

**Is Preservation of Middle Hepatic Vein Tributaries during Right
Hemi-Hepatectomy Beneficial for Live Donor Liver Transplantation?**

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ABBREVIATIONS: living donor liver transplantation (LDLT); middle

hepatic vein (MHV)

SUMMARY

When right hemi-hepatectomy without middle hepatic vein (MHV) is performed in a living donor (LD), MHV tributaries, such as V5 and V8, may be preserved during parenchymal transection to preserve liver function and reduce the damage of the graft. However, no study has so far investigated whether this preservation of MHV tributaries during parenchymal transection has impact on live donor operation or graft function.

Of 52 hepatectomies for right lobe LD, MHV tributaries were preserved during hepatic parenchymal transection in 11 cases, while, in remaining 41 cases, MHV tributaries were sacrificed when those were encountered during hepatic parenchymal transection.

There was no significant difference in blood loss, operative time, zenith liver enzyme level in a donor and rate of graft failure in a recipient. It was demonstrated that there was no significant effect of outflow preservation from MHV tributaries on LD hepatectomy for right lobe donation and subsequent liver transplantation.

INTRODUCTION

The method for hemi-hepatectomy in a living donor is technically different from that carried out for hepatic tumors. Usually, when right lobe is resected without middle hepatic vein (MHV) for hepatic tumor, drainage veins, such as V5 or V8 from anterior sector of right lobe to MHV are ligated and transected during parenchymal transection (1, 2). However, when right hemi-hepatectomy is performed in a living donor, V5 and V8 may be preserved during parenchymal transection to preserve liver function and reduce the damage of the graft due to congestion of anterior sector of right lobe graft. This preservation of V5 and V8 during parenchymal transection in a living donor may increase blood loss because it is technically cumbersome to divide hepatic parenchyma with V5 and/or V8 still in place. However, no study has so far investigated this point.

METHODOLOGY

Patients

Eleven of 52 hepatectomies for right lobe living donor were

performed with V5 or V8 preservation during hepatic parenchymal transection (preserved group, n=11, **Figure 1**). They were transected right before graft explantation. On the other hand, in remaining 41 cases, V5 or/and V8 was sacrificed when those were encountered during hepatic parenchymal transection (sacrificed group, n=41). Whether V8 and /or V5 in a donor should be preserved and should be reconstructed in a recipient was determined according to previous reported method (3).

Methods

Method for hepatic parenchymal transection was reported elsewhere previously (4). Occlusion of the hepatic arterial and portal inflow was not used in any case. During parenchymal division, upward traction on the tape hanging maneuver leads to follow the direct plane and facilitates the exposure and hemostasis of the deeper parenchymal plane in front of the IVC (5).

All data are expressed as median values with ranges. The statistical analysis was performed using the Mann-Whitney U-test for continuous values. A statistical difference was defined as a p-value of less than 0.05.

RESULTS

The resected liver volume was comparable between the groups (Table 1). The amount of blood loss during operation was not different between 2 groups. (preserved group vs. sacrificed group: median 1000 vs. 697 g ($p=0.077$). The operation time seemed to be prolonged in preserved group than that in sacrificed group. (486 vs 423 minutes, $p=0.053$). In addition, donor liver function after partial liver donation was same after the operation. The rate of graft failure in both groups was same in two groups. In preserved group, all V5 and/or V8 veins were reconstructed in the recipients, whereas only 2 reconstructions were performed in sacrificed group based on the previous report [3].

DISCUSSION

The present study demonstrated that there was no significant effect of outflow preservation from V8 and V5 on living donor hepatectomy for right lobe donation and subsequent liver transplantation. Therefore, there was no advantage to preserve V5 and/or V8 until the end of partial liver graft harvesting in a living donor for both donor and recipient in this series. Even

operative time for donor hepatectomy tended to be longer in the preservation than that in divided group. Therefore, if recipient's operation is being performed as scheduled, V5 and/or V8 could be sacrificed during parenchymal transection in a living donor right lobe hepatectomy without MHV.

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Figure legend

FIGURE 1: In the preserved group, V5 and/or V8 were preserved until graft removal.

