Indian J Surg (March–April 2012) 74(2):186–188
DOI 10.1007/s12262-011-0261-2

CASE REPORT

Left-Sided Gallbladder Discovered During Laparoscopic Cholecystectomy in a Patient with Dextrocardia

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Received: 29 January 2009 / Accepted: 13 July 2009 / Published online: 19 April 2011

Abstract Left-sided gallbladder, a rare congenital anomaly, is often associated with transposition of single or multiple viscera of thorax and/or abdomen. Clinical features and routine presurgical ultrasonography could miss the anomalous position thereby producing unnecessary anxiety during surgery. Here we are reporting a patient with left-sided gallbladder, known to have dextrocardia with multiple intracardiac anomalies, and detected incidentally in a series of 1258 consecutive laparoscopic cholecystectomies. Laparoscopic cholecystectomy was performed successfully in this patient with port site modification and careful dissection. Some degree of abdominal visceral situs inversus is to be anticipated in patients with dextrocardia

Keywords Dextrocardia · Left-sided gallbladder

Introduction

Left-sided gallbladder is an uncommon congenital anomaly and is often associated with transposition of single or multiple viscera of thorax and/or abdomen. The sign and symptoms could be misleading and routine pre-surgical ultrasonography might miss the diagnosis. In such a situation the surgeon encounters unexpected technical complexity during an electively scheduled laparoscopic cholecystectomy. Here we report a case of Left-sided gallbladder discovered during laparoscopic cholecystectomy in a patient known to suffer from dextrocardia with multiple intracardiac anomalies. Between March 2005 and December 2008, we have performed 1258 consecutive laparoscopic cholecystectomy and this is only case of left-sided gallbladder that we have encountered.

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Case Report

A 17-year-old boy was referred by the Cardiologist with history of upper abdominal pain and dyspepsia for the last 6 months. This was not associated with jaundice or fever. Abdominal examination was unremarkable. In the past, he had undergone Blallock-Taussig shunt surgery at the age of 3 month followed by fenestrated Fontan operation at the age of 15 year for corrected-transposition of great arteries, ventricular septal defect, and pulmonary stenosis associated with dextrocardia. Pre-surgical routine blood investigations, including liver function tests, were within normal limits. Abdominal ultrasonography revealed multiple gall stones with a normal caliber bile duct. A chest X-ray demonstrated dextrocardia with the gastric bubble on the left side (Fig. 1). Electrocardiogram showed sinus rhythm while echocardiogram reported right to left flow through fenestration with a gradient of 10 mmHg and moderate ventricular systolic dysfunction. With this background he was planned for elective laparoscopic cholecystectomy. Initial laparoscopy revealed that the gallbladder was on the left of the falciform ligament and attached to the under surface of the left lobe of liver (Fig. 2). Spleen, stomach, liver and colon were seen in their normal anatomical positions (Fig. 3). Faced with this anatomical aberration, the laparoscopic imaging system was shifted to the left of the patient while the surgeon changed position and came to the right side. Appropriate ports were introduced on the left upper quadrant and an additional 5 mm port was created in the right sub-costal area to lift the falciform ligament. Careful dissection of Calot's triangle revealed a short cystic duct arising from the right side of hepatic duct, while the cystic artery originated

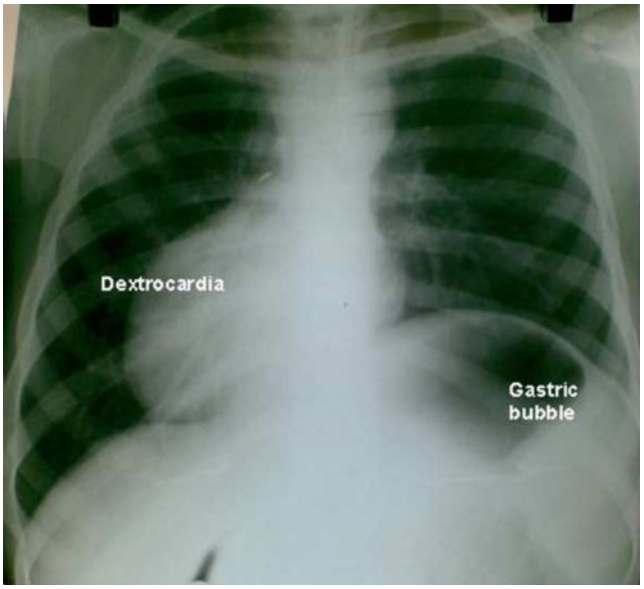

Fig. 1 Chest X-ray shows dextrocardia and normally positioned gastric bubble

from right hepatic artery. Subsequently cholecystectomy was performed in the routine manner.

