

LETTER TO THE EDITORS

Successful living-donor liver retransplantation by retroperitoneal end-to-end portal vein grafting using recipient's internal jugular vein graft for a patient with portal vein thrombosis

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A 45-year-old male patient, who had undergone living-donor liver transplantation (LDLT) and splenectomy using an extended left lobe graft with hepatico-jejunostomy for end-stage liver disease with portal hyperperfusion caused by primary sclerosing cholangitis (PSC) in October 2009 was admitted to our hospital because of graft failure. At 10-month after LDLT, the patient developed repeated pyrexia caused by cholangitis. Magnetic resonance cholangiopancreatography revealed irregularity and dilatation of intrahepatic bile duct. At percutaneous transhepatic biliary drainage (PTBD), anastomotic stenosis of hepatico-jejunostomy was ruled out. Two months after PTBD, complete portal vein thrombosis (PVT) of the main portal vein developed presumably because of repeated cholangitis and an insertion of the PTBD catheter, for which thrombolytic therapy was attempted, but discontinued because of urinary tract hemorrhage. Doppler ultrasonography and enhanced computed tomography revealed artery-dominant hepatic blood flow, and absence of portal vein flow. Plasma exchange was performed for coagulation disorder and severe hepatic encephalopathy. With a diagnosis of graft

failure caused by recurrent PSC with portal thrombosis and the model for end-stage liver disease score of 38, re-LDLT under veno-venous bypass using a right lobe graft was performed at 30-month after the first LDLT. Because the recipient's portal vein could not be used for portal vein reconstruction because of PVT, we performed a grafting using the recipient's left internal jugular vein to restore the portal blood flow. The superior mesenteric vein (SMV) was exposed at the infra-pancreatic portion, and the pancreatic dorsum and the ventral aspect of the portal vein were dissected. The vein graft was anastomosed in an end-to-side fashion with the SMV proximal to the thrombosis, and the free-end of the vein graft was introduced through the pancreatic dorsum to the liver hilum. Then, the vein graft was anastomosed with the donor portal vein in an end-to-end fashion. However, portal inflow was inadequate after the reconstruction, and therefore, an end-to-side proximal anastomosis was switched to end-to-end anastomosis by ligation the inferior mesenteric vein, the inferior pancreaticoduodenal vein, and the splenic vein after hepatic artery reconstruction. Post-transplant enhanced computed

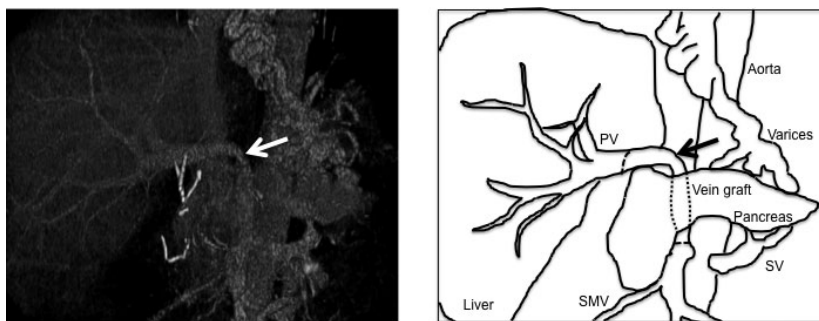


Figure 1 A graft using the recipient's left internal jugular vein was placed in an end-to-end fashion with the superior mesenteric vein proximal to the thrombosis through pancreatic dorsum after ligation the inferior mesenteric vein, the inferior pancreaticoduodenal vein, and the splenic vein. Postre-transplant enhanced computed tomography revealed patency of the vein graft (arrow).

tomography revealed adequate blood flow through the graft (Fig. 1). The patient made a satisfactory recovery, and transferred to an affiliate hospital for rehabilitation at 53 days after re-LDLT, and remains well.

Portal vein thrombosis is a well-recognized complication of end-stage liver disease that ranges from 2% to 26% [1]. The etiology of PVT is often multifactorial, and has not been fully understood. Postnecrotic cirrhosis, hepatitis C virus, cryptogenic cirrhosis, and PSC are associated with a high incidence of PVT [2]. For two decades, PVT was an absolute contraindication to liver transplantation [3]. After publication of a successful liver transplantation in two patients with PVT in 1985 [4], the number of liver transplantation with PVT has increased. PVT is no longer considered as a contraindication for liver transplantation, but adequate method for portal vein reconstruction for patients with PVT remains controversial [5]. PVT is still associated with a considerable peri-operative risk for liver transplantation, because of technical difficulty [6–8]. An adequate portal flow is indispensable to adequate post-transplant graft function. Thrombectomy, jump grafting using recipient's or donor's vessels, and the use of portal vein collaterals have been reported as techniques to restore the portal vein patency at liver transplantation [9]. In grade 1 and 2 cases, thrombectomy is the first choice procedure for portal vein reconstruction [3,8]. In our case, primary recipient's portal vein could not be used for portal reconstruction because of inflammatory and fibrotic changes by complete PVT. Switching from end-to-side to end-to-end fashion of grafting was performed to obtain adequate portal inflow. To the best of our knowledge, our case is the first report of successful re-LDLT by retroperitoneal end-to-end portal vein grafting with the SMV proximal to the thrombosis through pancreatic dorsum using the recipient's internal jugular vein graft for patient with PVT.

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