

# Title: CASE REPORT-UNFORTUNATE BILIARY INJURY IN ISOLATED RIGHT POSTERIOR SECTORAL DUCT, A RARE BILIARY VARIANT

Chan Wei Chin<sup>1</sup>, Mohd Azem Fathi Bin Mohammad Azmi<sup>2</sup>, Mazwan Bin Mohamad<sup>1</sup>, Thanesh Kumar Maiyauen<sup>1</sup>

1. Department of Surgery, Queen Elizabeth, Ministry of Health Malaysia, Kota Kinabalu, Sabah, Malaysia
2. Department of Surgery, University Sains Malaysia, Kelantan, Malaysia

## Introduction

Bile duct variant is a well-known risk factor for bile duct injury during cholecystectomy. Isolated right posterior sectoral duct is an uncommon biliary variant (<5%). It poses a great challenge to surgeons, both in diagnosis and management of this condition. Here we report an unfortunate case of injury to the isolated right posterior sectoral duct, which is a rare biliary variant.

## Case Report

A female patient underwent emergency laparoscopic cholecystectomy for acute calculous cholecystitis sustained iatrogenic bile duct injury. It was detected postoperative, as suggested by persistent bile in the drain(100-200ml/day). ERCP showed no obvious bile leak. MRCP demonstrated suspicious leakage of the right hepatic duct.

Emergency exploratory laparotomy and biliary reconstruction was done. Intraoperatively noted hanging clipped duct near the gallbladder bed. The duct was opened up, cholangiogram through aforementioned duct showed an isolated right posterior sectoral duct, which was clipped during the dissection of the Calot's triangle. Roux-en-y biliary reconstruction was performed to the isolated right posterior sectoral duct. Postoperatively, the patient was discharged well. ERCP performed after 2 months showed no bile leak.

