Isolated main right hepatic duct transection after laparoscopic cholecystectomy: evaluation and management challenges of a very rare iatrogenic event

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OBJECTIVES

- Report a rare case of isolated right hepatic duct transection after laparoscopic cholecystectomy.
- Discuss the role of imaging, intraoperative cholangiography, and multidisciplinary management in bile duct injuries (BDI)
- Highlight the importance of biliary anatomical variations in surgical planning.

METHODS

- A 28-year-old postpartum female with symptomatic cholelithiasis underwent laparoscopic cholecystectomy.
- Intraoperative cholangiogram misidentified left hepatic duct bifurcation as common hepatic duct bifurcation.
- Postoperative RUQ pain and elevated LFTs prompted MRI/MRCP, revealing right main hepatic duct transection.
- ERCP with left duct stenting was performed, followed by percutaneous transhepatic cholangiogram confirming right duct obstruction.
- On POD-5, patient underwent Roux-en-Y hepaticojejunostomy with Hudson-Russell reconstruction.
- Internal-external biliary drainage catheter was placed for decompression and future access.

FIGURE 1. Intraoperative cholangiogram demonstrating metallic clips traversing the right main hepatic duct; falsely presumed common hepatic duct bifurcation which turned out to be the left hepatic duct bifurcation.

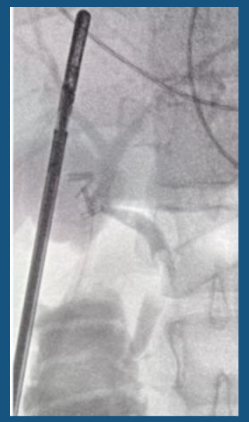


FIGURE 3. Percutaneous transhepatic cholangiogram demonstrating non-dilated right-sided intrahepatic biliary system with no evidence of drainage into the common hepatic duct.

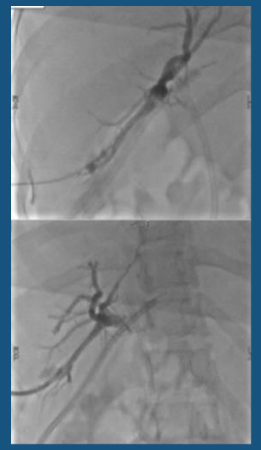


FIGURE 2. MRCP demonstrating disruption between the right main duct and the rest of the biliary tree.

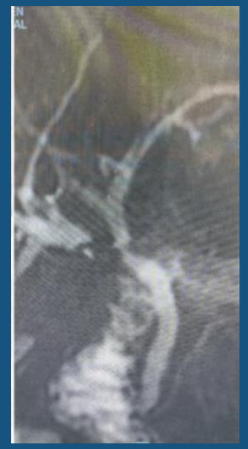


FIGURE 4. Intraoperative image showing transected right hepatic duct.



RESULTS

- Postoperative cholangiogram showed restored bile flow without leakage.
- LFTs gradually normalized.
- No postoperative complications; stents were removed successfully at follow-up.

FIGURE 5. Post-operative cholangiogram showing patent right bile contrast drainage with no evidence extravasation or leak.



CONCLUSION

- Isolated right hepatic duct transection is an extremely rare but serious complication of laparoscopic cholecystectomy.
- A combination of ERCP, percutaneous drainage, and early surgical repair results in optimal patient outcomes.
- Safe cholecystectomy principles should be strictly followed to prevent BDI.