

CT MRI 가 : 가?¹

(MRI) : (CT)

CT MRI 60

100 103

53 , 17 , 10 , 5 ,

3 . CT CT가 25 , CT

가 17 , CT가 61 MRI T1 T2

. CT MRI 가

I, II,

III, IV

: 103 I 14 (14%), II가 34 (33%), III 49 (48%)

IV가 6 (6%) CT MRI III, IV 55

(53%) . CT, CT CT III, IV

40% (10 /25) , 47% (8 /17) 61% (37 /61) .

III, IV가 45% (24 /53) , 59% (10 /17)

80% (8 /10) .

: CT MRI 가

CT

가 MRI가

가 MRI가 CT

(gold standard)

(1).

가 CT MRI

CT , 1994 9 1997 6 MRI

250 MRI CT , CT MRI

가 60 (

CT MRI) , 100 103

가 , CT MRI 가

23 85 (55) . 103

53 , 17 , 10 , 5 ,

3 (Table 1).

1998 10 13 1999 1 19 , CT, M-

CT MRI 가

RI, RBC scintigraphy 2가 가 61 CT 25 , CT 9

CT 17 CT 3ml 100ml ,

6 18 CT MRI 1

60 (23). CT 30

MRI (1) 3 , 30

가 CT MRI , 70 , 3

가 38 , (2) 7 mm 7 mm

CT MRI

가 가 43 , (3)

가 5 , (4) 4

가 가 4 , (5)

가 8 , 2 1), 가

CT (conventional) CT가 25 , (two- 2), 가

phase spiral) CT가 17 , (three-phase spiral) CT IV (Fig. 4)

I (Fig. II (Fig. III (Fig. 3),

Table 1. Value of MR Over CT According to Each Disease (n = 103)

Disease (No.) / Grade	I	II	III	IV
Hemangioma (n= 53)	8	21	23	1
Hepatocellular Carcinoma (n= 17)	2	5	9	1
Metastasis (n= 10)	0	2	7	1
Cyst (n= 5)	2	1	2	0
Regenerative Nodule (n= 3)	0	0	1	2
Adenomatous Hyperplasia (n= 3)	1	0	2	0
Eosinophilic Abscess (n= 3)	0	3	0	0
Focal Fat Deposit (n= 2)	0	0	1	1
Negative (n= 2)	0	0	2	0
Cholangiocarcinoma (n= 1)	0	0	1	0
Focal Nodular Hyperplasia (n= 1)	1	0	0	0
Miscellaneous (n= 1)	0	0	1	0

Grade I : Decisive
Grade II : Helpful
Grade III : Not additional
Grade IV : Confused

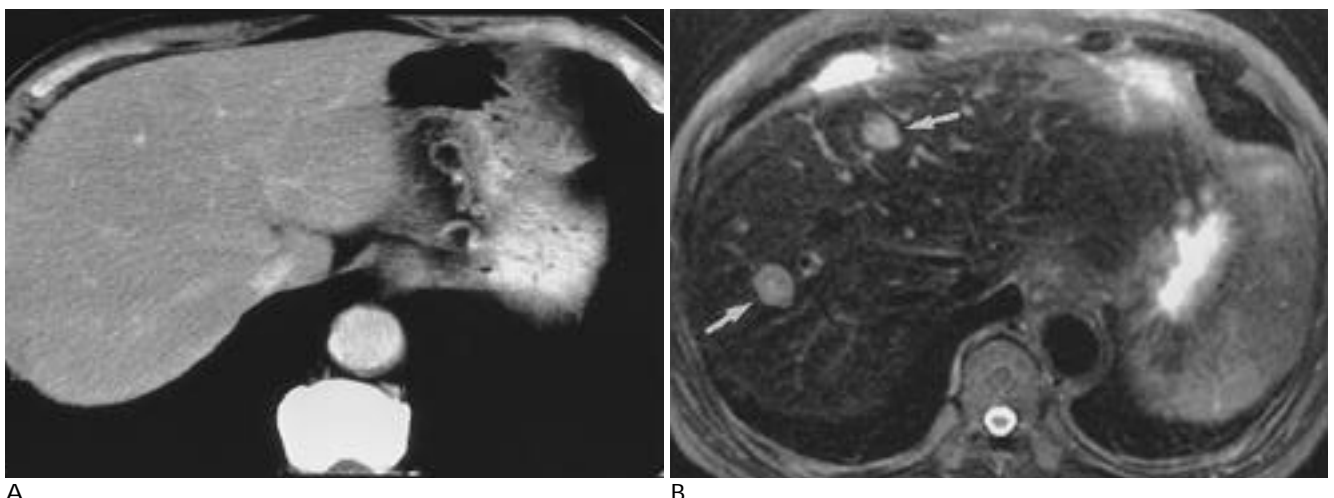


Fig 1. Hepatic metastases in a 56 year-old male with colon cancer (Grade I).

