

Supplementary Table S1 Demographic data of patients with HCC and high-risk or low-risk esophageal varices undergo surgical resection

Patient Demographic	All(N= 111)	High risk EV(N=45)	Low risk EV(N=66)	p value
Age (years)	65 (55-75)	64 (54-72)	64(51-69)	0.999
Sex (M/F) (%)	87/24 (78.4%/21.6%)	36/9 (80%/20%)	51/15 (77.3%/22.7%)	0.732
HBsAg (+/-) (%)	71/40 (64%/36%)	25/20 (55.6%/44.4%)	46/20 (69.7%/30.3%)	0.128
Anti-HCV (+/-) (%)	35/76 (31.5%/68.5%)	15/30 (33.3%/66.7%)	20/46(30.3%/69.7%)	0.736
Cirrhosis (Y/N) (%)	85/26 (76.6%/23.4%)	38/7 (84.4%/15.6%)	47/19 (71.2%/28.8%)	0.117
MELD score	8.08 (7.18-9.28)	8.28 (7.47-9.42)	8.0 (7.16- 9.66)	0.552
Child Pughs class(A/B) (%)	110/1 (99.1%/0.9%)	45 (100%)	65/1 (98.5%/1.5%)	1
ALBI grade (1/2+3) (%)	43/68 (38.7%/61.3%)	14/31 (31.1%/68.9%)	29/37 (43.9%/56.1%)	0.173
Splenomegaly (Y/N) (%)	60/51 (54.1%/45.9%)	32/13 (71.1%/28.9%)	28/38 (42.4%/57.6%)	0.004
Ascites (Y/N) (%)	16/95	8/37	8/58	0.405
Albumin (g/dl)	3.8(3.5- 4.1)	3.8(3.5-4.05)	3.9(3.6-4.2)	0.493
ALT (IU/L)	45(28- 94)	48(29-90.5)	45(27.5-95)	0.324
AST IU/L	54.5(34-83)	56(39-75.5)	43.5(29-94.5)	0.290
AKLP IU/L	90.5(67.5-121.5)	99(73-146)	80(63.5-115.5)	0.047
T-Bil (mg/dl)	0.83(0.68-1.2)	0.81(0.68-1.25)	0.86(0.68-1.17)	0.349
Creatinine (mg/dl)	0.83(0.72-1.0)	0.81(0.72-0.95)	0.88(0.72-1.00)	0.369
INR	1.09(1.04-1.16)	1.10(1.05-1.18)	1.07(1.03-1.14)	0.030
PLT(X10 ⁹ /L)	106(84-160)	96(68-136)	121(93-183)	0.008
Tumor numbers	1 (1-1)	1 (1-2)	1 (1-1)	0.138
Tumor size	3.7 (2.1-5.7)	4 (2.1-5.0)	3.7 (2.05-6.5)	0.995
Within Milan criteria (Y/N) (%)	64/47 (57.7%/42.3%)	27/18 (60%/40%)	37/29 (56.1%/43.9%)	0.680
AFP (ng/ml)	31 (7-220)	46 (11.5-374.5)	27 (5.75-175.5)	0.124
Macrovascular invasion (Y/N) (%)	14/87 (12.6%/87.4%)	7/38 (15.6%/84.4%)	7/59 (10.6%/89.4%)	0.447
Microvascular invasion (Y/N) (%)	69/42 (62.7%/37.3%)	28/17 (62.2%/37.8%)	41/25 (62.1%/37.9%)	1.000
BCLC stage (0-A/B-C) (%)	82/29 (73.9%/26.1%)	33/12 (73.3%/26.7%)	49/17 (74.2%/25.8%)	1.000
Major hepatectomy (Y/N) (%)	25/86 (22.5%/77.5%)	12/33 (26.7%/73.3%)	13/53 (19.7%/80.3%)	0.388
R0 Resection (Y/N) (%)	101/10 (91.0%/9.0%)	43/2 (95.6%/4.4%)	58/8 (87.9%/12.1%)	0.197
Post hepatectomy decompensation (Y/N) (%)	25/86 (22.5%/77.5%)	15/30 (33.3%/66.7%)	10/56 (17.9%/82.1%)	0.024
EV bleeding (Y/N) (%)	28/83 (25.2%/74.8%)	21/24 (46.7%/53.3%)	7/59 (10.6%/89.4%)	<0.001
Variceal bleeding free survivals (months)	52.2 (0-191.9)	33.1 (0-186.3)	94.4 (0.3-191.3)	0.008
Tumor recurrence free survivals	15.4 (0.4-112.8)	12.2 (0.9-94.1)	18.4 (0.4-112.8)	0.067
Overall survivals	67.9 (0.4-191.9)	47.5 (2.1-191.9)	99.9(0.4-185.8)	0.023