Discussion

Left-sided gallbladder usually constitutes a part of the spectrum of the rare congenital anomaly situs inversus totalis, in which all the thoracic and abdominal viscera are transposed in a mirror image position. However, isolated presence of left-sided gallbladder with dextrocardia is a rare entity.

Left-sided gallbladder is described as attachment of gallbladder to the undersurface of the left lobe of the liver

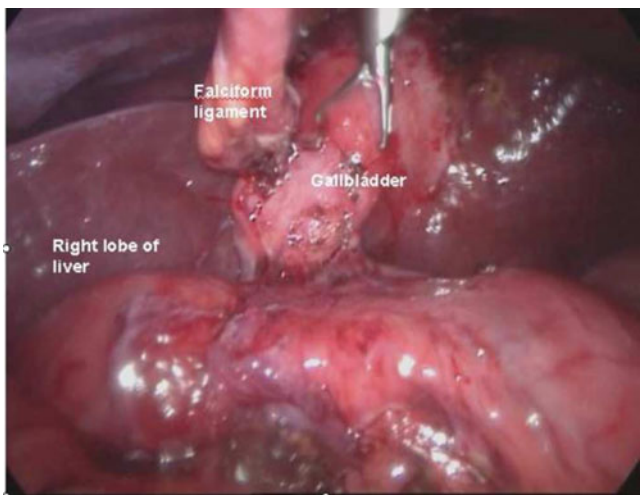

Fig. 2 Photograph shows attachment of gallbladder to the undersurface of left liver and left to the falciform ligament

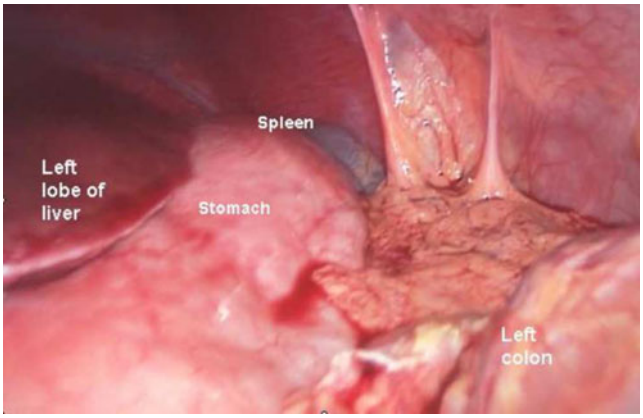

Fig. 3 Photograph shows normally positioned viscera

and left of the interlobar fissure and round ligament. Similar was found in this patient. This need to be differentiated from the anomalous right-sided round ligament, which is the persistence of right umbilical ligament. Presence of right-sided round ligament causes normally situated gallbladder to be located on its left-side [1]. Etiology of Left-sided gallbladder is attributed to either migration of gallbladder to the left side or development of a second gallbladder with atrophy of the original one [1]. Such an anomalous position of gallbladder may be associated with complete or partial situs inversus, duplicated gallbladder, hypoplastic bile duct, abnormal portal venous branching, abnormal pancreatico-biliary duct junction and other congenital anomalies of liver, testis, urinary bladder and abdominal wall [2]. But, in this patient, dextrocardia with multiple intracardiac anomalies was the only associated abnormality. On the other hand, as some degree of abdominal situs inversus is to be expected with dextrocardia [3], the surgeon has to be cautious while performing laparoscopic cholecystectomy.

Interestingly, clinical presentation may not differ markedly from their normal counterparts. Pain may be felt over the right upper abdomen because central nervous system do not transpose. Moreover, routine upper abdominal ultrasonography may not be able to specify the left-sided position of gallbladder. In one report of six cases of left-sided gall bladder, preoperative diagnosis was made only in one patient despite abdominal ultrasonography and selective cholangiography prior to surgery [4]. Such has been our experience with this patient and there are similar reports of left-sided gallbladder being diagnosed only during surgery [4–6]. Performing laparoscopic cholecystectomy in such unsuspected patients is technically demanding and warrants a vigilant dissection. As the left-sided gallbladder lies very close to the falciform ligament, this structure significantly obscures the operative field. Modification of port placement and introducing strategic port to lift the falciform ligament facilitates successful laparoscopic cholecystectomy [4].

Conclusion

Some degree of abdominal visceral situs inversus is to be expected in patients with dextrocardia. Left sided gall bladder is a rare entity and could be missed by preoperative ultrasonography.

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