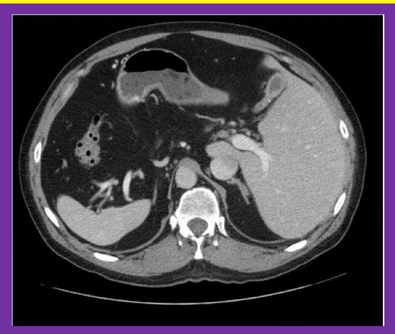
LAPAROSCOPIC CHOLECYSTECTOMY IN SITUS INVERSUS TOTALIS USING FLUORESCENCE IMAGING BY INDOCYANINE GREEN (ICG) IN RURAL LOUISIANA

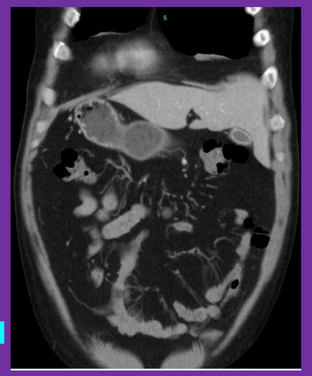
Kishore Malireddy MD, Minden Medical Center, Minden, LA

- **Introduction:** Laparoscopic procedures in Situs Inversus Totalis (SIT) can be very challenging for the surgeons.
- Better understanding of anatomy is the key in any laparoscopic procedure.
- We report a case of laparoscopic cholecystectomy in a patient with SIT with chronic cholecystitis using fluorescence imaging by Indocyanine green (ICG) from a community hospital in rural Louisiana.

Case Presentation:

- 54 yr old man with known history of SIT presented to the emergency room with complaints of intermittent episodes of left upper abdominal pain with nausea and vomiting.
- Evaluation with CT scan showed multiple gallstones and mild enhancement of the gall bladder wall (Image I & II).
- We scheduled Laparoscopic Cholecystectomy with fluorescence imaging by ICG.
- About one hour prior to the surgery, we injected 25 milligrams of ICG diluted with 10 cc of normal saline intravenously.
- We placed our laparoscopic trocars as “simple mirror positions” on left upper abdomen compared to regular trocar position.
- However, the left mid port was placed about 5 cms inferior tothe costal margin for better accessibility. The epigastric port was placed to the left of falciform ligament.
- Diagnostic laparoscopy showed gall bladder in left upper abdomen with some adhesions which were taken down with hook cautery.
- We then switched the camera to Infrared vision and was clearly able to define the anatomy of calot’s triangle with cystic duct and common bile duct.
- We switched back to normal vision camera and after meticulous dissection and getting a critical angle of safety, we clipped and divided the cystic artery and duct.
- Patient tolerated the procedure well. Pathology showed Chronic calculus cholecystitis. He had an uneventful recovery and is doing well.





CT scan Axial and coronal plane showing left sided gall bladder with stones and mild enhancement and SIT



Laparoscopic view and Fluorescence imaging view of Biliary anatomy in SIT

Discussion:

- Laparoscopic cholecystectomy in patients with SIT have been described and there are about 100 reported cases.
- Apart from placing the trocars in mirrored position on left upper abdomen and standing on patients’ right side, not many changes in technique are needed if we follow the basic principles of laparoscopic cholecystectomy.
- Simple injection of ICG and using fluorescent imaging clearly enhances visualization of calot’s triangle as the ICG is excreted in bile and the infrared camera detects fluorescing ICG as it passes through the biliary system.

Conclusion:

- Laparoscopic cholecystectomy can safely be performed in Situs Inversus Totalis in a community setting.
- Fluorescent imaging with ICG will enhance the visualization of biliary anatomy.