

Figure S1 Tumor progression after TAE-salvaged ALPPS. (A-F) AFP increase was observed 1 week after ALPPS stage-1 in 6 AFP-positive patients who had full follow-up data. (G) Tumor volume increase after ALPPS stage-1 in most patients (8/10), whereas tumor shrunk in 2 patients. The increase in AFP levels and tumor volumes indicated tumor progression after ALPPS stage-1. After TAE, tumor progression was controlled. A significant decrease in AFP levels was observed although tumor volumes kept on increasing in some patients (5/10). AFP, Alpha-fetoprotein; TAE, transcatheter arterial embolization; ALPPS, associating liver partition and portal vein ligation for staged hepatectomy.

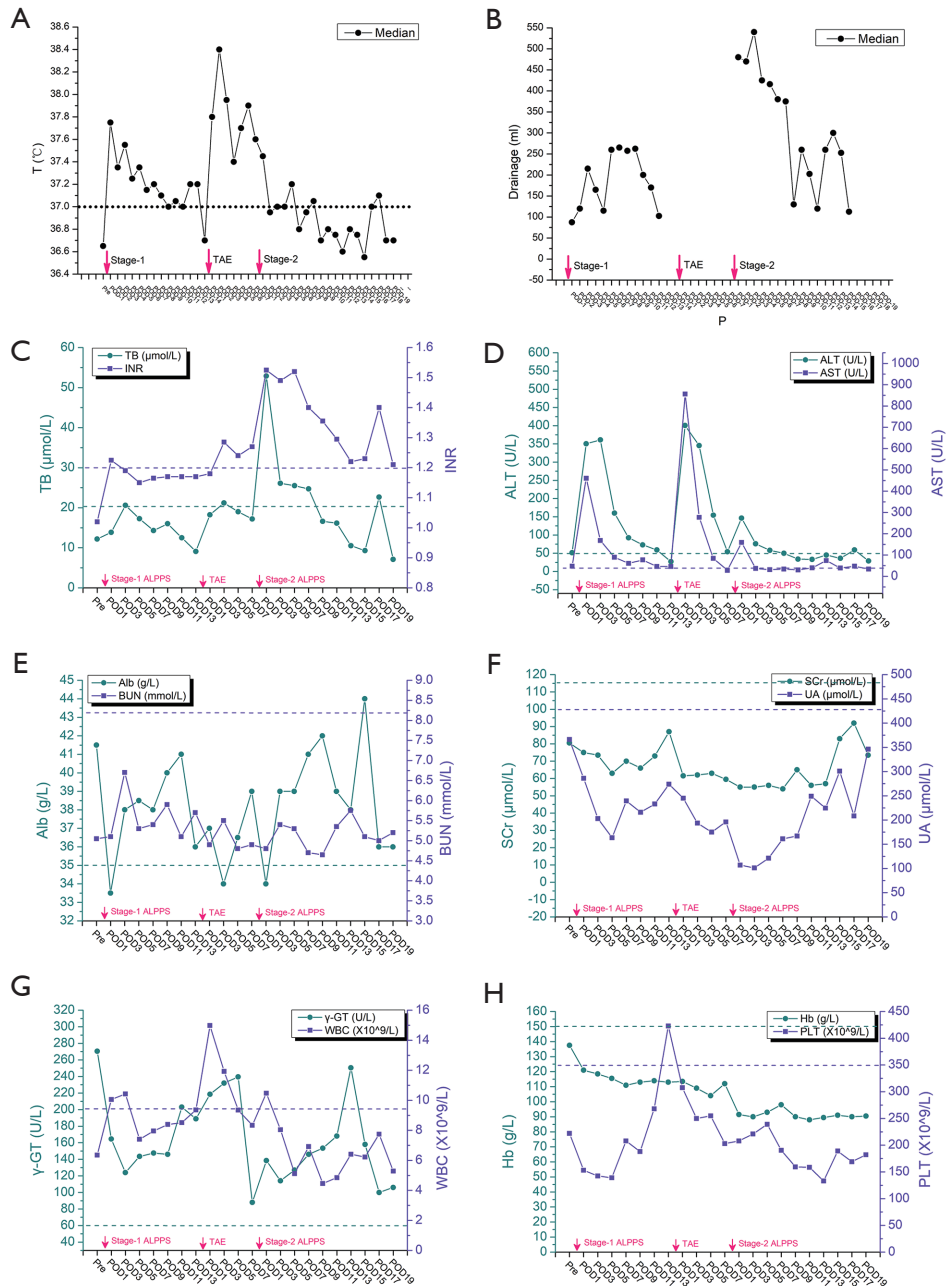


Figure S2 Changes after TAE-salvaged ALPPS. (A) All patients presented with fever after ALPPS stage-1 and the fever exacerbated after TAE. (B) Most patients presented with large amounts of drainage, especially after ALPPS stage-2. (C-H) After ALPPS stage-1, AST and ALT levels rose remarkably followed by a quick decline, whereas TB level and prothrombin time showed no inordinate increases and quickly return to normal; after TAE, ALT and AST levels rose again quickly, whereas TB did not significantly increase while INR increased remarkably; after ALPPS stage-2, AST and ALT levels showed no significant increase, whereas TB and INR increased considerably and they gradually returned to normal. Renal function was well kept in most patients using diuretic treatment, although massive necrosis of tumor had been caused by portal vein ligation and TAE. Blood examination indicated that postoperative anemia was common. Alb, albumin; BUN, blood urea nitrogen; SCr, serum creatinine; UA, uric acid; γ -GT, γ -Glutamyl Transferase; WBC, white blood cell; Hb, hemoglobin; PLT, platelet; TAE, transcatheter arterial embolization; ALPPS, associating liver partition and portal vein ligation for staged hepatectomy; AST, aspartate aminotransferase; ALT, alanine aminotransferase; TB, total bilirubin; INR, international normal ratio.

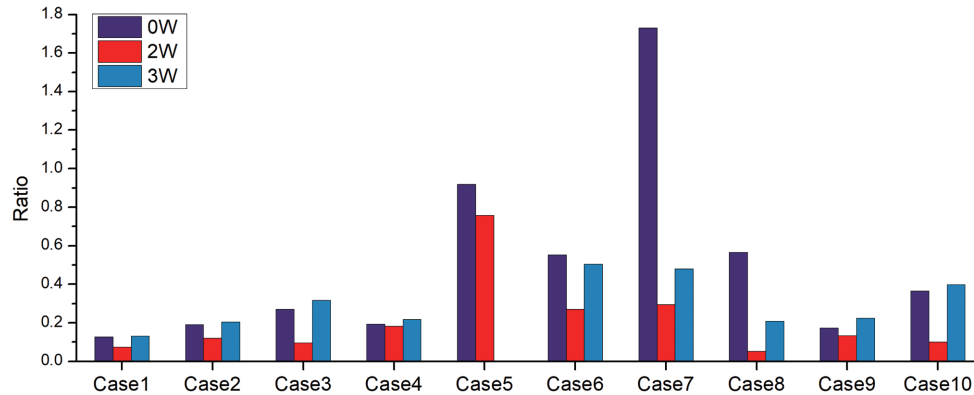


