Laparoscopic Cholecystectomy in Situs Inversus Totalis: A Case Report

Mushtaq Chalkoo[1], Shahnawaz Ahanger[2], Shaheena Chalkoo[3]

[1]*Assistant Professor, Department of General and Minimal Access Surgery, Government Medical College, Srinagar, Kashmir*
[2]*Senior Resident, Department of General and Minimal Access Surgery, Government Medical College, Srinagar, Kashmir*
[3]*Senior Resident, Department of Anesthesia and Critical Care, Government Medical College, Srinagar, Kashmir*

ABSTRACT

Gallstone disease is one of the commonest surgical ailments handled globally. Laparoscopic cholecystectomy is the gold standard treatment for symptomatic cholelithiasis. One of the rare anomalies of hepatobiliary system is situs inversus totalis. To the best of our knowledge, this is the second time that we encountered the symptomatic cholethiasis in a female patient, where- in laparoscopic cholecystectomy was performed with uneventful results. We present it as a rare case report with a special mention to the technique used therein.

Keywords: Laparoscopy; Cholecystectomy; Situs inversus totalis

INTRODUCTION

Situs inversus totalis is one of the rare congenital disorders occurring to the tune of 0.01% of the population [1]. It is a morphological anomaly of the positioning of internal viscera where in there is a reversal of the usual handedness of the visceral topography. The reversal may be thoracic, abdominal or both. Situs inversus on its own is not pathological; however, it may be associated with cardio-respiratory, hepaticopancreaticobiliary, gastro intestinal, neurological, orthopedic and urological anomalies [2, 3]. The normal development requires a 270 degrees counterclockwise rotation that yields the normal anatomy [5]. The exact etiology is unclear; however, it is thought to be due to a single autosomal recessive gene of incomplete penetration. The male: female ratio is 1:1 and there is no racial predilection [6]. It is important to be aware of presence of situs inversus to ensure the correct diagnosis and treatment of patients with acute abdomen. Acute appendicitis causes left lower quadrant pain where cholecystitis causes left upper quadrant pain in these patients. The first case of laparoscopic cholecystectomy in a patient with situs inversus was reported in 1991 [4]. We report our first laparoscopic cholecystectomy in a female patient with symptomatic cholelithiasis in a setting of situs inversus totalis.

CASE REPORT

A 25-year-old Kashmiri female married with one child presented to us with a few months history of left upper quadrant pain radiating to the left scapular region and aggravated by fatty foods. She was imaged by transcutaneous ultrasonography which showed situs inversus abdominis with gallstones in a left sided gallbladder [Figure 1]. The liver was oriented in the mirror image of its usual anatomical lie with the larger anatomical lobe lying on the left side while the smaller lobe crossed the midline to the right. The patient did not have any medical co-morbidity. A preoperative chest radiograph showed dextrocardia consistent with situs inversus without any evidence of bronchiectasis [Figure 2]. The patient was planned for laparoscopic cholecystectomy after thorough pre-anesthetic checkup.

TECHNIQUE

The patient was placed in supine position with the surgeon and the camera man on the right side and the assistant on the left side. The monitor was placed in line with the left shoulder. Pneumoperitoneum was established by Veress technique at umbilicus. A 10mm optical port was then introduced through umbilical incision. A 10mm trocar was introduced in the sub xiphoid area in the midline passing to the left side. Two 5mm ports were made in the left mid-clavicular and left anterior axillary lines. Diagnostic laparoscopy was done to note the findings

Conflict of Interest: None declared

This article has been peer reviewed.

