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CASE REPORT / OLGU SUNUMU

# Laparoscopic cholecystectomy technique in a patient with situs inversus totalis

## *Situs inversus totalis olgusunda laparoskopik kolesistektomi tekniği*

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**ABSTRACT**

Situs inversus totalis is a rare congenital anomaly. It may produce difficulties in diagnosis and therapeutic management of abdominal pathology, particularly in laparoscopic surgery because of the mirror-image anatomy. Here we report a case of situs inversus totalis and cholelithiasis successfully treated laparoscopically.

**Key words:** Situs inversus totalis, cholelithiasis, laparoscopic cholecystectomy

**ÖZET**

Situs inversus totalis nadir bir kongenital anomalidir. Özellikle laparoskopik cerrahideki ayna görüntüsü nedeniyle bu durum abdominal patolojilerin tanı ve tedavisinde zorluğa neden olabilir. Biz bu yazıda situs inversus totalis ve kolelitiasis'i olan olgunun başarılı laparoskopik tedavisini sunmaktayız.

**Anahtar kelimeler:** Situs inversus totalis, safra kesesi taşı, laparoskopik kolesistektomi

## INTRODUCTION

Situs inversus totalis (SIT) is a rare autosomal recessive congenital anomaly, characterized by the total transposition of thoracic and abdominal organs. It is estimated to occur with a ratio of 1/5000-20000 [1]. Difficulties in surgical methods, especially laparoscopic operation, can occur in such cases. Additional surgical maneuvers are needed during operation because laparoscopic surgical tools are designed for the right side and SIT is the mirror image [2].

## CASE REPORT

A 55 year-old female patient presented with epigastric and abdominal pain along with dyspepsia was admitted to our general surgery out-patient clinic. Through ultrasonography (USG) the liver and gallbladder were examined and determined to be located in the left side of the body. Moreover, multiple stones were revealed in the gallbladder. The patient was considered to be a situs anomaly, so posterior-anterior Chest X-ray, thoracic and abdominal Computerized Tomography (CT) was conducted. The diagnosis of situs inversus totalis was confirmed through the imaging examinations (Figure 1). The patient's laboratory tests were normal. A laparoscopic cholecystectomy operation was planned.

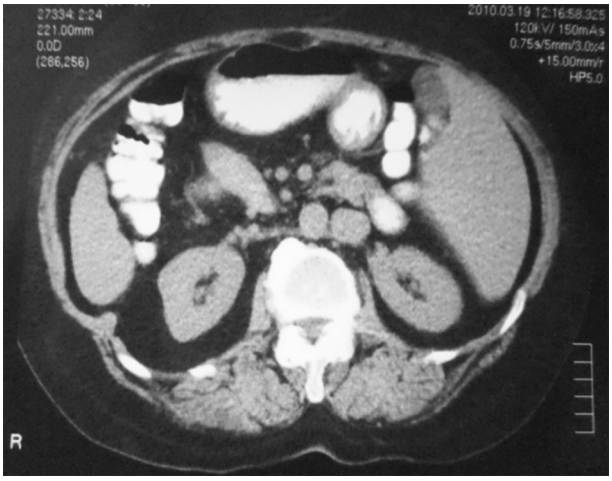


**Figure1.** Illustration of SIT in abdominal CT imaging,

### Operation technique

In total, 4 ports were used as in a classic laparoscopic cholecystectomy. Two 10 mm-ports were inserted into both under xiphoid and umbilicus, a

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30° camera was used and the SIT diagnosis was confirmed (Figure 2A). In addition, two 5 mm-ports were inserted through the subcostal anterior axillary line and crossing point between the left midclavicular line and the subcostal area. To retract the fundus to cranial, a port in the anterior axillary line was used (Figure 2B). Another port in the midclavicular line was used for the dissection and cut process. A subxiphoid port was used for the Hartman traction and clip placement. The cystic canal and artery were clipped by dissecting the Calot Triangle. The cholecystectomy operation was completed via the help of a huck tool. The gallbladder was removed from the abdomen through the subxiphoid port site. The patient did not develop any complications and was discharged 24 hours post-operatively.

