Left Behind: A Rare Case of True Gallbladder Sinistroposition and Surgical Implications

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Introduction

- Aberrant biliary anatomy is a risk factor for inadvertent surgical injury
- Sinistroposition of the gallbladder (“left sided gallbladder”) is rare
  - Incidence of 0.2% to 1.1%
- 3 possible described anatomic abnormalities
  - Situs inversus
  - Ectopic left-sided gallbladder
  - Right sided ligamentum teres
- True left sided gallbladder is not often diagnosed preoperatively unless advanced imaging is done for another clinical reason

Case Presentation

- 37-year-old male who presented with abdominal pain
- Diagnosis was Tokyo Grade I acute calculous cholecystitis
- Abdominal US: gallstones, evidence of acute cholecystitis, and an 11 mm common bile duct; no other abnormalities
- The patient was taken for laparoscopic cholecystectomy, and a standard 4 port laparoscopic setup was used
- The gallbladder was found to be attached to the left lateral segment, consistent with sinistroposition of the gallbladder
- **The decision was made to proceed with a laparoscopic, top-down (fundus first) approach to decrease the risk of injuring other aberrant vascular structures or biliary radicles**
- After a difficult dissection off the cystic plate, we identified a solitary artery and duct terminating into the gallbladder
- Indocyanine green (ICG) was used to characterize biliary anatomy prior to control and division of any structures
- No other aberrant biliary anatomy identified
- The gallbladder was removed without incident
- Final pathology: acute cholecystitis
- MRI of the abdomen was ordered to look for additional anatomic anomalies

Intra-Operative Images

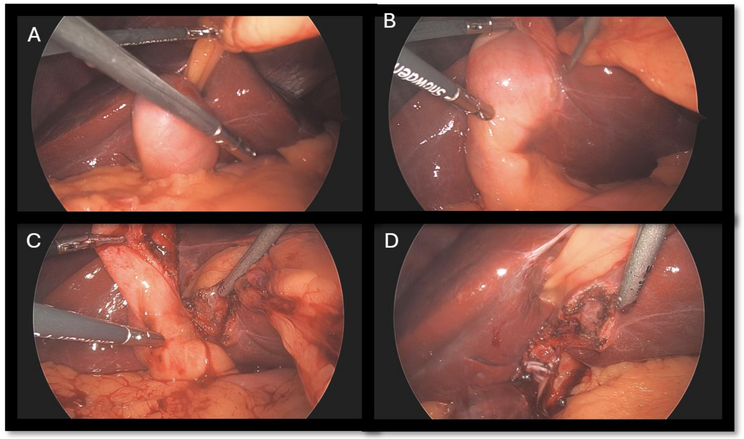


Figure 1: Intraoperative images of the left sided gallbladder A) Attachment to left lateral segment, B) Retraction of the gallbladder laterally with attachment to cystic plate, C) Top-down approach with fundus retracted laterally, D) Left sided cystic plate with surgical clips after completion of cholecystectomy.

MRI Findings



Figure 2. MRI showed no biliary abnormalities. Patient does have a duplicated IVC.

We recommend using a “top down” approach starting at the fundus, combined with indocyanine green or further biliary imaging prior to dividing any structures

Discussion

- Sinistroposition of the gallbladder is a rare anatomic abnormality that when encountered should be approached with caution and likely a change in the standard operative approach
- The condition is often discovered incidentally and intraoperatively, and this anatomy should alert the operator to the possibility of abnormal anatomy that may lead to an overall increased risk of complications
- Common variations are intrahepatic portal vein branching, underdeveloped or duplicated common bile duct, intra-portal bile duct, and pancreatic anomalies
- Our patient had a duplicated inferior vena cava, an anatomic variant that is less frequently described in relation to a left sided gallbladder

Conclusions

- The patient recovered well and was discharged on POD#1
- Pathology was found to be acute cholecystitis
- To more clearly define biliary and vascular anatomy in this clinical scenario, we recommend using a “top down” approach starting at the fundus, combined with ICG or further biliary imaging prior to dividing any structures

References

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