## Figures

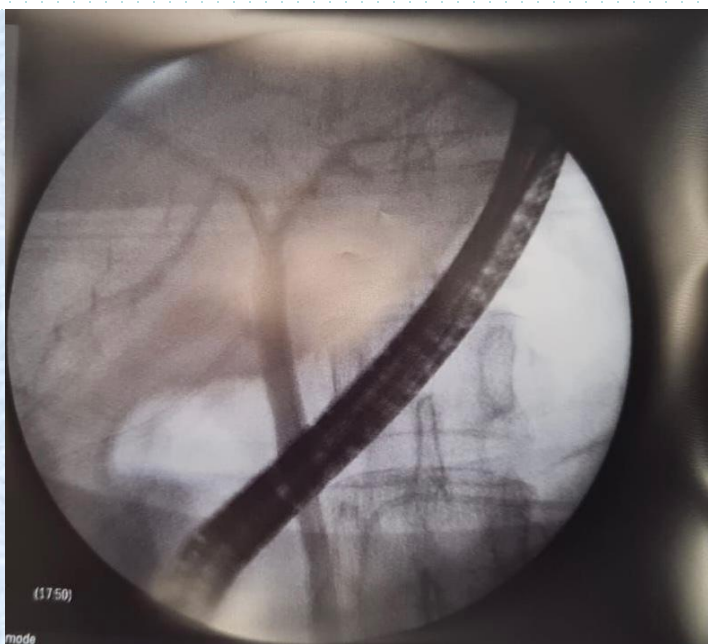


Figure 1. ERCP showed no obvious bile leak

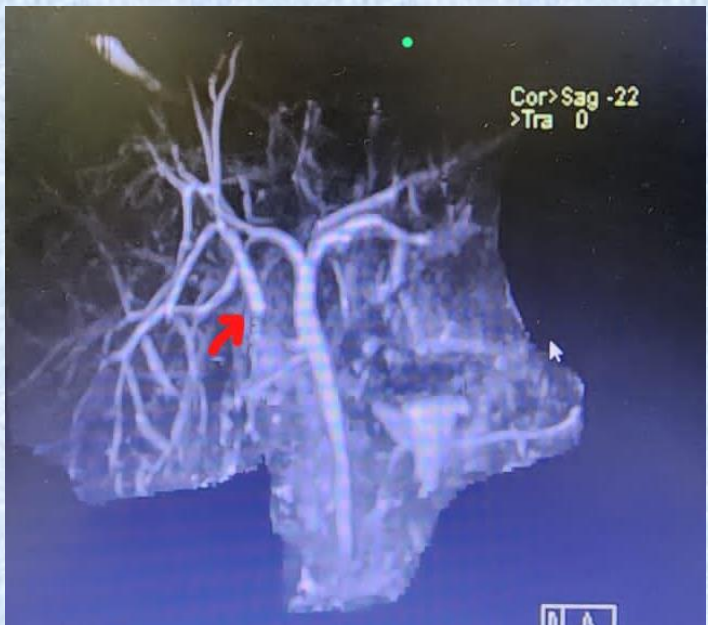


Figure 2. MRCP showed suspicious leakage of right hepatic duct

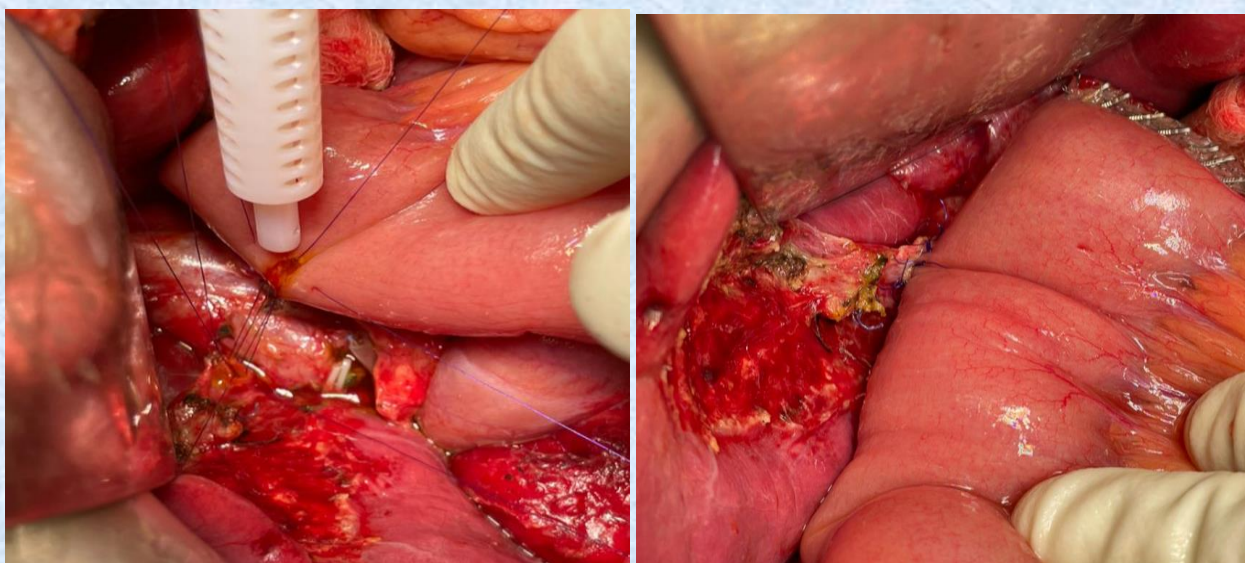


Figure 3 and 4 showing intraoperative pictures of the isolated right posterior sectoral duct

