Single Port Laparoscopic Cholecystectomy in a Patient with Situs Inversus Totalis: A Case Report

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The use and application of a laparoscopic cholecystectomy has been regarded as a first-choice treatment option for benign gallbladder disease, even if patients have situs inversus totalis. Furthermore, surgical procedures in general are becoming less invasive, because of both patient and surgeon preferences for reduced trauma and improved cosmetic outcomes attributable to minimized incisions. A 37 years old man was aware of situs inversus totalis with chronic cholecystitis. The operation was successfully performed without any specific complications. Single port laparoscopic cholecystectomy, in an experienced operator, is possible even in patients with situs inversus totalis.

Keywords: Single port laparoscopic cholecystectomy, Situs inversus totalis, Case report

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INTRODUCTION

The incidence of situs inversus totalis is a rare congenital disorder in which the major visceral organs are reversed from their normal positions.¹ This unusual condition is found in about 1 person in 10,000 in the general population globally.

The use and application of a laparoscopic cholecystectomy has been regarded as a first-choice treatment option for benign gallbladder disease, even if patients have situs inversus totalis. Furthermore, surgical procedures in general are becoming less invasive, because of both patient and surgeon preferences for reduced trauma and improved cosmetic outcomes attributable to minimized incisions.

Corresponding to this trend, we present in this report a case of a single port laparoscopic cholecystectomy in situs inversus totalis.

CASE REPORT

A 37 years old man was aware of situs inversus totalis visited an outpatient clinic due to the incidence of a persistent indigestion. The patient was diagnosed at the primary hospital, but was subsequently transferred to our hospital facility due to his diagnosed situs inversus totalis. The patient's preoperative diagnosis was chronic cholecystitis with gallbladder stones. The patient's chest X-ray and electrocardiogram showed signs of dextrocardia (Fig. 1). Interestingly, as noted in the abdomen pelvis CT, it was revealed that the gallbladder and liver of this patient were situated on the left, opposite to the normal anatomy, and there were small stones seen in the gallbladder (Fig. 2A, B). The patient had no other history of surgery or disease, as reviewed in the patient medical history taken.

The patient underwent general anesthesia, and was stabilized

in a supine positioned in the operation room. The operator and assistant stood on the right side of the patient, unlike the placement of the operating room personnel in a conventional

Fig. 1. Chest X-ray showed signs of dextrocardia.

surgery. After an incision into the transumbilical was performed, a conventional single port was placed in the patient. The pneumoperitoneum was made by CO₂ gas and patient was tilted slightly to the right at the reverse trendelenberg position. A standard 10 mm, 30° angled laparoscope was used for the procedure. As shown by the CT, all organs were reversed. The gallbladder fundus was grasped and lifted by a grasper and dissected by the application and use of a bovie hook. After the dissection of the adhesions and colon, the cystic duct and cystic artery were isolated and clipped separately by an endoclipper, and then cut by the use of a laparoscopic scissor. (Fig. 3A, B) We usually used a 10 mm for application of the duct and a 5 mm for the procedure for the artery. The remaining portion of cystic duct and cystic artery were clipped twice for each procedure requirement. Consequently, after the coagulation of the liver bed, the gallbladder specimen was taken out with the port. The total operation time took 54 minutes, and there were no special problems or complications that occurred during the surgery. There were no specific findings in the postoperative condition and laboratory findings as reviewed in this case. The patient was discharged two days after the operation as is normally the case for this operation. The histologic exami-

Fig. 2. (A, B) In abdomen pelvis CT, Gallbladder and liver were on the left, opposite to the normal anatomy, and there were small stones seen in the gallbladder.

Fig. 3. (A, B) In the Laparoscopic view of Calot's triangle, Gallbladder and liver were on the left similar to the abdomen pelvis CT (A), Cystic duct and cystic artery were isolated and double clipped separately by Hem-o-Lok (B).

nation confirmed that the patient had adenomyomatosis. Six months after operation, there were no problems as detected in the follow-up ultrasonography examination.

DISCUSSION

Situs inversus totalis is a rare disorder with low prevalence in populations (0.01%). Frequently, it can be associated with many other anatomical variations including biliary tract and vascular anomalies.^{2,3} There is no evidence to suggest that gallstones are more common in people with this condition, however if this condition were unknown at the time of presentation, it could result in a delay in the diagnosis of cholelithiasis.⁴ In 1991, Campos and Sipes were the first to report a successful laparoscopic cholecystectomy in a patient with situs inversus totalis.⁵ Since then, many other cases have been published in a review of literature on the topic. In response to the patients' demands for less pain and better cosmetic results, five cases of single port laparoscopic cholecystectomy in situs inversus totalis patients have been published currently.^{4,6-8}

Laparoscopic cholecystectomy is the most conventional procedure applicable in all cases, but there is a disadvantage in the use with situs inversus totalis patients, as the operation is difficult for right-handed surgeons to handle instruments and mirror images. There are many ways to overcome these limitations, but there is no established method yet.⁹ In addition, recent studies have shown that single port laparoscopic cholecystectomy is not considered to effect inferior post op outcomes, as compared to conventional applications.¹⁰ Also, since our operator is an experienced surgeon who had performed more than 1,000 cases of single port laparoscopic cholecystectomy, we tried single port laparoscopic cholecystectomy in patients with situs inversus totalis.

From our experience, in the case of single port laparoscopic cholecystectomy in situs inversus totalis, a skilled operator on the single port itself can proceed with the surgery without significant difference from the utilization of conventional laparoscopic cholecystectomy.

CONCLUSION

This case shows that single port laparoscopic cholecystectomy, in an experienced operator, is possible even in patients with situs inversus totalis.

ETHICAL STATEMENT

The study was approved by the Institutional Review Board (IRB) of Dong-A University Hospital.

Case reports are exempted from ethical approval. Because

all data were collected from clinical records and imaging systems.

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AUTHORS' CONTRIBUTIONS

Conceptualization: YHR. Formal analysis: YHR. Methodology: YHR. Writing-original draft: EJJ. Writing-review and editing: YHR.

CONFLICT OF INTEREST

None.

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