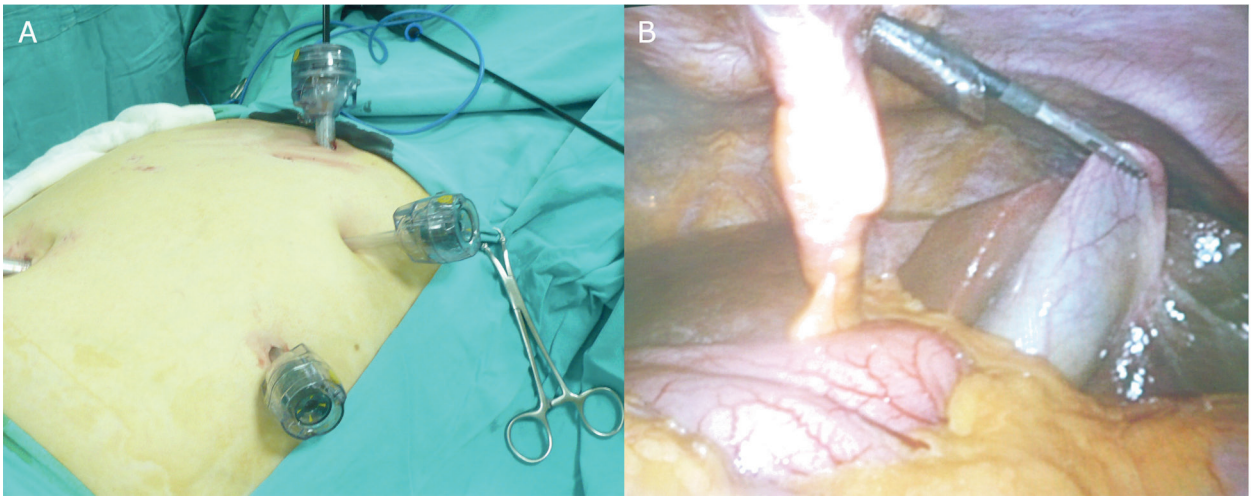


**Figure2. A.** Sites used for trocar insertion during the operation**. B.** Laparoscopic confirmation of left sited gallbladder.

## DISCUSSION

SIT is a rare congenital anomaly, which can affect thoracic and abdominal organs, and can be associated with Kartagener's Syndrome and anomalies of the liver and gallbladder [3]. In the literature, it was reported that an SIT diagnosis could be late due to non-specific symptoms and signs of physical examination [4]. Abdominal USG was applied to the patient, because USG was a non-invasive and useful method for abdominal pain. In our case, the patient presented with non-specific symptoms and a USG was prescribed for her abdominal pain, giving a timely diagnosis. After SIT diagnosis, a thoracic and abdominal CT was conducted to detect possible organ anomalies, as had been reported in the literature [5]. In our patient, additional anomalies were not detected. In a classic cholecystectomy, Hartman traction is performed with the left hand and a Calot dissection is performed with the right hand. However, in a rarely seen SIT, the Hartman traction should be done with the right hand and the Calot dissection should be conducted with the left hand. This condition makes operational procedures more difficult for a right-handed surgeon due to the additional mirror image. In our case, we did not face difficulties during the operation with the surgical tools, particularly regarding trocar insertions. However, we faced with some orientation difficulties during the Calot dissection due to the mirror image and being used to performing the Hartman traction with the left hand as in a classic cholecystectomy. In addition, we faced difficulties during the procedure through the midclavicular line using the right hand due to a shorter distance, narrow area and right angle. Although the surgeon's left hand covered the fundus and the assistant held the Hartman, suitable comfort as in a classic cholecystectomy was not obtained. However, the cholecystectomy was achieved besides the prolonged operation procedure.

It is difficult to discuss a laparoscopic cholecystectomy experience in SIT, because it is rarely seen. Regarding the difficulties faced in our case, we agreed that the operation can be easy and comfortable when the trocar is inserted through the midclavicular line used for camera insertion and is placed more medially, while the sub-umbilicus tro-

car is used for dissection. In this condition, the use of a sub-xiphoid trocar is more suitable for Hartman traction.

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