ORIGINAL ARTICLE

Laparoscopic Cholecystectomy *in Situs* Inversus Totalis

Sardar H Arif

Department of Surgery, Duhok Medical College, Azadi Teaching Hospital, Duhok, Kurdistan Region, Iraq

Abstract

A 42-year-old female known case of situs inversus presented with several attacks of epigastric pain. Abdominal ultrasound confirmed the diagnosis of gallstone, as well as situs inversus, laparoscopic cholecystectomy was performed safely, the operation done by left handed surgeon.

Keywords: Laparoscopic cholecystectomy, situs inversus.

INTRODUCTION

Situs inversus totalis is first described in 1600, situs inversus totalis is a rare congenital anomaly with an autosomal recessive genetic pattern of inheritance, which is usually asymptomatic through adulthood. In the absence of rare cardiac anomalies, life-expectancy is normal.[1] It may be partial, where the transposition is confined to either the abdominal or the thoracic viscera, or complete, i.e. involving both the cavities.[2] While acute cholecystitis is one of the most common diagnosis requiring surgical management, it can be difficult to correctly diagnose in a patient with situs inversus.[3]

CASE REPORT

A 42-year-old female was diagnosed as situs inversus presented with several attacks of sever epigastric pain for two months, colicky in nature radiate to the back and her symptom was aggravated by fatty meals.

Abdominal examination revealed no significant finding, upper endoscopy done to her revealed normal stomach and duodenum, three abdominal ultrasounds was done for her revealed multiple gallstones in left sided gallbladder.

TECHNIQUE

Under general anesthesia the patient was in supine position, the surgeon who was left handed with the camera man on patient's right site and the assistant was on left site, the monitor was in the left site near the head of the patient.

Subumbilical incision done with CO_2 insufflations, 10 mm trocar introduced through this incision, another 10 mm trocar was introduced in subxiphoid just to the left of midline with two other 5 mm trocar, 1st in left anterior axillary's line and 2nd in left mid-clavicular line, the fundus grasped with grasping forceps and retracted toward the left shoulder by assistant (Fig. 1).

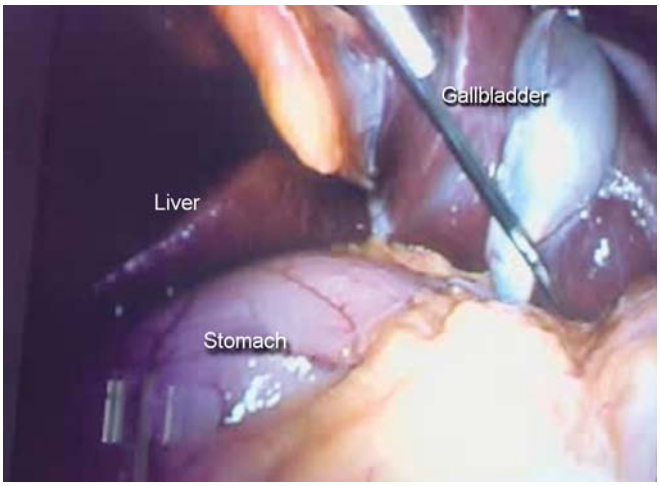

Fig. 1: Left sided gallbladder

We hold the neck of gallbladder with grasping forceps, fairly close to the origin of the cystic duct and dissection in Calot's triangle to visualize the cystic artery and cystic duct then double clipping of cystic artery and cystic duct and cholecystectomy done safely (Fig. 2).

The technique was not so difficult because the surgeon was left handed but only needed some orientation.

DISCUSSION

Situs inversus viscerum is a rare condition, occurring in 1:5,000-1:10,000 hospital admissions.[4] There are several