FIGURE 1

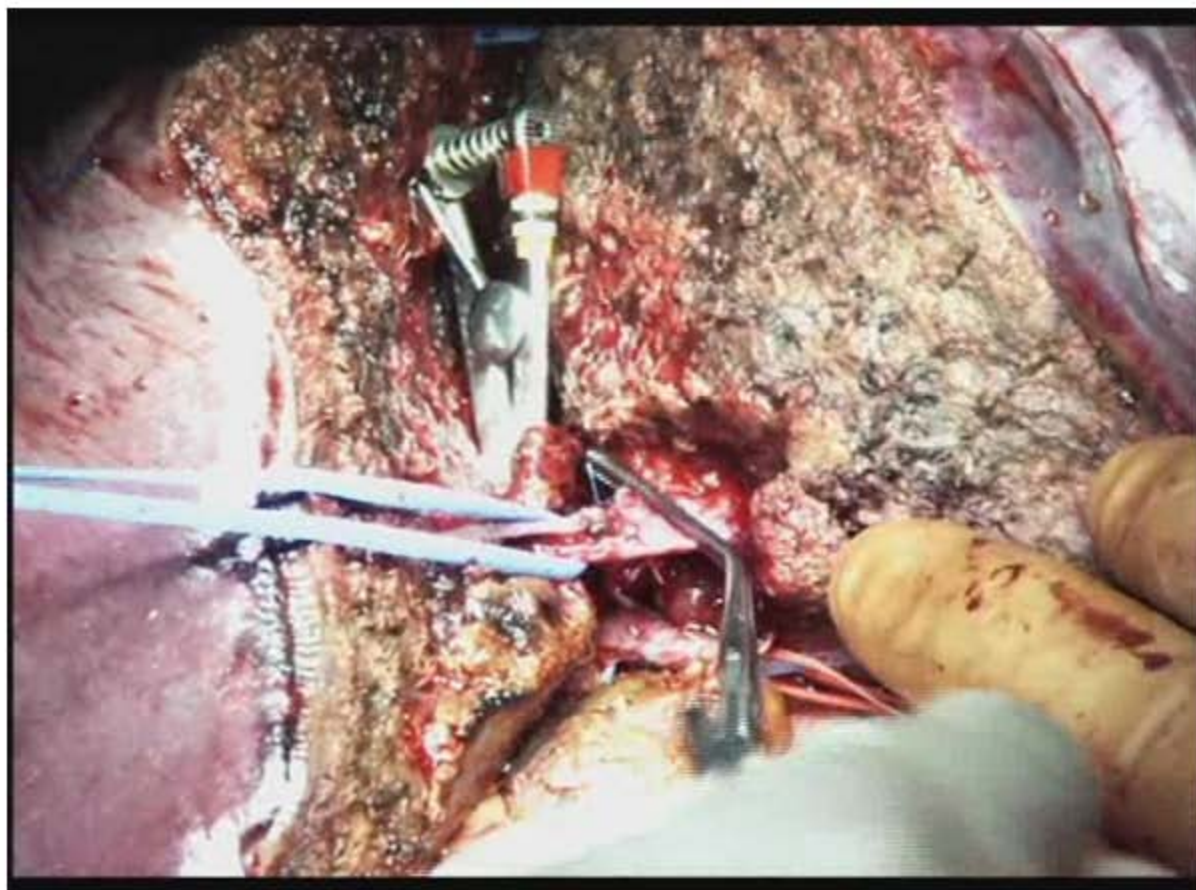


Table 1

	preserved group (n=11)	sacrificed group (n=41)	p
Age	33 (22-53)	45 (20-67)	0.2
Gender	5:6	19:21	0.62
Resected liver volume (%)	55.4	55.0	0.92
Blood loss (g)	1,000 (460-2,200)	697(130-2,550)	0.078
Operation Time (minutes)	486 (251-633)	423 (297-636)	0.053
Zenith ALT in donors (IU/L)	320 (69-651)	297 (169-1,237)	0.38
Zenith T Bil in donors (mg/dl)	2.3 (0.7-4.2)	2.4 (1.1-5.8)	0.61
V5 and/or V8 reconstruction in recipients	11 (100%)	2 (4.9%)	<0.0001
In hospital recipient's death	1 (infection 1)	5 (infection 2 severe rejection 2 hepatic artery thrombus 1)	0.77