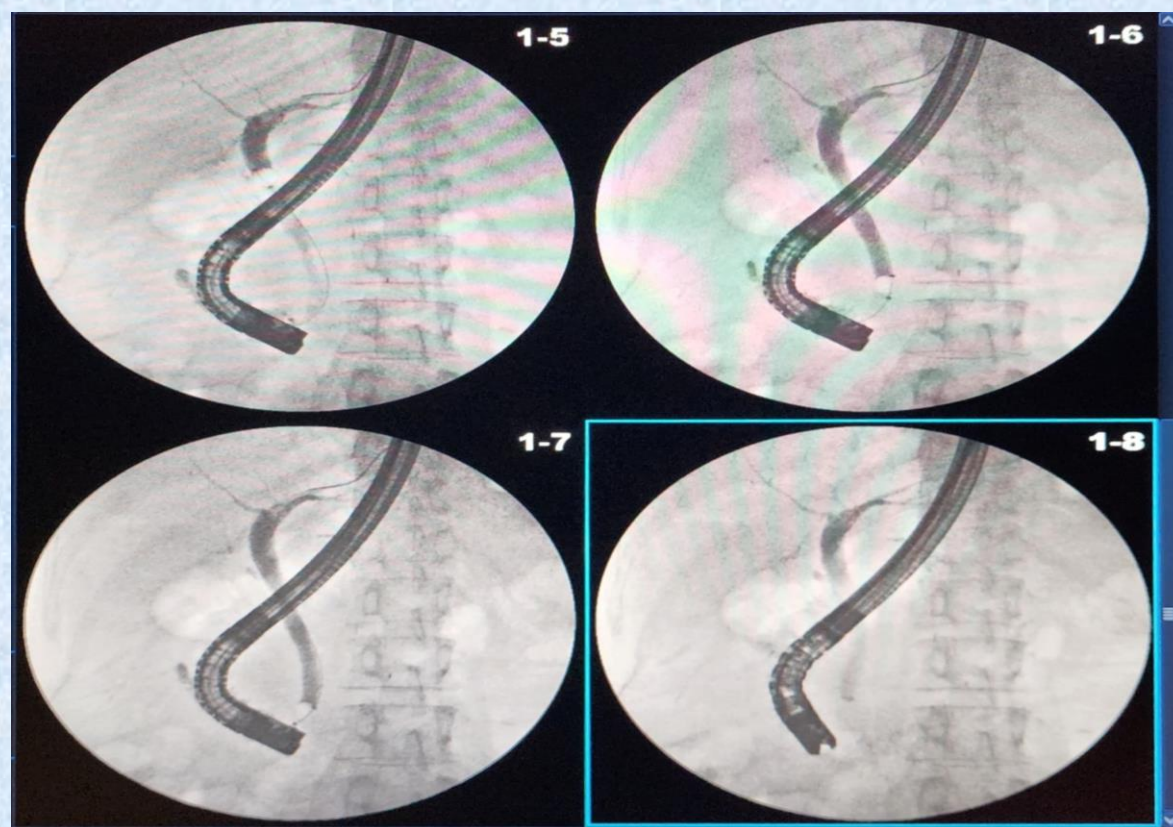


Figure 5 showing ERCP 2 months later with no demonstrable leak

## Discussion

Bile duct injury (BDI) after cholecystectomy is one of the most catastrophic complications described and care should be taken to minimize it.

There are various risk factors described in relation to bile duct injury, with bile duct variant being a well known one. Isolated right posterior sectoral duct is described in around 2-5% of patients. Other risk factors include patient factors like obesity, previous hepatobiliary or pancreatic surgery, underlying liver disease; anatomical variants including isolated right posterior sectoral duct and technical factors related to the surgery.

Patients generally present after cholecystectomy with symptoms such as right hypochondrium pain, fever, abdominal distension and unwell post cholecystectomy, suggestive of infected biloma. If drain is placed during the first surgery, persistent bile leak is suggestive of bile duct injury. Diagnosis can usually be made with magnetic resonance cholangiopancreatography (MRCP), in which the type of bile duct injury can be classified.

There are various classifications used to describe bile duct injury. (1) Bismuth Classification, (2) Strasberg Classification, (3) Lau/CUHK Classification, (4) Stewart-Way Classification. These classifications aid in describing the injury of the bile duct, with the latter ones describing concomitant vascular injuries. Treatment of the injury depends of the classification and severity of the injury.

Treatment of bile duct injury ranged from conservative to surgical intervention. Various non-operative options are described including Endoscopic retrograde cholangiopancreatography (ERCP) ± sphincterotomy ± stenting, percutaneous transhepatic biliary drainage (PTBD). Operative options described involved primary repair ± t-tube, Roux-en-y hepaticojejunostomy, and even liver resection.

If detected early and managed in a specialized centre, the outcomes of such patients are usually good with low morbidity and mortality.

## Conclusion

Bile duct variant is a major cause of bile duct injury in cholecystectomy. In an ideal setting, MRCP should be performed pre-operatively to identify biliary anatomy, in order to minimize the risk of bile duct injury. However, socioeconomic status is a major determinant of routine pre-operative MRCP. Hence, we report this case to highlight the importance of awareness of this rare biliary variant, and its significance in cholecystectomy.