ALT = alanine aminotransferase; AST = aspartate transaminase; T-Bil = total bilirubin; INR = international normalized ratio; PLT = platelet; AFP = alpha fetal protein; BCLC = Barcelona Clinic Liver Cancer classification; R0 resection = microscopically margin-negative resection EV = esophageal varice

Supplementary Table S2 The univariate and multivariate with bleeding free survival

Variable	N (%)	Univariate analysis		Multivariate analysis	
		Hazard ratio (95% CI)	<i>p</i>	Hazard ratio (95% CI)	<i>P</i>
Age (y/o) >65/≤65	56/55	1.040(0.623-1.739)	0.880		
Sex M/F	87/24	0.872(0.452-1.684)	0.684		
HBsAg Y/N	71/40	1.054(0.617-1.801)	0.848		
Anti-HCV Y/N	35/76	0.916(0.562-1.678)	0.971		
Albumin (g/dl) ≤4/>4	35/76	1.586(0.870-2.894)	0.133		
T-Bil (mg/dl) ≥1.0/<1.0	47/64	1.086(0.638-1.846)	0.762		
BCLC stage B-C/0-A	82/29	1.678(0.960-2.933)	0.069		
ALBI grade 2/1	68/43	1.430(0.829-2.465)	0.198		
Plt (ml ⁻¹) ≤100K />100K	49/62	1.324(0.789-2.221)	0.288		
MELD score >8/≤8	58/53	1.182(0.707-1.976)	0.523		
ALT (IU/L) ≥40/<40	62/49	0.990(0.591-1.660)	0.971		
AST (IU/L) ≥40/<40	70/41	1.921(0.1080-3.418)	0.026		
AFP (ng/ml) ≥20/<20	68/43	2.092(1.194-3.665)	0.010		
Macrovascular invasion Y/N	14/87	3.904(1.963-7.762)	<0.001	2.495(1.178-5.287)	0.017
Microvascular invasion Y/N	69/42	2.359(1.307-4.257)	0.004	2.532(1.339-4.790)	0.004
R0 resection N/Y	10/101	1.623(0.735-3.585)	0.231		
Post hepatectomy decompensation Y/N	25/86	2.383(1.346-4.217)	0.003	1.870(1.075-3.444)	0.045
Major hepatectomy Y/N	25/86	2.301(1.298-4.081)	0.004		
Within Milan Criteria N/Y	47/64	1.295(0.771-2.174)	0.329		
Cirrhosis Y/N	85/26	0.980(0.529-1.817)	0.949		
Splenomegaly Y/N	60/51	1.411(0.838-2.376)	0.196		
Ascites Y/N	16/95	2.560(1.418-4.624)	0.002	2.553(1.391-4.687)	0.002
High Risk EV Y/N	45/66	1.968(1.179-3.284)	0.010	1.912(1.119-3.269)	0.018

ALT = alanine aminotransferase; AST = aspartate transaminase; T-Bil = total bilirubin; INR = international normalized ratio; PLT = platelet; AFP = alpha fetal protein; BCLC = Barcelona Clinic Liver Cancer classification; R0 resection = microscopically margin-negative resection EV = esophageal varice