Article Submitted on: 20th August 2014

Article Accepted on: 1st October 2014

Funding Sources: None Declared

Correspondence to: Dr Mushtaq Chalkoo

Address: Department of General and Minimal Access Surgery, Government Medical College, Srinagar, Kashmir

Email: mushtaq_chalkoo@rediffmail.com

Cite this Article: Chalkoo M, Ahanger S, Chalkoo S. Laparoscopic cholecystectomy in situs inversus totalis: a case report. J Pioneer Med Sci. 2015; 5(1):23-25

(Figure 3). A grasper was introduced through the anterior axillary cannula to hold the fundus of the gallbladder and it was pushed towards the left shoulder of the patient. Another grasper was introduced through the medial cannula as the right working hand. The dissection at the Calot's triangle was done by the right hand of the surgeon through the 5mm midclavicular port with the coordinated help from the left hand of the surgeon though 10mm epigastric port [Figure 4]. This procedure indeed is difficult for a right handed surgeon. The clips were applied to the cystic duct and cystic artery through the 10mm epigastric port using both hands of the surgeon while the Hartmann's pouch was held by the

Figure 1: Gallbladder and liver in the left hypochondrium

Figure 2: Chest X-ray showing dextrocardia

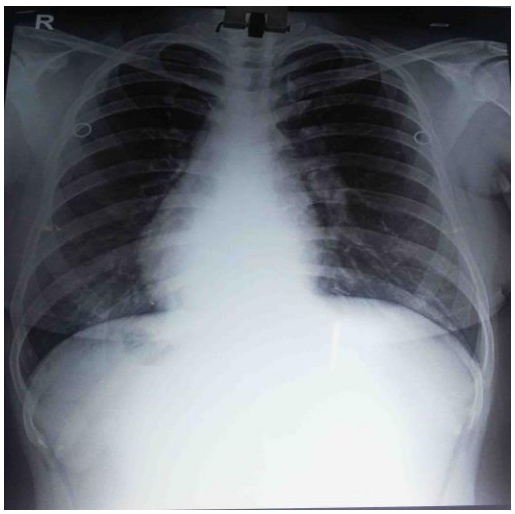
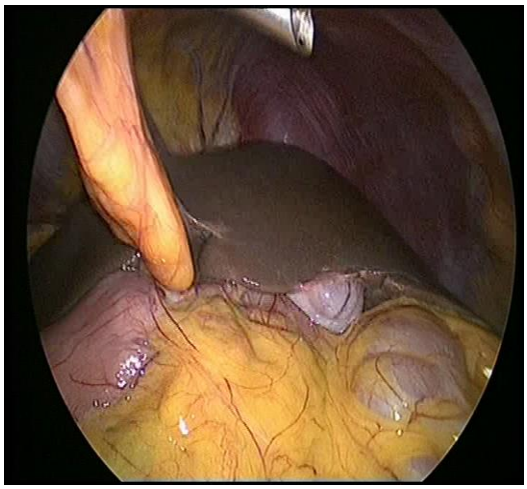


Figure 3: Reversed internal anatomy seen during laparoscopy



cameraman. We completed the procedure in a record time of 35 minutes successfully and the pneumoperitoneum was reversed and the port sites dressed [Figure 5]. The post-operative period remained uneventful.

DISCUSSION

Laparoscopic cholecystectomy is routinely performed all over the globe. However, management of gallstones in patients with situs inversus using laparoscopy requires special care and expertise. While there is no evidence to suggest that gallstones are more or less common in people with situs inversus, the presentation with left upper quadrant pain may delay the diagnosis of symptomatic gallstones. It has been reported that about a third of patients with situs inversus and symptomatic gallstones may however present with epigastric pain and about 10% of patients may present with right sided pain [7, 8]. Patients with situs inversus who are scheduled for laparoscopic cholecystectomy should be assessed preoperatively for any potentially serious cardiac or respiratory abnormalities [9]. The unusual orientation while operating on the left sided gallbladder requires mental adaptability and manual dexterity to handle any evolving difficulty or dangerous intraoperative situations. Thus laparoscopic cholecystectomy in patients with situs inversus should be performed by an experienced laparoscopic surgeon. While there is no evidence to suggest that there is an increased risk of bile duct injuries in patients with situs inversus, the unusual orientation and ergonomics are challenges for the laparoscopist and may result in

Figure 4: Dissected triangle of Calot with gallbladder fundus being retracted towards the left shoulder of the patient