Figure S3 Changes in CSA of the left/right hepatic artery ratio and the reverse effect of TAE on arterial blood supply to FLR. In most patients, the CSA ratio of left hepatic artery (supplying FLR) to that of the right hepatic artery (supplying tumor-side liver) significantly decreased after ALPPS stage-1, and recovered by TAE in two weeks after ALPPS stage-1 (0W, before operation; 2W, 2 weeks; 3W, 3 weeks; Data at 3 weeks in Case 5 was unavailable). CSA, cross-sectional area; TAE, transcatheter arterial embolization; FLR, future liver remnant; ALPPS, associating liver partition and portal vein ligation for staged hepatectomy.

Table S1 Postoperative complications grouped by severity (Clavien-Dindo)

	ALPPS stage-1	TAE	ALPPS stage-2
Case-1	-	-	-
Case-2	grade A PHLF (I) #	-	-
Case-3	-	-	grade B PHLF (II); PE (IIIa)
Case-4	grade A PHLF (I); TLS (I); Ascites (II)	grade A PHLF (I); TLS (I); Ascites (II)	grade B PHLF (II); Death (V)
Case-5	Ascites (II)	-	grade A PHLF (I); Anemia (II)##; Ascites (II)
Case-6	-	-	-
Case-7	-	-	grade A PHLF (I)
Case-8	-	-	grade A PHLF (I)
Case-9	Ascites (II)	-	grade A PHLF (I); Bile leakage (I); Ascites (I)
Case-10	Ascites (II)	Ascites (II)	grade A PHLF (I); Anemia (I); Ascites (I)

#, The severity of postoperative complication was classified by Clavien-Dindo classification; ##, Anemia (Hb <80 g/L) requiring red blood cells transfusion (Hb decreased to 73 g/L postoperatively). TAE, transcatheter arterial embolization; ALPPS, associating liver partition and portal vein ligation for staged hepatectomy; -, no complications; PHLF, posthepatectomy liver failure; PE, pleural effusion; TLS, Tumor lysis syndrome; MOD, multiple organ dysfunction;

Table S2 Number of postoperative complications

Grade #	ALPPS stage-1	TAE	ALPPS stage-2
I	3	2	9
II	4	2	4
IIIa	0	0	1
IIIb	0	0	0
IVa	0	0	0
IVb	0	0	0
V	0	0	1

#, The severity of postoperative complication was classified by Clavien-Dindo classification. TAE, transcatheter arterial embolization; ALPPS, associating liver partition and portal vein ligation for staged hepatectomy.