

Risk Factors and Treatment Strategy of Ruptured Hepatocellular Carcinoma

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Backgrounds/Aims: The incidence of the spontaneous rupture of hepatocellular carcinoma (HCC), which is a life-threatening condition, is reported to be 2.2-17.9% in Korea. This study was conducted to analyze the risk factors of HCC rupture and to make a treatment strategy. **Methods:** We reviewed 370 patients with HCC in terms of the clinicopathologic features, the prognosis according to the type of treatment. **Results:** The incidence of HCC rupture was 13% (48/370). The suspected risk factors of tumor rupture, except protrusion of tumor, showed no significant difference in this series. Among the 48 patients with ruptured HCC, 15 underwent hepatic resection and the remaining 33 received hepatic artery ligation, transarterial embolization or conservative management. The median survival time of patients with resection and non-resection were 9.0 ± 2.4 months and 0.6 ± 0.2 months respectively ($p < 0.05$). In stage A HCC, the median survival time of patients with resection and non-resection were 6.0 ± 1.5 months and 0.6 ± 0.2 months, respectively ($p < 0.05$). **Conclusions:** The protrusion of tumor beyond the liver surface is the only significant risk factor of HCC rupture. Partial hepatectomy seems to be an effective modality for lifesaving as well as long-term survival for patients with ruptured HCC. (**Kor J Gastroenterol 1998;32:749 - 756**)

Key Words: Hepatocellular carcinoma, Rupture, Risk factor, Hepatectomy.

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Table 2. Laboratory Data and Child Class of the Patients with Hepatocellular Carcinoma

	Ruptured HCC	Non-ruptured HCC	p-value
AST (U/L)	615 ± 1721	247 ± 334	0.18
ALT (U/L)	172 ± 368	75 ± 70	0.10
Bilirubin (mg/dL)	3.8 ± 5.8	1.3 ± 0.8	<0.05
Albumin (g/dL)	2.9 ± 0.6	3.4 ± 0.5	<0.05
-fetoprotein (ng/ml)	11,887 ± 20,586	3,535 ± 7,037	<0.05
Child class (number)			<0.05
A	5	20	
B	10	8	
C	32	12	

HCC, hepatocellular carcinoma; AST, aspartate aminotransferase; ALT, alanine aminotransferase.

Table 3. Risk Factors of Ruptured Hepatocellular Carcinoma

	Ruptured	Non-ruptured	p-value
Prothrombin time (second)	14.5 ± 2.6	13.7 ± 1.5	0.90
Platelet (1,000/ml)	158 ± 80	157 ± 76	0.97
Size of tumor (cm)	8.9 ± 4.9	8.8 ± 4.2	0.86
Location of tumor (No. of patients)			0.53
Right lobe	22	22	
Left lobe	8	8	
Both lobe	17	10	
Liver cirrhosis	34/45 (76%)	26/40 (65%)	0.28
Portal vein thrombosis	18/47 (38.3%)	21/40 (53%)	0.18
TNM stage (No. of patients)			0.17
	0	2	
	6	7	
	4	1	
A	34	26	
B	1	4	
Growth pattern			0.45
Nodular	26	20	
Massive	10	9	
Diffuse	7	11	
Protrusion of tumor	40/48 (83.3%)	20/36 (55.6%)	<0.05

3 (6%)

(Table 1).

2 , ,

가 1

aspartate/alanine aminotransferase (AST/

79 ± 21 mmHg ,

90 mmHg

ALT)

가 ,

14 (29.2%) ,

9.7 ± 2.4 g%

가

(p<0.05). Child

가 (Table 2).

2. 가 가 15 9.0 ± 2.4 , 26 pro-enucleation 가 3 14 ± 4 , TNM , 3 (, ,), 가 , , 1 (Table 3). 1 15 3. 6.7% , 48 (Table 4). 15 3,600 cc 0.6 ± 0.2 6 , 9 (p<0.05, Fig. 1). . lobectomy 가 3 , segmentectomy 7 , subsegmentectomy 2 , enucleation 3 thrombin time, , TNM , , pro- 가 4 , 11 , Child . 33 (Table 5), 4 , 2 가 .

Table 5. Clinical Features of Patients with Ruptured Hepatocellular Carcinoma, Resected versus Non-resected

	Resected	Non-resected	p-value
Albumin (g/dL)	3.1 ± 0.6	2.7 ± 0.5	<0.05
Bilirubin (mg/dL)	0.8 ± 0.4	5.3 ± 6.6	<0.05
AST (U/L)	204 ± 262	821 ± 2080	0.25
ALT (U/L)	98 ± 118	209 ± 441	0.33
Platelet (1,000/mL)	154 ± 70	160 ± 85	0.82
Prothrombin time (second)	14 ± 3	15 ± 2	0.35
Tumor size (cm)	9.3 ± 5.3	8.8 ± 4.8	0.76
Child class (No. of patients)			<0.05
A	5	0	
B	7	3	
C	4	28	
TNM stage (No. of patients)			0.06
5	5	1	
1	1	3	
A	10	24	
B	0	1	
Cirrhosis	67% (10/15)	80% (24/30)	0.33

Fig. 1. Cumulative survival of the patients with ruptured hepatocellular carcinoma, resection versus non-resection. *, statistically significant (p<0.05).

Fig. 2. Cumulative survival of the patients with ruptured stage A hepatocellular carcinoma, resection versus non-resection. *, statistically significant (p<0.05).

Child	A		Child	
	enucleation	3	10	33.2
가	1	A	2.2%	17.9%
	6.0 ± 1.5	0.6 ± 0.2	.14	13%
		(p<0.05, Fig. 2).		

Child
 가 (p<0.05).
 (,
 ,
 , TNM)
 48 15 ,
 33 (4, 2,
 27)
 9.0 ± 2.4 , 0.6 ± 0.2
 (p<0.05). TNM A
 6.0 ± 1.5 , 0.6 ±
 0.2 (p<0.05). :

가
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