultrasonograpphy revealed multiple gallstones with normally thickened gallbladder wall with no pericholecystic collection. Patient was taken up for routine laparoscopic cholecystectomy. After insertion of telescope, gallbladder found to be situated in segment 3 of liver to left of falciform ligament. Dissection was started from fundus first as it was difficult to delineate Calot's triangle. After careful gradual dissection, cystic duct joining common bile duct was identified, clipped and cholecystectomy performed (Figure 1).

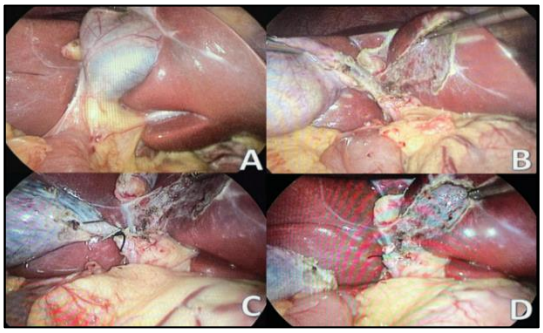

Figure 1 (A-D): Gallbladder in segment 3 of liver being dissected by fundus first.

The subxiphoid working port was inserted in the left hypochondrium in the mid clavicular line. The other two ports were also put more medial than usual (Figure 2). Patient was discharged on second postoperative day uneventfully and is doing well till 3 months of follow-up.

Figure 2: Modified port position for laparoscopic cholecystectomy in left sided gallbladder.

DISCUSSION

The exact pathogenesis of LSG is unknown. However, it is postulated that the gallbladder may arise in its normal position from the hepatic diverticulum; but it migrates to the left lobe due its attachment to the developing left lobe. According to another hypothesis, the gallbladder may originate directly from the left hepatic duct with the resultant regression of the main gallbladder.[5]

LSG may be associated with various anomalies like partial or complete situs inversus, anomalous intrahepatic portal venous branching, congenital liver cysts, atrophy of segment IV, duplication of gallbladder, bile duct hypoplasia, and anomalous pancreatobiliary duct junction. The cystic duct may join the common bile duct to its left or right side or sometimes may join the hepatic duct directly. The cystic artery usually originates on the right side of the CBD and courses in front of the bile duct to the left to supply the gallbladder with a long course.[6,7]

Preoperative diagnosis of true LSG is very challenging and 81.1% of LSG is usually detected at surgery.[8] Clinical presentations usually mimic a normally positioned gallbladder as 75% of patients present with pain on right upper quadrant of abdomen as the initial symptom.[1]

Ultrasonography has a very poor positive predictive value of 2.7% to diagnose LSG pre-operatively. However, CT scan with a positive predictive value of 60% is the investigation of choice to diagnose LSG pre-operatively.[8]

Laparoscopic cholecystectomy is not contraindicated in patients with LSG and antegrade or fundus first technique is advocated in such patients as the Calot's triangle lies in a vertical and anterior position in relation to the hepatic pedicle.[9] However, the trocar positions in patients with LSG may be different if diagnosed pre-operatively or intra-operatively after inserting the camera intra-peritoneally. The sub-xiphoid trocar may be placed to the left of round ligament in the left subcostal or left anterior axillary line.[5] In the present case, the epigastric working port was placed in the left hypochondrium and the other two 5 mm ports for the fundus and neck of the gallbladder were placed more medially than usual.

Laparoscopic cholecystectomy may require to be converted to open surgery in difficult cases with true LSG. Velimezis et al in their series of seven cases of true LSG for laparoscopic cholecystectomy, two patients had to be converted to open surgery due to associated dense adhesions and cystic artery bleeding.[10]

Due to the associated anomalies of the biliary tree and portal venous anatomy, a higher incidence of biliary injury (up to 7.3%) has been noted in patients with LSG undergoing cholecystectomy.[1] To prevent unwarranted complications, Banchini et al have suggested for safety criteria during cholecystectomy in the form of fundus first technique and to isolate Calot's triangle by dissecting along the edge of the gallbladder.[2]

Performing hepatectomy is also very challenging in patients with LSG due to its associated anomalies especially in cases for living donor liver transplantation.[11]

CONCLUSION

LSG is a very rare entity and is diagnosed mostly during surgery for biliary symptoms. There is increased risk of biliary injury during surgery for patients with LSG due to anterior displacement of Calot's triangle in front of hepatic pedicle. Antegrade dissection by fundus first method with gradual isolation of Calot's triangle along the gallbladder edge is usually recommended while performing cholecystectomy in patients with LSG.

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