Royal Australasian College of Surgeons

# ANZASM Case of the Month
## June 2024 Edition

*(case selected by the ANZASM Committee for your information)*

# Readmission with hypovolaemic shock following elective malignant hepatic duct surgery

## General Surgery

### Case summary

A woman in her 70s was admitted to hospital for an elective bile duct resection and hepaticojejunostomy for proximal bile duct cancer. Her comorbidities included dyslipidaemia, hypertension, diabetes and obesity. Her surgical history included an incidental finding of early gall bladder cancer at cholecystectomy (13 years prior), a lung resection for metastasis (8 years prior) and endoscopic retrograde cholangiopancreatography (ERCP) stent insertion for obstructive jaundice due to a malignant biliary tumour (3 months prior).

The patient progressed well after the bile duct resection and hepaticojejunostomy until postoperative day 7, when 500 mL of fresh blood and clots actively passed into a wound drain. This was followed by 40 mL of bile-stained bloody fluid. The surgeon advised to remove the drain; a skin stitch was applied.

A computed tomography (CT) scan showed a 6 cm x 10 cm x 10 cm haematoma in the gall bladder fossa, but no active bleeding. After discussion with radiology, decisions were made for no further intervention and no percutaneous drainage of the haematoma. The patient was transfused with 1 unit of blood because her haemoglobin fell to 67 g/L. She was stable for the next 4 days. On postoperative day 12 she was discharged home.

On postoperative day 14, the patient re-presented to the local hospital with hypovolaemic shock and low haemoglobin. Severe hypotension and tachycardia responded poorly to fluid resuscitation and required inotrope support. The resident medical officer (RMO) stated that there was bleeding from the drain site and that had previously been draining pus (probably having been told this by family).

Although the patient had one episode of temperature 38.3 °C, the intensive care unit (ICU) subsequently considered that the hypotension was from hypovolaemia and not distributive shock.

A CT scan was performed and reported as active arterial bleeding from the hepatic artery, with a 13 cm haematoma in the mesentery and gall bladder fossa. The hepatic artery distally was non-enhancing and there was no arterial supply to the liver. The hepaticojejunostomy anastomosis was not well visualised, although there was no free gas to suggest anastomotic failure. The portal vein was poorly enhancing, possibly due to thrombus. There was evidence of a large volume hepatic infarction in the right lobe and large volume portal gas. A comment was made that there was compression of the portal vein, presumably by the haematoma.

In severe hypovolaemic shock, the patient was transferred by aircraft back to the tertiary referral hospital. She required continuous blood transfusion to support her blood pressure.

At the tertiary referral hospital, angioembolisation of the bleeding gastroduodenal artery was performed with good effect, following proximal gastroduodenal artery balloon occlusion to reduce the chance of the onyx material embolising into the main hepatic artery. The consultant surgeon liaised with an interstate liver surgeon for advice regarding further interventions. The advice was for best ICU care.

The patient progressively deteriorated throughout the day, with acute liver failure and established multiorgan failure (ventilator support, inotrope support, haemodialysis, severe metabolic acidosis, severe coagulopathy, bacteraemia and possible pulmonary embolus).

The ICU comment stated that this patient could not survive and to switch to a palliative care pathway.

## Discussion

Complex hepato-pancreato-biliary (HPB) surgery is fraught with risks and requires the complex back-up and support that was available at the tertiary referral hospital, including interventional radiology; ICU; ongoing pre-, intra- and postoperative support; and advice when needed from a second HPB surgeon. This can be achieved with remote support from an HPB surgeon or by a fly-in-visit from an HPB surgeon.

In this case, the surgeon did liaise with an HPB surgeon but only towards the end of the patient's care pathway.

Current HPB practice for malignant tumours below the hilum of the liver is pancreatoduodenectomy. Pancreatoduodenectomy enables a greater margin of bile duct resection, thus reducing the probability of microscopic disease at the resection margin and provides wider lymph node clearance. The surgeon did use intra-operative frozen section of the distal margin of the bile duct in an attempt to avoid proceeding to a pancreatoduodenectomy. The frozen section reported no tumour present, so no pancreatoduodenectomy was performed. Paraffin section histopathology did demonstrate invasive tumour at the distal resection margin.

## Clinical lessons

There are 2 main issues to consider from this case:

- More active treatment of the bleeding and haematoma identified at day 7 may have altered this patient's outcome.
- Complex HPB cases are intrinsically difficult; it is important to link with the multidisciplinary team meetings and support of HPB surgeons.

## ANZASM Comment

"Sentinel" or "Herald" bleed is an onset of fresh bleeding from a drain following pancreato-biliary surgery. It is an ominous sign suggestive of intra-abdominal bleeding from either a pseudoaneurysm or from a structural vascular defect. This is sometimes accompanied by a fever. In up to 90% of cases initial minor bleeding is followed by more catastrophic blood loss. It warrants formal angiography or re-operation. A CT scan without intravenous contrast may not necessarily be enough to rule out a significant underlying vascular abnormality.