

Case Report

Laparoscopic Cholecystectomy in Situs Inversus Totalis patient– A rare case report

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Abstract: Laparoscopic cholecystectomy is the standard treatment for cholelithiasis. The first known report on laparoscopic cholecystectomy in a patient with situs inversus totalis (SIT) was in 1991 by Campos and Sipes [1]. We are reporting a rare case of symptomatic Cholelithiasis with which was operated successfully with laparoscopic cholecystectomy.

Keywords: lap cholecystectomy, situs inversus

INTRODUCTION

Situs inversus totalis is a rare autosomal recessive condition, in which organs are transposed from their normal location to the opposite side of the body. The incidence of SIT occurrence ranges from 1:10000 to 1:20000 [2]. The first known human case was reported by Fabricius in 1600 [3]. Situs inversus may be total including abdominal and thoracic viscera (situs inversus totalis) or partial (situs inversus partialis). The transposition of the organs may be associated with other congenital anomalies, such as renal dysplasia, biliary atresia, congenital heart disease, or pancreatic fibrosis. Situs inversus totalis associated with bronchitis, chronic sinusitis, and deficient tracheobronchial cilia is known as the Kartagener's syndrome[4].The diagnosis of SIT can be based on physical examination, routine electrocardiogram, chest x-ray, abdominal ultrasonography and C/T scan. Laparoscopic cholecystectomy is today widely accepted as the treatment of choice for symptomatic cholelithiasis in patients with situs inversus [4-6]. However, the laparoscopic treatment may have technical difficulties because of the mirror image anatomy. We report a patient with complete situs inversus who presented with biliary colic and underwent laparoscopic cholecystectomy.

CASE REPORT

A 25-year-old female, with known situs inversus totalis was admitted to our department. The

patient had a recent history of intermittent left upper quadrant and epigastric discomfort associated with nausea and vomiting. Abdominal pain started a month before admission. At admission, she had ultrasonography, which revealed multiple gallstones in the left-sided gallbladder. Chest x-ray also showed dextro-cardia.

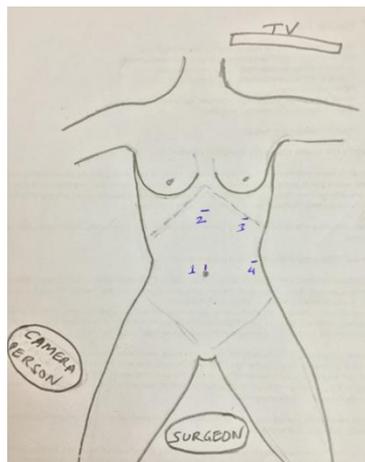
Preoperative complete blood count and liver function tests were all within normal limits. The patient temperature was 36.7 degree C, the pulse 85 per minute and the blood pressure 110/80 mm Hg.

A laparoscopic cholecystectomy was planned. Laparoscopic cholecystectomy was undertaken using the standard 4-port technique in lithotomy position. Surgeon stood between the legs of the patient. Camera person was on the right side and the TV monitor above the left shoulder of the patient. Pneumoperitoneum was created using a Veress needle through the umbilicus. First port was just above the umbilicus as shown in picture 2. A 10mm telescope was introduced through this port. Port no2 was also 10mm. The remaining ports were of 5 mm.

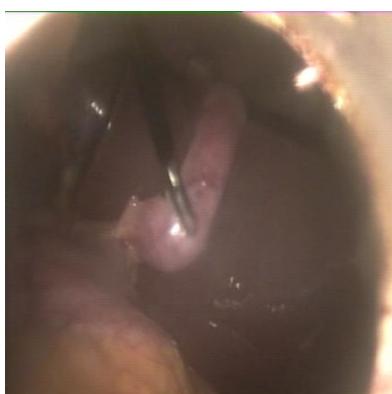
Port no 4 was used for the clamp which retracted the fundus of the gall bladder upwards. Ports 2 and 3 were used by the surgeons for dissection and extraction of the gall bladder.



