

Case Report

Laparoscopic Cholecystectomy and Choledocholithotomy and T-tube Drainage In Mirizzi's Syndrome Type I in a Case of Situs Inversus Totalis

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A male patient aged 41 years had a history of epigastric pain few times with occasional vomiting for few months. There was no history of Jaundice. On Ultrasonography (USG) abdomen imaging, the left sided Gall Bladder with stones and dilated Common Bile Duct (CBD) was diagnosed. USG confirmed Situs Inversus. Chest X-ray showed Dextrocardia to establish Situs Inversus Totalis (SIT). Subsequent MRCP confirmed Gall Bladder (GB) Stones with a single CBD calculus at its lower end in approximately 10mm dilated CBD in a SIT patient. Pre-operative Liver Function Tests and coagulation profile were within normal range. There was no comorbidities.

Mirror image ports of regular Laparoscopic Cholecystectomy were made with few modifications. In French position the Surgeon standing in between the legs of the patient makes better hand eye coordination. Interchanging the fundal traction instrument and the needle holder between the left mid-clavicular and left anterior axillary line port helps ergonomically better for endo suturing while closing the Choledochotomy.

In our case, apart from Gall Bladder calculi and Common Bile Duct (CBD) calculus, patient had Mirizzi's Syndrome Type I. The patient went home after uneventful recovery. No publication was found on reviewing literature in PubMed & Medline search about Laparoscopic Cholecystectomy with Choledocholithotomy with Mirizzi's Syndrome Type I in a case of SIT.

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Key words : Situs Inversus Totalis, Mirizzi's Syndrome Type I, Common Bile Duct Calculous, Laparoscopic Choledocholithotomy and Cholecystectomy.

The first reported Situs Inversus Totalis (Dextroversion) was in 1600 by Fabricius¹. First described Left sided Gall Bladder was in 1886 by Hochstetter². Left sided Gall Bladder is a very rare entity. SIT is found in 1 : 10,000 - 1:20,000 of the population³ whereas Sinistro position of Gall Bladder is more rare. In Situs Inversus, the left sided Gall Bladder can be diagnosed preoperatively. In Sinistro position of Gall Bladder, it is usually discovered during the Surgery for Gall Bladder. The patient GB and CBD stones with SIT has been successfully operated Laparoscopically in four cases published earlier of which one underwent Choledochoduodenostomy⁴⁻⁷. Our case had Mirizzi's syndrome type I with GB and CBD calculus in SIT. Laparoscopic Cholecystectomy has been accepted as the Gold Standard care universally. So the primary approach towards the case was Laparoscopic.

CASE REPORT

A male patient of 41 years attended the hospital with complains of pain epigastric region for few months with occasional vomiting. There was no history of Jaundice. Ultrasonography of abdomen revealed Cholecysto-

Editor's Comment :

- Situs inversus totalis patients with Gall stone disease with or without CBD calculus and associated other anomalies can be operated successfully by MAS in experienced hands with some modification in port positions.

lithiasis with 8.2mm dilated CBD in a case of SIT. Liver function test and coagulation profile was within normal range. Chest X-ray revealed Right Sided Heart (Fig 1). The patient was not having any other Comorbidities. MRCP confirmed SIT with contracted Gall Bladder with calculi and a 7mm calculus in a 10mm dilated CBD (Fig 1). The Patient was sent twice to two different Gastroenterologist for ERCP CBD clearance prior to Laparoscopic Cholecystectomy. Both times the attempts failed with comments of Inability to cannulate the CBD due to congenital anomaly. It was decided to perform Laparoscopic Choledocholithotomy followed by Laparoscopic Cholecystectomy.

Written consent for possible conversion of the procedure from Laparoscopic procedure to open was taken after informing the congenital anomaly. The patient under general anaesthesia with endotracheal intubation, was supine with 20 degree Anti-Trendelenberg position with approximately 20 degree right tilt. In French position, the Surgeon stood in between the patient's leg with the monitor at patient's head end. Four mirror image of Standard ports were made on left side with exception of

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the left mid-clavicular port, which was made 10mm. The Epigastric port was made a bit at lower level with 12mm Optiview disposable Trocar (Fig 6). The Gall Bladder was having features of Chronic Cholecystitis with Mirizzi's Syndrome Type I. It was decided to perform a reconstituting partial Cholecystectomy. Following posterior dissection, an extra-corporeal number one vicryl was placed through the epigastric port to have a traction at the neck of the Gall Bladder. Cystic artery was dissected and isolated and doubly clipped and transected. Choledochotomy was performed with an endo-knife. Intra Operative Cholangiogram (IOC) done through Choledochotomy due to conglomeration of calculi in Mirizzi's Syndrome Type I (Fig 5). A4F1.5cc capacity Fogarty catheter was introduced through the epigastric port to introduce in Choledochotomy (Fig 3) downwards in duodenum. The bulb was inflated with 1cc water and pulled until a resistance was felt where it was deflated. The catheter was withdrawn for approximately a centimetre and was re-inflated to avoid damage to the Sphincter of Oddi. The inflated Fogarty catheter was gradually withdrawn through the Choledochotomy. This manoeuvre extracted the solitary calculous (Fig 4) from the lower CBD, which was retrieved. Similarly, Fogarty excluded any possibility of stone upstream. The CBD was thoroughly irrigated with normal Saline. A repeat IOC done to confirm CBD clearance (Fig 5). A T-Tube was placed and the CBD closed with 000 vicryl continuous endosuture.