A. Two phase contrast enhanced CT shows no focal lesion in the liver.

B. Fat-suppressed T2-weighted MRI obtained 10 days after CT shows two metastatic lesions (white arrows) in the liver.

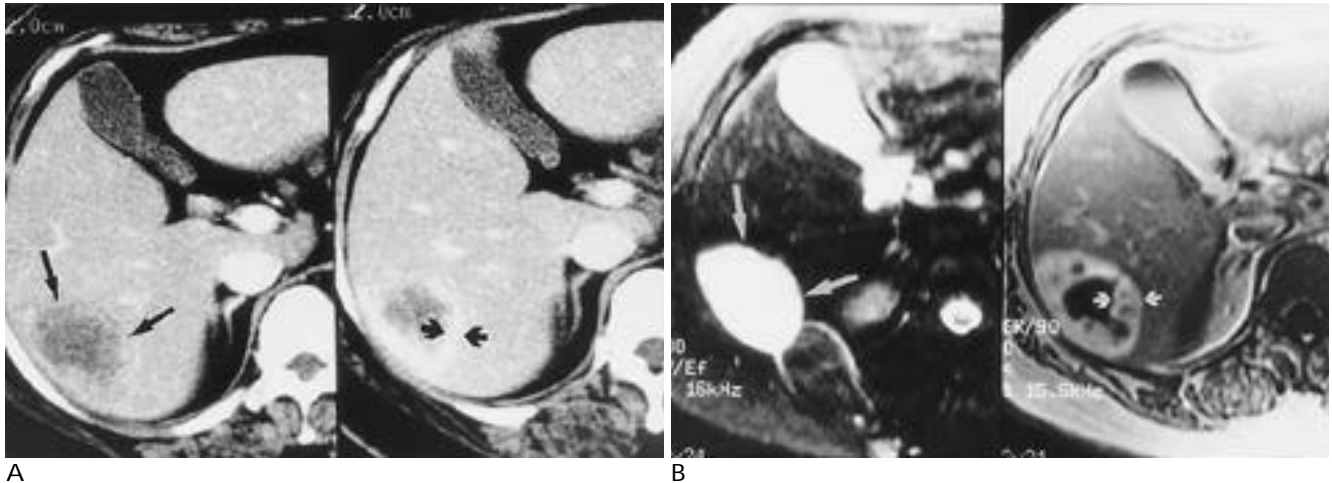


Fig 2. Hemangioma in a 38 year-old female (Grade II).

A. Early phase (left) contrast enhanced CT shows a hypo-attenuated mass (arrows) in the right hepatic lobe with peripheral rim enhancement (short arrows), suggesting the possibility of hemangioma, abscess, or cholangiocarcinoma.

B. T2-weighted MRI (left) shows a mass with very bright high signal intensity (white arrows). Dynamic contrast enhanced MRI (right) shows gradual central fill-in (white short arrows), which is compatible with hemangioma.