Picture- :1 (Chest x-ray)



Picture- :2 (Port positions)



Picture-3: (position of Gall bladder)



Picture-4: (GB being extracted)

An amphi-dexterous surgeon should have no difficulty at all in doing cholecystectomy in such a patient. Left hand is used for doing most of the dissection while gall bladder is retracted with the right hand. A right handed surgeon needs to innovate his movements for safe dissection. For an experienced surgeon there should be no difficulty in doing so.

In our patient there were no adhesions and cholecystectomy was successfully completed within 55 minutes. It took a little longer than usual but there was no difficulty whatsoever.

The patient was discharged from the hospital 48 hours later.

DISCUSSION

Situs inversus totalis (SIT) is a rare but well known condition. On the other hand cholelithiasis is a very common condition in Punjab, India. Perhaps one of the most common elective operations done by a general surgeon in this part of the world. There is no evidence to suggest that SIT can cause cholelithiasis.

However it can delay the diagnosis of cholelithiasis in a patient whose symptoms are like cholecystitis but on the left side, unless the clinician has the possibility of SIT in his mind. Therefore an

ultrasound examination is a must in all patients where diagnosis is not clear.

Delay of the diagnosis was demonstrated in a patient with left upper abdominal pain and unknown situs inversus[7].

The most challenging factor for performing laparoscopic cholecystectomy in patients with situs inversus is the “mirror image” anatomy. This uninvited condition, together with the two- dimensional effect of laparoscopy may lead to some problems in orientation and dissection during the procedure with the possibility to high-risk of iatrogenic injuries[5].

The presented reports also suggest that laparoscopic surgery is not a contraindication in patients with situs inversus, which seems to be a safe procedure for cholecystectomy. However, difficulties of the laparoscopy, potentially hazardous, are the mirror-image transposition and associated anatomical anomalies. Patients with SIT, usually do not have associated extrahepatic biliary venous or arterial anomalies. In the less common SI partialis, the presence of polysplenia and biliary atresia syndrome demonstrate the possibility of associated biliary tract and vascular anomaly difficulties, so an intraoperative cholangiogram may be necessary[8]. In the present

case, a cholangiogram was not performed because it was easy to recognize and ligate the cystic duct and artery. In summary, the laparoscopic cholecystectomy may be performed safely in patients with situs inversus by an expert laparoscopic surgeon.

The rarity of appearance of SIT, the difficult orientation of the mirror-image anatomy in this area, the use of the left hand of the surgeon, and the position of the surgeon are factors that should be handled.

CONCLUSION

In summary, the laparoscopic cholecystectomy may be performed safely in patients with situs inversus by an expert laparoscopic surgeon. The rarity of appearance of SIT, the difficult orientation of the mirror-image anatomy in this area, the use of the left hand of the surgeon, and the position of the surgeon are factors that should be handled.

REFERENCES

1. Campos L., Sipes E. Laparoscopic cholecystectomy in a 39-year-old female with situs inversus. *J Laparoendosc Surg*, 1991; 1: 123-126.
2. Al-Jumaily M, Hocheff F; Laparoscopic cholecystectomy in situs inversus totalis : is it safe ? *J Laparoendosc Adv Surg Tech A*, 2001; 11(4): 229-231.
3. Nursal TZ, Baykal A, Iret D, Aran O; Laparoscopic cholecystectomy in a patient with situs inversus totalis. *J Laparoendosc Adv Surg Tech A*, 2001; 11(4): 239-421.
4. 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: 114-117.
5. Aydin U, Unalp O, Yazici P, Gurcu B, Sozbilen M, Coker A; Laparoscopic cholecystectomy in a patient with situs inversus totalis. *World Gastroenterol*, 2006; 12: 7717-7719.
6. 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: 391-394.
7. McDermott JP, Caushaj PF; ERCP and laparoscopic cholecystectomy for cholangitis in a 66-year-old male with situs inversus. *Surg Endosc*, 1994; 8: 1227-1229.
8. Yaghan RJ, Gharaibeh KI, Hammori S; Feasibility of laparoscopic cholecystectomy in situs inversus. *J Laparoendosc Adv Surg Tech A*, 2001; 11(4): 233-237.