

Figure S1 Correlation between predicted liver resection volume and actual volume of resected specimen measured by Archimedes drainage method. A significant correlation existed between the predicted liver resection volume and the actual volume of the resected specimen ($R^2=0.989$, $P<0.0001$).

Table S1 Comparison of baseline characteristics, surgical procedure, liver volumetry, estimated RLI/RLC areas and clinical outcomes between patients with and without remnant liver hypoperfusion detected in postoperative CT scan (POW1)

Variables	No remnant liver hypoperfusion (n=55)	Remnant liver hypoperfusion (n=47)	P value
Age, mean [SD], years	54.1 [12.9]	54.5 [12.6]	0.887
Sex, n [%]			
Female	13 [24]	9 [19]	0.583
Male	42 [76]	38 [81]	
TB, median [IQR], $\mu\text{mol/L}$	12.5 [10.0, 15.1]	12.7 [9.6, 15.9]	0.954
ALB, mean [SD], g/L	42.9 [4.5]	43.7 [4.2]	0.338
ALT, median [IQR], U/L	26 [19, 43]	23 [16, 48]	0.577
AST, median [IQR], U/L	32 [20, 52]	29 [20, 48]	0.636
GGT, median [IQR], U/L	84 [43, 196]	83 [45, 142]	0.914
PA, mean [SD], g/L	0.20 [0.06]	0.22 [0.06]	0.097
PT, mean [SD], s	11.5 [0.8]	11.5 [1.0]	0.794
Cr, mean [SD], $\mu\text{mol/L}$	72.2 [12.2]	74.0 [15.7]	0.510
HB, mean [SD], g/L	136 [21]	140 [17]	0.315
PLT, median [IQR], $\times 10^9/\text{L}$	194 [158, 257]	198 [142, 245]	0.840
WBC, median [IQR], $\times 10^9/\text{L}$	5.5 [4.7, 7.4]	6.3 [5.5, 8.0]	0.032*
HBsAg, n [%]			0.559
+	33 [60]	25 [53]	
-	22 [40]	22 [47]	
HBeAg, n [%]			0.335
+	7 [13]	3 [6]	
-	48 [87]	44 [94]	
CSPH, n [%]			0.346
Yes	8 [15]	4 [9]	
No	47 [85]	43 [91]	
LS, mean [SD], kPa	10.3 [3.9]	9.8 [2.7]	0.441
Anatomical resection, n [%]			0.013*
Yes	31 [56]	15 [32]	
No	24 [44]	32 [68]	
Hilar occlusion, median [IQR], min	20 [17, 29]	20 [16, 23]	0.565
Blood lose, median [IQR], mL	400 [150, 600]	400 [200, 500]	0.914
SLV, mean [SD], mL	1,239 [127]	1,243 [119]	0.901
TLV, median [IQR], mL	1,596 [1,341, 1,921]	1,561 [1,320, 1,783]	0.363
Tumor volume, median [IQR], mL	206 [64, 635]	149 [62, 537]	0.589
eFRL/SLV, mean [SD], %	69.8 [18.8]	67.4 [20.2]	0.550

Table S1 (continued)

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Variables	No remnant liver hypoperfusion (n=55)	Remnant liver hypoperfusion (n=47)	P value
eRLI, n [%]			0.680
Absent	28 [51]	22 [47]	
Present	27 [49]	25 [53]	
eRLI/SLV, median [IQR], %	2.6 [0.9, 7.5]	6.2 [2.7, 17.0]	0.023*
eRLC, n [%]			<0.001*
Absent	32 [58]	10 [21]	
Present	23 [42]	37 [79]	
eRLC/SLV, median [IQR], %	3.2 [1.3, 9.7]	8.7 [4.5, 12.9]	0.018*
PHLF, [%]			0.156
Yes	16 [29]	20 [43]	
No	39 [71]	27 [57]	
Postoperative complications, n [%]			0.022*
Major	4 [7]	11 [23]	
Minor or none	51 [93]	36 [77]	

*, $P < 0.05$. CT, computed tomography; POW, postoperative week; HCC, hepatocellular carcinoma; ICC, intrahepatic cholangiocarcinoma; TB, total bilirubin; ALB, albumin; ALT, alanine aminotransferase; AST, aspartate aminotransferase; GGT, γ -glutamyl transpeptidase; PA, pre-albumin; INR, international normalized ratio; Cr, creatinine; HB, hemoglobin; PLT, platelet count; WBC, white blood cell; HBsAg, hepatitis B s antigen; HBeAg, hepatitis B e antigen; CSPH, clinical significant portal hypertension; LS, liver stiffness; SLV, standardized liver volume; TLV, total liver volume; eFRL, estimated future remnant liver volume; eRLI, estimated portal-vein-associated remnant liver ischemia; eRLC, estimated hepatic-vein-associated remnant liver congestion; PHLF, post-hepatectomy liver failure.

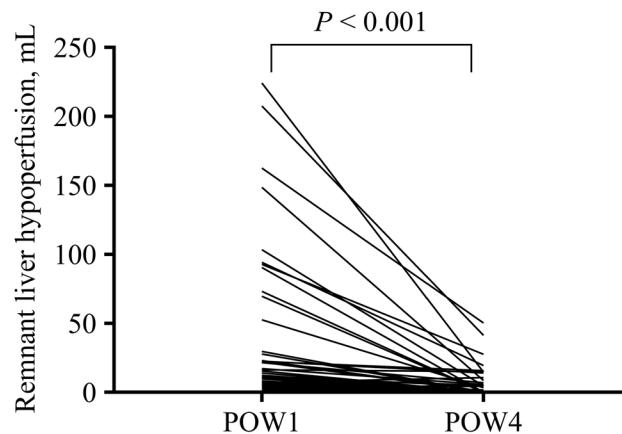


Figure S2 The change of volume of remnant liver hypoperfusion from POW1 to POW4. The remnant liver hypoperfusion area significantly decreased from 11.6 (5.5, 29.8) mL on POW1 to 1.1 (0, 5.8) mL on POW4 ($P < 0.001$). POW, postoperative week.