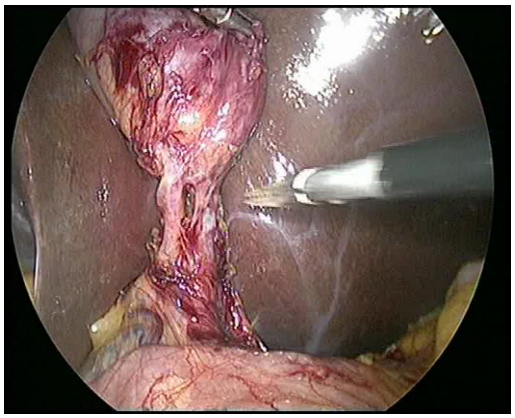


Figure 5: Port sites at mirror images to the conventional lap-chole

an increased operative time. Our total operating time was 35 minutes. The positioning of the surgical team and port placements are often a mirror image of the protocols used for the conventional laparoscopic cholecystectomy [10, 11]. The technique needs a special mention as either the right handed surgeon standing on the right side of the patient crosses his hands so as to allow the right hand to operate through the epigastric port or use the assistant to retract the Hartmann's pouch from the left side as we described or else use the epigastric port to retract with the left hand and operate through the right subcostal port. The surgeon standing at the foot end in between the legs of the patient while the patient is in Lloyd-Davis position is an alternative.

CONCLUSION

Laparoscopic cholecystectomy in patients suffering from situs inversus is a challenging surgery. Therefore, it should be performed by an expert surgeon.

REFERENCES

1. Pitiakoudis M, Tsaroucha AK, Katotomichelakis M, Polychronidis A, Simopoulos C. Laparoscopic cholecystectomy in a patient with situs inversus using ultrasonically activated coagulating scissors. Report of a case and review of the literature. *Acta Chir Belg* 2005; 105:114-7.
2. Aydin U, Unalp O, Yazici P, Gurcu B, Sozbilen M, Coker A. Laparoscopic cholecystectomy in a patient with situs inversus totalis. *World J Gastroenterol* 2006; 12:7717-9.
3. Patle NM, Tantia O, Sasmal PK, Khanna S, Sen B. Laparoscopic cholecystectomy in situs inversus-our experience of 6 cases. *Indian J Surg* 2010; 72:391-4.
4. Khiangte E, Newme I, Phukan P, Medhi S. Improvised transumbilical glove port: A cost effective method for single port laparoscopic surgery. *Indian J Surg* 2011; 73:142-5.
5. Johnson JR. Situs inversus with associated abnormalities. Review of the literature and report of three cases. *Arch Surg* 1949; 58:149-54.
6. Rosen H, Petrosyan M, Mason RJ. Cholecystitis in situs inversus totalis. *Radiol case reports* 2008;3:226.
7. Kamitani S, Tsutamoto Y, Hanasawa K, Tani T. Laparoscopic cholecystectomy in situs inversus totalis with "inferior" cystic artery: a case report. *World J Gastroenterol* 2005; 11:5232-4.
8. Rao PG, Katariya RN, Sood S, Rao PL. Situs inversus totalis with calculus cholecystitis and mucinous cystadenomas of ovaries. *J Postgrad Med* 1977:23:89-90.
9. Pavlidis TE, Psarras K, Triantafyllou A, Marakis GN, Sakantamis AK. Laparoscopic cholecystectomy for severe acute cholecystitis in a patient with situs inversus totalis and posterior cystic artery. *Diagn Ther Endosc* 2008; 2008:465272.
10. Kumar S, Fusai G. Laparoscopie cholecystectomy in situs inversus totalis with left-sided gallbladder. *Ann R Coll Surg Engl* 2007; 89:W16-W18.
11. Banerjee JS, Vyas FL, Jesudason MR, Go vil S, Muthusami JC. Laparoscopic cholecystectomy in a patient with situs inversus. *Indian J Gastroenterol* 2004; 23:79-80.