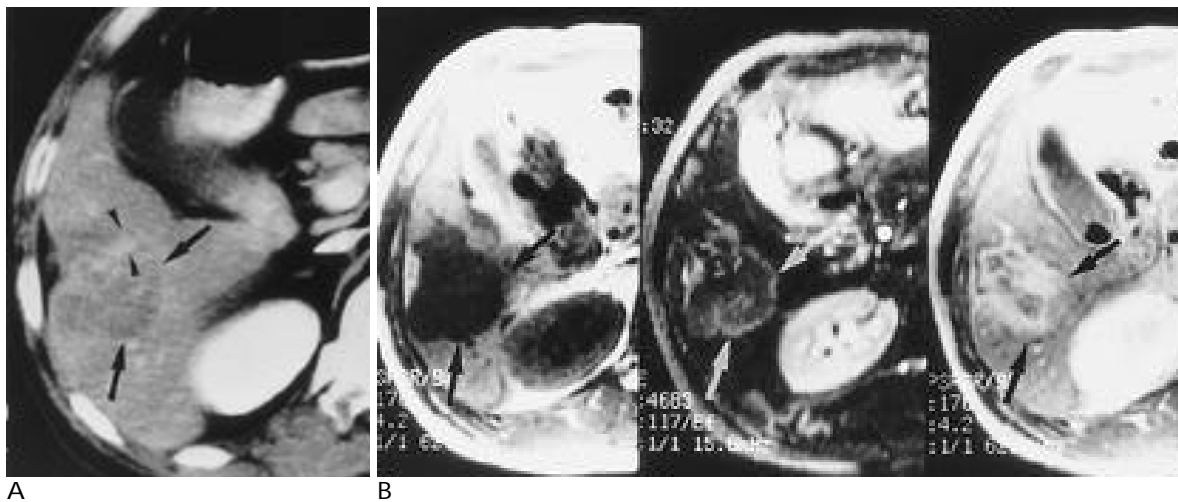


Fig 3. Intrahepatic peripheral cholangiocarcinoma in 64-year-old male (Grade III).

A. Conventional contrast enhanced CT obtained at local hospital shows a single hypo-attenuated mass (arrows) with partial contrast enhancement (arrow heads) and focal parenchymal atrophic change in the periphery of the mass in the right hepatic lobe, suggesting cholangiocarcinoma.

B. There is a lobulating mass (arrows) in right hepatic lobe with low signal intensity on T1-weighted (left), peripheral delayed contrast enhancement on dynamic study (middle) and high signal intensity on T2-weighted (right) MRI, being consistent with cholangiocarcinoma. Cholangiocarcinoma was confirmed at surgery.

				17				I 1 , II가 8 , III 8			
				IV				MRI가			
				가 8 (47%)				CT 61			
				7 , II가 17 , III 32				IV가 5			
								III, IV가 37 (61%)			
103				14 (14%), II가 34 (33%),				I, II, III IV			
III 49 (48%), IV가 6 (6%)											
CT				MRI							
				가							
				III, IV 55 (53%)							
CT				25				가 8 (15%), 21 (40%), 23 (43%) 1 (2%)			
				I 6 , II가 9				III, IV가 24 (45%)			
, III 9				MRI				17			
				IV가 1				2, 5, 9,			
				III, IV가 10 (40%)				10			
				CT				0, 2, 7, 1			
								III, IV가 8 (80%)			
								(Table 1).			

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Value of MR Imaging after CT in Patients with Focal Hepatic Lesion¹

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Purpose : To determine the usefulness of magnetic resonance imaging (MRI) after computed tomography (CT) in patients with focal hepatic lesion.

Materials and Methods : We evaluated 100 patients with 103 focal hepatic lesions. The diagnosis of each lesion was made pathologically (n= 19), or radiologically and clinically (n= 84), and the findings were as follows: hemangioma (n= 53), hepatocellular carcinoma (n= 17), metastasis (n= 10), cyst (n= 5), regenerative nodule (n= 3), and adenomatous hyperplasia (n= 3). The patients underwent conventional CT (n= 25), two-phase spiral CT (n= 17) or three-phase spiral CT (n= 61). MRI was performed using conventional T1- and T2-weighted imaging and dynamic contrast enhancement. The value of MRI after CT was assigned to one of four grades, according to the consensus of three radiologists: grade I (decisive), grade II (helpful), grade III (not additional), or grade IV (confused).

Results : The outcome of MRI of 103 lesions was grade I in 14 cases(14%), II in 34 (33%), III in 49 (48%), and IV in 6 (6%). MRI was not helpful (grade III or IV) in 40% (10/25), 47% (8/17), and 61%(31/61) of lesions after conventional, two-phase spiral, and three-phase spiral CT, respectively. Grade III or IV lesions were present in 45% of hemangiomas (24/53), 59% of hepatocellular carcinomas (10/17), and 80% of cases in which metastasis had occurred(8/10).

Conclusion : MRI after CT in patients with focal hepatic lesion was helpful in less than half of all cases. It was particularly valuable for patients who did not undergo three-phase spiral CT and in whom hemangioma was suspected.

Index words : Liver, CT
Liver, MR
Liver neoplasms, diagnosis
Liver neoplasms, CT
Liver neoplasms, MR

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