

**Supplementary table 1.** Comparison of baseline characteristics and imaging features of patients between two cohorts

Variable	LMU hospital (n=108)	Muenster hospital (n=70)	p value
<b>Clinical and laboratory factors</b>			
Sex			0.835
• Female	22 (20.4%)	16 (22.9%)	
• Male	86 (79.6%)	54 (77.1%)	
Age at liver transplantation, median (IQR)	58.0 (9.0)	60.5 (11.5)	<b>0.024</b>
Listing to transplant (days), median (IQR)	176.0 (170.3)	127.5 (242.8)	0.227
Etiology of liver disease			<b>&lt;0.001</b>
• Chronic alcoholism	29 (26.9%)	23 (32.9%)	
• HBV	8 (7.4%)	17 (24.3%)	
• HCV	40 (37.0%)	13 (18.6%)	
• HBV + HCV	6 (5.6%)	0 (0.0%)	
• Cryptogenic	9 (8.3%)	3 (4.3%)	
• NASH	3 (2.8%)	8 (11.4%)	
• Others	13 (12.0%)	6 (8.5%)	
INR, median (IQR)	1.3 (0.4)	1.2 (0.3)	<b>0.003</b>
MELD score, median (IQR)	11.5 (8.0)	9.5 (5.8)	<b>&lt;0.001</b>
Bilirubin (mg/dl), median (IQR)	1.8 (1.5)	1.0 (1.4)	<b>&lt;0.001</b>
ALT (U/L), median (IQR)	39.5 (57.8)	41.5 (29.3)	0.770
AST (U/L), median (IQR)	65.0 (71.0)	58.0 (44.0)	0.161
ALP (U/L), median (IQR)	144.5 (89.5)	153.5 (78.5)	0.877
GGT (U/L), median (IQR)	102.5 (143.0)	115 (144.3)	0.285
AFP (ng/mL), median (IQR)	7.2 (22.6)	8.3 (60.3)	0.719
<b>Imaging factors</b>			
Liver cirrhosis	94 (87.0%)	59 (84.3%)	0.768
Biliary dilatation	9 (8.3%)	12 (17.1%)	0.123
Varices	75 (69.4%)	33 (47.1%)	<b>0.005</b>
Ascites	42 (38.9%)	28 (40.0%)	1.000

Pleural effusion	6 (5.6%)	5 (7.1%)	0.754
Small lesions	32 (29.6%)	30 (42.9%)	0.100
Diameter of the largest lesion (mm), median (IQR)	29.3 (13.2)	37.2 (24.6)	<b>&lt;0.001</b>
Number of tumors > 3	4 (3.7%)	13 (18.6%)	<b>0.001</b>
Atypical HCC enhancement pattern	10 (9.3%)	1 (1.4%)	0.052
Capsule	17 (15.7%)	12 (17.1%)	0.968
Irregular margin	61 (56.5%)	40 (57.1%)	1.000
Satellite nodules	7 (6.5%)	8 (11.4%)	0.377
Peritumoral enhancement	7 (6.5%)	14 (20.0%)	<b>0.013</b>
Nodule-in-nodule	16 (14.8%)	18 (25.7%)	0.107
HU of tumor on arterial phase, mean (SD)	81.8 (20.8)	89.4 (20.5)	<b>0.017</b>
HU of tumor on portal phase, mean (SD)	93.3 (18.6)	93.3 (21.0)	0.999
History of bridging therapies	97 (89.8%)	38 (54.3%)	<b>&lt;0.001</b>
<b>Follow-up</b>			
Recurrence	12 (11.1%)	19 (27.1%)	<b>0.011</b>

Bold indicates statistical significance.

AFP: Alpha fetoprotein, ALP: Alkanine phosphatase, ALT: Alanine transaminase, AST: Aspartate transaminase, GGT: Gamma-glutamyl transferase, HBV: Hepatitis B, HCC: Hepatocellular carcinoma, HCV: Hepatitis C, HU: Hounsfield Unit, INR: International normalized ratio, IQR: Interquartile range, MELD: Model for End-Stage Liver Disease, NASH: Non-alcoholic steatohepatitis

## Supplementary table 2. Interreader agreement

Imaging features	Cohen's kappa
Atypical HCC enhancement pattern	0.442
Biliary dilatation	0.524
Varices	0.515
Ascites	0.713
Pleural effusion	0.767
Capsule	0.584
Margin	0.405
Satellite nodules	0.518
Peritumoral enhancement	0.614
Nodule_in_nodule	0.457
Liver morphology	0.461
Small lesions	0.664

Imaging features	Intraclass correlation coefficient (ICC)
Diameter of the largest tumor	0.811
Number of lesions	0.918
HU on arterial phase	0.814
HU on portal phase	0.882

**Supplementary table 3. Coefficient weights of variables for time-to-recurrence analysis**

Parameter	Coefficient	Exponentiated LASSO coefficient
Peritumoral enhancement	1.4194522	4.1348549
Number of tumors	1.0832207	2.9541787
AFP	0.6552335	1.9255921
Diameter of largest tumor	0.6208740	1.8605534
Capsule	0.0372473	1.0379497
Atypical HCC enhancement pattern	0	1
Biliary dilatation	0	1
Varices	0	1
Ascites	0	1
Pleural effusion	0	1
Irregular margin	0	1
Satellite nodules	0	1
Nodule-of-nodule	0	1
Liver cirrhosis	0	1
Small lesions	0	1
Sex	0	1
Listing to transplant	0	1
Age at liver transplantation	0	1
HU of tumor on arterial phase	0	1
HU of tumor on portal phase	0	1
History of bridging therapies	-1.0787777	0.3400109

AFP: Alpha fetoprotein, HCC: Hepatocellular carcinoma, HU: Hounsfield Unit.