

Favourable anatomical variation for an extended hepatectomy with portal vein resection in a hilar cholangiocarcinoma involving second order ducts

Prabath Kumarasinghe¹, Hasith Fernando¹, Chathurika Sagara², Aloka Pathirana³

¹National Hospital of Sri Lanka

²Colombo South Teaching Hospital

³Faculty of Medical Sciences, University of Sri Jayewardenepura

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Introduction

A fifty-seven-year-old female presented with recent onset painless obstructive jaundice. She had no other comorbidities. Her total bilirubin was elevated with a predominant direct fraction (Total bilirubin-330mmol/l, Direct.bilirubin-165.66 mmol/l). CECT findings were consistent with hilar cholangiocarcinoma (Bismuth-Corlette type 3A) without distant metastasis. An external biliary drain was placed in the right hepatic duct, to relieve the obstruction. The percutaneous transhepatic cholangiogram confirmed the involvement of the hepatic duct confluence. CT-angiogram revealed a replaced right hepatic artery originating from the superior mesenteric artery

Procedure

A modified Makuuchi incision was made to open into the peritoneal cavity. The peritoneal survey confirmed a localised disease. The liver showed extensive cholestatic changes. Hilar dissection was performed and the right hepatic artery arising from the superior mesenteric artery was dissected away from the tumour. Tumour infiltration was noted at the portal vein confluence. The right hepatic duct (RHD) was involved near the confluence and tumour extension noted in the left hepatic duct (LHD). Left hemi-liver with caudate lobe was mobilized off the inferior vena cava. Parenchymal transection was carried out along the inter-sectoral line (between the right anterior and posterior sector).

Anterior sector vessels were divided between ligatures and inflow to the posterior sector was carefully preserved. The right posterior sectoral hepatic duct was divided from the lesion with a margin. Imprint cytology was done to confirm negative margins. Parenchymal transection was completed using CUSA®. The left hepatic artery was divided close to the gastroduodenal artery between ligatures. The right portal vein (RPV) was slung distal to the tumour and the main portal vein

(MPV) slung below the confluence and vascular clamps applied.

The portal vein was divided at MPV and RPV well away from the tumour. Left and middle hepatic veins were divided by vascular staplers and an extended Left Hepatectomy specimen was removed en-bloc with the common bile duct, right anterior and left hepatic duct and the portal vein segment with perihilar lymphatics. MPV was anastomosed to the distal RPV with 5.0 polypropylene. Limited mobilization of the right lobe of the liver and plication of the right diaphragm was done to relieve the tension at the PV anastomosis.

Roux-en-Y hepaticojejunostomy was done to the right posterior sectoral bile duct. Postoperative doppler confirmed good doppler flow of the RHA and RPV. The patient had an uneventful recovery and was referred for adjuvant chemotherapy. Histology confirmed a moderately differentiated cholangiocarcinoma with a negative RHD margin and PV resection margin.

Discussion

Hilar cholangiocarcinoma has a dismal prognosis without complete surgical resection (with negative resection margins) [1, 2, and 3]. En-bloc resection of the tumour with PV and perihilar lymphatics provides improved survival in carefully selected patients with HCCA. Routine resection of the PV when there is evidence of tumour abutment may minimize the tumour dissemination during dissection [4]. Especially right-sided tumours frequently invade the RHA due to its close relationship to the biliary confluence [5]. In instances where RHA originates from SMA, a more lateral course of the artery makes it less likely to be involved by the tumour.

Given the lack of an alternative curative method for hilar cholangiocarcinoma, aggressive resection with involved portal vein provides the greatest survival benefit and it can be performed safely as in our given patient.

Correspondence: Prabath Kumarasinghe

E-mail: ranganaksinghe14@gmail.com

 <https://orcid.org/0000-0002-5078-0944>

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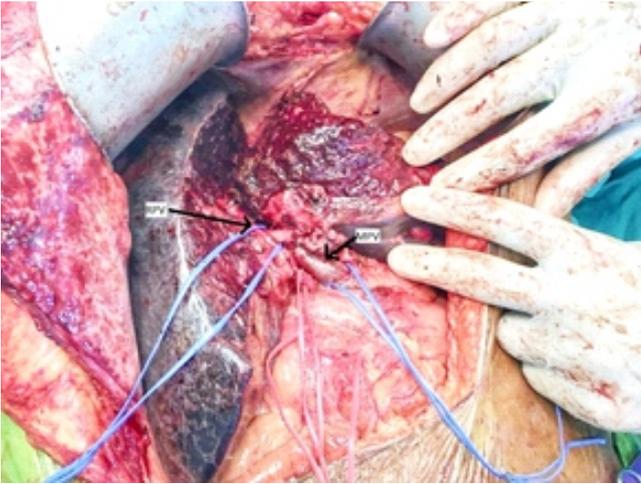


Figure 1. Liver parenchyma split along the intersectional line of right anterior and posterior sectors, portal vein confluence infiltrated by the tumour.

RPV- Right portal vein

MPV- Main portal Vein network

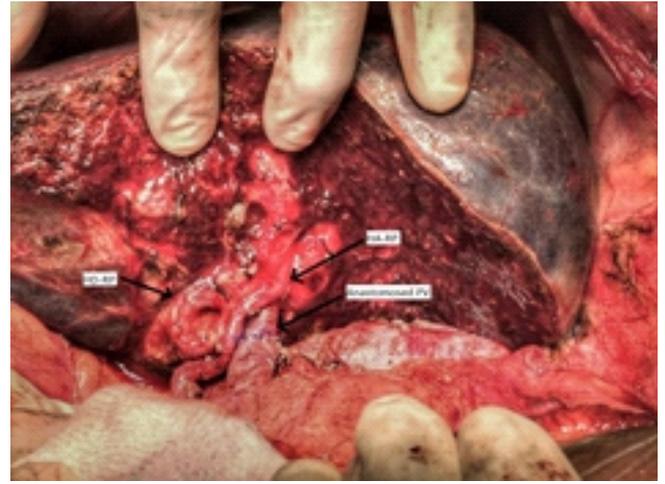


Figure 2. Preserved right posterior sector of the liver with intact inflow structures

HD-RP - Hepatic duct right posterior

HA-RP- Hepatic artery right posterior sector

All authors disclose no conflict of interest. The study was conducted in accordance with the ethical standards of the relevant institutional or national ethics committee and the Helsinki Declaration of 1975, as revised in 2000.

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