The Gall Bladder was opened at the lower end of the body to clear all the calculi followed by application of

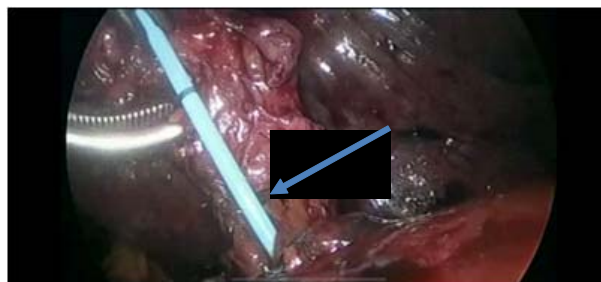


Fig 4 — CBD calculous extracted (arrow)

extracorporeal Roeder's knot with 1 vicryl at the infundibulum. A tube drain kept in the sub hepatic space. The T-Tube was brought out from the left mid clavicular port and the abdominal drain through left anterior axillary port. Postoperative recovery was uneventful. Drain removed after 72hrs. A T-Tube Cholangiography (Fig 7) was performed on the 10th postoperative day. It showed complete clearance of the CBD. On request of the patient and his relatives (due to apprehension of necessary ERCP, which twice failed, for retained stones), postoperative MRCP (Fig 8) was performed which also confirmed CBD clearance, following which the T-Tube was removed. The patient was discharged after uneventful recovery.

DISCUSSION

The first successful left sided Laparoscopic Cholecystectomy was reported in the year 1991⁸. Left sided Gall Bladder are of two different variant (A) In Situ Inversus(B) Sinistro position (mal-position) of Gall Bladder. Sinistro position of Gall Bladder can be subdivided into two on the basis of embryological hypothesis² (a) Gall Bladder migrates to the left lobe of the liver but the cystic duct remains in its normal position crossing the CBD in front. (b) Here Gall Bladder starts developing on both sides. The left one continues developing while the right sided Gall Bladder atrophies. In such case cystic duct either joins common hepatic or left hepatic from the left side. The symptoms in Sinistro position of Gall Bladder develops on the right side as it is believed that there is no transposition of the visceral nerves. Even imaging investigations are misleading. In Sinistro position, the Left sided Gall Bladder is diagnosed commonly during surgery⁹. In SIT, symptoms develop on the left side. Imaging investigations can confirm left sided Gall Bladder.

To perform Laparoscopic choledocholithotomy to extract the stone in SIT, few modifications were made. The epigastric 12mm Optiview disposable Trocar port was made a bit lower than the usual position. This helped to manipulate the Fogarty Catheter easier to introduce in the CBD along with a Mary land without gas leak to extract the stone. Moreover, the 10 to 5 reducer was not required while endo suturing. The guide wire of the Fogarty catheter was previously removed for easy maneuver. The left mid-clavicular port was also a 10mm at a lower level than the usual port position on the right side. This port eased the



Fig 1 — Dextrocardia Chest X-ray



Fig 2 — MRCP showing lower CBD calculous



Fig 3 — Fogarty catheter through Choledochotomy



Fig 5 — Pre & Post IOC showing calculous and clearance



Fig 6 — Port positions

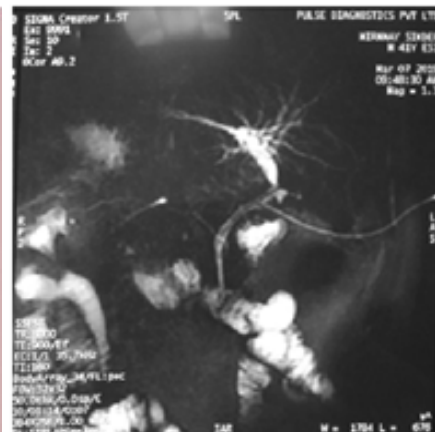


Fig 8 — Postop MRCP with T-tube in situ shows clear CBD



Fig 7 — T-tube Cholangiography & showing clear CBD

The needle holder introduced through the left anterior axillary port helped for better ergonomic control of suturing being right handed person. The Surgeon stood in between the patient's legs of the patient (French Position).

ERCP twice failed not due to the difficulty in extracting the CBD calculous but due to inability to cannulate an anomalous duct. That is why a T-Tube was kept for any accidentally slipped calculous in CBD needs to be removed later through the T-Tube tract.

CONCLUSION

Few modifications in the position of the Patient, Surgeon position, placement of Monitor, selection of Trocar and adjustment of the Port positions, Laparoscopic Choledocholithotomy as well as Left Sided Laparoscopic Cholecystectomy can be done safely with a better ergonomic control. Pre & Post stone extraction IOC can confirm the clearance on table. Roedor's knot at distal Gall Bladder could have been replaced by endo-suture closure

Conflict of Interest : There was no conflict of Interest.

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Consent : Written consent from the patient was taken after informing him about his rare Congenital anomaly. The consent also included that Laparoscopic approach shall be adopted which may be converted to open if

necessary. Consent for necessary video recording & publication of the case was also taken.

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