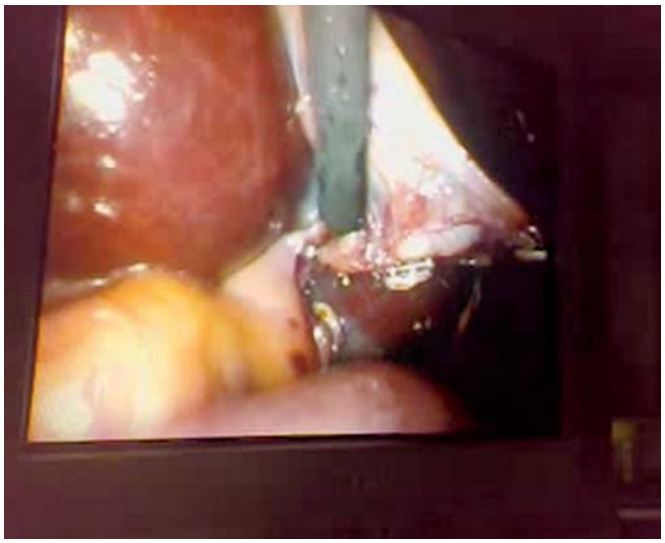

Fig. 2: Dissection of the Calot's triangle

important aspects of the management of gallstones in patients with situs inversus that are worth highlighting. 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.[5] In this case, the patient presented with epigastric pain only and had no definite left upper quadrant pain. It has been noted in 30% of previous reported cases of acute cholecystitis in patients with situs inversus that the pain was felt in the epigastrium alone and in 10% the pain was localized to the right upper quadrant the proposed explanation for this is that the central nervous system may not share in the general transposition.[6] The first case of laparoscopic cholecystectomy in a patient with situs inversus was in 1991.[1] In patients with situs inversus, the mirror image anatomy poses difficulty in orientation during laparoscopic cholecystectomy. While there is no evidence to suggest that there is an increased risk of bile duct injuries in patients with situs inversus, the orientation and ergonomic challenges may result in an increased operative time.[7] Our total operating time was 50 minutes. As the unusual orientation while operating on a left-sided gallbladder requires mental adaptability and manual dexterity to cope with any evolving difficult or potentially dangerous intraoperative situation.

Laparoscopic cholecystectomy in patients with situs inversus should be performed by an experienced laparoscopic surgeon.[7] Dissection from the mid-clavicular cannula with right hand with the lateral displacement of the neck of the gallbladder using the left hand through the subxiphoid cannula is difficult because the tip of the dissector will lose its perpendicular angle to the dissection plane and become positioned with a very narrow angle. We performed the dissection from mid axillary's cannula. The dissection was quite safe and this confirms the previous reports of safe laparoscopic cholecystectomy in situs inversus totalis.[8] No matter which configuration is used, it is important to clearly dissect the cystic duct and artery, stay close to the inferior gallbladder edge, and obtain the critical view of safety prior to transecting any structures. This is true of all laparoscopic cholecystectomy, but especially true in this case, in which the patient's anatomic configuration is not familiar. Some surgeons may opt to selectively perform a cholangiogram to delineate ductal anatomy.[1] This operation need entire dissection to be performed by left hand, and this may be done easier by left hand surgeon. Though laparoscopic cholecystectomy in such patients is technically more demanding, an experienced laparoscopic surgeon can perform it safely.

Thus, situs inversus totalis does not appear to be contraindication to laparoscopic cholecystectomy.[9]

REFERENCES

1. Dan Eisenberg Department of Surgery, Palo Alto VA Health Care System and Stanford School of Medicine, Palo Alto, CA, USA. Cholecystectomy in situs inversus totalis: A laparoscopic approach. International medical case reports journal, 27 October 2009.
2. Shah AY, Patel BC, Panchal BA. Parth Surgical Hospital, Shashi Complex, Near Swaminarayan Avenue, Anjali Cinema Cross Road, Vasana, Ahmedabad - 380007, Gujarat, India. Laparoscopic cholecystectomy in-patient with situs inversus. journal of minimal access surgery 2006;2(1),27-28.
3. Heather Rosen, Mikael Petrosyan, Rodney J Mason, Cholecystitis in situs Inversus Totalis. Radiology case reports 2008;3(4).
4. Sumihiro Kamitani, Yosihiro Tsutamoto, Kazuyoshi Hanasawa, Tohru Tani. Laparoscopic cholecystectomy in situs inversus totalis with "inferior" cystic artery: A case report. World J Gastroenterol 2005;11(33):5232-34.
5. Rao PG, Katariya RN, Sood S, Rao PLNG. Situs inversus totalis with calculus cholecystitis and mucinous cystadenomas of ovaries. J Postgrad Med 1977;23:89-90.

6. Theodoros E. Pavlidis, Kyriakos Psarras, Apostolos Triantafyllou, Georgios N Marakis, Athanasios K Sakantamis. Laparoscopic Cholecystectomy for Severe Acute Cholecystitis in a Patient with situs Inversus Totalis and Posterior Cystic Artery. Hidawi published corporation. Diagnostic and Therapeutic Endoscopy, 2008, Article ID 465272, 3 pages,doi:10.1155/2008/465272.
7. Senthil Kumar, Giuseppe Fusai. Laparoscopic cholecystectomy in situs inversus totalis with left-sided gallbladder. The royal college of surgeons of England, online case report.
8. Jamal Hamdi, Omar Abu Hamdan, Department of Surgery, Medical College, Umm Al-Qura University, Hera General Hospital, Makkah, Saudi Arabia. Laparoscopic cholecystectomy in situs inversus totalis. The Saudi journal of gastroenterology. 2008;14(1):31-32.
9. Banerjee JS, Vyas FL, Jesudason MR, Govil S, Muthusami JC. Laparoscopic cholecystectomy in a patient with situs inversus. Indian J Gastroenterol 2004;23:79-80.