

Right Trisectionectomy with Principle En Bloc Portal Vein Resection for Right-Sided Hilar Cholangiocarcinoma: No-Touch Technique

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ABSTRACT

Background. The most favorable long-term survival rate for hilar cholangiocarcinoma is achieved by a R0 resection. A surgical concept involving a no-touch technique, with extended right hepatic resections and principle en bloc portal vein resection was described by Neuhaus et al.¹ According to Neuhaus et al.,¹ their technique may increase the chance of R0, because the right branch of the portal vein and hepatic artery is in close contact with the tumor and is frequently infiltrated. The left artery runs on the left margin of the hilum and often is free. The 5-year survival rate for their patients is 61% but 60-day mortality rate is 8%.^{1,2} Given the increased morbidity, some authors do not agree with routine resection of portal vein and may perform the resection of portal vein only on demand, after intraoperative assessment and confirmation of portal vein invasion.³

This video shows en bloc resection of extrahepatic bile ducts, portal vein bifurcation, and right hepatic artery, together with extended right trisectionectomy (removal of segments 1, 4, 5, 6, 7, and 8).

Methods. A 75-year-old man with progressive jaundice due to right-sided hilar cholangiocarcinoma underwent percutaneous biliary drainage with metallic stents for palliation. The patient was referred for a second opinion. Serum bilirubin levels were normal, and CT scan showed a resectable tumor, but volumetry showed a small left liver remnant. Right portal vein embolization was then

performed, and CT scan performed after 4 weeks showed adequate compensatory hypertrophy of the future liver remnant (segments 2 and 3). Surgical decision was to perform a right trisectionectomy with en bloc portal vein and bile duct resection using the no-touch technique.

Results. The operation began with hilar lymphadenectomy. The common bile duct is sectioned. Right hepatic artery is ligated. Left hepatic artery is encircled. Portal vein is dissected and encircled. Right liver is mobilized and detached from retrohepatic vena cava. Right and middle hepatic veins are divided. A right trisectionectomy along with segment 1 is performed, leaving specimen attached only by the portal vein. Portal vein is severed above and below the tumor, and specimen is removed. Portal vein anastomosis is done end-to-end with 6-0 Prolene. Doppler confirms normal portal flow. The procedure ends with Roux-Y hepaticojejunostomy. The patient recovered uneventfully, without transfusion, and was discharged on the tenth postoperative day. Final pathology confirmed hilar cholangiocarcinoma and R0 resection. Portal vein showed microscopic invasion. Patient is well with no evidence of the disease 14 months after the procedure.

Conclusions. Right trisectionectomy with en bloc portal vein and bile duct resection is feasible and may enhance chance for R0 resection and a better late outcome, especially in cases when portal vein is microscopically involved. Although described in 1999, there are few detailed descriptions of this procedure, and to the best of our knowledge, no multimedia articles are available. This video may help oncological surgeons to perform and standardize this challenging procedure.

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