CASE REPORT

Laparoscopic Cholecystectomy in Situs Inversus: Report of Two Cases

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Abstract:

Situs inversus is an uncommon condition. Two patients with symptomatic gallstones with situs inversus underwent laparoscopic cholecystectomy. One patient presented with features of acute cholecystitis and the other with chronic dyspepsia. The surgeon stood on the right side of the patient and the monitor was placed on the other side. Port sites were exactly mirror image of the standard laparoscopic cholecystectomy. Per-operative and post-operative courses of both of the patients were uneventful. Laparoscopic cholecystectomy in situs inversus seems to be safe provided it is performed by an experienced laparoscopic surgeon. Little bit of dexterity would be advantageous.

Introduction:

Now a days laparoscopic cholecystectomy is a common surgical procedure. Since laparoscopic cholecystectomy has become the standard procedure for the treatment of gallstone disease, several cases have been reported in patients with situs inversus having successful laparoscopic cholecystectomy. Occasionally, patients with undiagnosed situs inversus present with acute cholecystitis. As the laparoscopic procedure is associated with reduced hospital stay, fewer respiratory complications, less pain and a faster return to work, it should be the procedure of choice for all cases of gallstone disease even if they are associated with situs inversus[1]. Experiences with successful laparoscopic cholecystectomy in two cases of situs inversus are presented here.

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Case - 1:

A 32 year female presented with severe epigastric pain. She had history of dyspepsia for long time. On examination, she was neither icteric nor febrile. The apex of the heart was palpable in the right fifth intercostal space; she had tenderness in the left upper quadrant. White cell count and amylase level was within normal limit. The electrocardiograph showed right axis deviation. An ultrasound (USG) of the upper abdomen showed thick walled inflamed gallbladder with stones in the left hypochondriac region. The spleen was in the right side. Chest X-ray confirmed the clinical and electrocardiographic diagnosis of dextrocardia. The diagnosis of acute cholecystitis with situs inversus was confirmed. The patient underwent laparoscopic cholecystectomy and recovered uneventfully and was discharged on the third postoperative day.

Case - 2:

A 41 year female presented with distressing dyspepsia. She was a known case of situs

inversus and cholelithiasis was diagnosed with USG. Her all other parameters were within normal limits. Endoscopy of upper GIT was also normal. Laparoscopic cholecystectomy was subsequently done and the patient made an uneventful recovery.

Methods:

With the patient supine and head end raised with little right tilt the surgeon stood on the right side with the video monitor at the other side of the patient. Two 10-mm ports were placed in the usual positions with the epigastric port tip entering through the left side of the falciform ligament. Two 5-mm ports were placed in the left midclavicular and left anterior axillary lines. Lateral dissection of the gall bladder near the neck was carried with the right hand through the midclavicular port. Subsequent Callot's triangle dissection was carried out by the left hand and the right was used to hold the neck. The Callot's triangle dissection took extra time and was more difficult than in patients with a normally sited gallbladder. The cystic artery and the cystic duct were dissected, clipped separately and divided. Two procedures were carried out uneventfully.

Discussion:

Despite the fact that Aristotle considered transposition of viscera as a punishment from the Gods, this situation, if not associated with other severe anomalies, permits a normal life and sometimes it remains unknown. In 1600, the first known case of situs inversus in humans was reported by Fabricius[2]. The incidence is found to be in the region of 1:5000 to 1:20000 in various serieses[3]. Sato et al reported higher incidence of 0.2% situs inversus after laparoscopic observations in 1802 consecutive patients. The condition may affect the thoracic organs, abdominal organs or both. It is associated with a number of other conditions such as Kartagener's syndrome (bronchiectasis, sinusitis, and situs inversus) and cardiac anomalies[4]. There is no current evidence that situs inversus predisposes to cholelithiasis[5]. Situs inversus can be partial or complete, and the topography of pain in both acute appendicitis and cholecystitis can be confusing in such patients. This type of event is still unexplained and can lead to diagnostic confusion[6]. The first patient presented with acute cholecystitis. It has been noted in 30% of previously reported cases of acute cholecystitis with situs inversus that the pain was felt in the epigastrium alone and in 10% the pain was localized to the right upper quadrant[1]. Hugh et al described that the cystic artery arises as a branch of the right hepatic artery within the hepato-biliary triangle and runs immediately cephalic to the cystic duct toward the gallbladder in 70-80% of patients without situs inversus totalis[7]. It is also reported that inferior cystic artery arises outside the hepatobiliary triangle, runs ventral to the bile duct and lies inferior to the cystic duct in 6% of the patients. During operation it was found that the cystic duct and vessels were in their expected mirror image position but in the literature it is said that despite the fact that the intrahepatic biliary and venous anatomy corresponds to the symmetrical image of the normal liver, the arterial distribution appears to be quite different. However, the structure of the hepatoduodenal ligament does not differ from that of the orthotropic patient[6]. Since laparoscopic cholecystectomy has become the standard procedure for the treatment of cholelithiasis, some cases have been reported with situs inversus and many reports have confirmed that situs inversus is not a contraindication for laparoscopic cholecystectomy[2,3,5,8,9]. Goh et al reported on successful performance of

laparoscopic cholecystectomy in a patient with situs inversus and empyema of the gallbladder[10]. These operations appear to be more technically demanding procedures requiring the mirror-image placement of the surgical instruments and supplementary ports[11]. Although McKay and Blake suggest that retraction on Hartmann's pouch may be carried out by the assistant, thus allowing the surgeon to operate in a more ergo dynamic fashion [1]. The surgeons here felt more secured to work with both hands. In the two cases presented here, the trochars were positioned in a symmetrical way and no extra ports were needed. Yaghan et al with their personal experiences and with summary of 13 other cases have concluded that laparoscopic cholecystectomy in situs inversus seems to be feasible and safe[2].

Situs inversus is an uncommon condition and a patient with this anomaly presenting with acute cholecystitis is very rare. Methodical clinical approach helps in achieving the diagnosis. Laparoscopic cholecystectomy seems to be safe in situs inversus provided it is performed by an experienced laparoscopic surgeon with the set up of the operating theatre as the mirror image of the normal set-up for cholecystectomy. The right handed surgeons should modify their technique and orientation to adapt with the altered anatomy and keeping in mind the possibilities of other congenital anomalies.

References:

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