

CT

1

: CT (Misregistration artifact)

: 가 CT 200 (/ : 170/30, 36 - 80 , 62 ; 40 8 , 41 - 50 34 , 51 - 60 69 , 61 89) . CT 138 CT 62 , (skipped image) , (overlapped image) . Chi - square test (2 cm) ,

: 14 (7%) , 5 (; 2 cm 2 , 3) , 9 (; 2 cm 6 , 3) . 9 8 , 1 . 14 13 (93%)가 6 7 5 가 , 5가 2 , 3 8 1 . 가 10 (6%), 가 4 (13%) , 50 2 (5%), 51 - 60 8 (11.6%), 60 4 (4.4%) . CT 7% , 1 cm , 가 가 .

CT 가 , 가 가 가 가 가 X - CT CT .

(volumetric data)

가 ,

(1, 2, 3).

20 - 30

가 .

CT

1997 1 1 1998 3 30 가

CT 200 (/ : 170/30, 36 - 80 ,

62 ; 40 8 , 41 - 50 34 , 51 - 60 69 , 61 89) . CT Somatom Plus 4

(Siemens Medical systems, Erlangen, Germany)

120 - 150 ml

Ultravist (Schering, Berlin, Germany)

Optiray

(Mallinckrodt medical inc., St. Louis, U.S.A.)

3.0 - 4.0

CT

ml, 138 30-40 가 10 (6%), 가 4 (13%), 50 2 (5%), 55-70, 3 51-60 8 (11.6%: 8 6 가), 60 4 CT, 62 40 (4.4%), 50 가 (p value > 0.05).

90 CT 10 mm, 10-13 mm, 8 mm (49) 10 mm (151) . , 가 1 , 1 (window) 가 3 , .

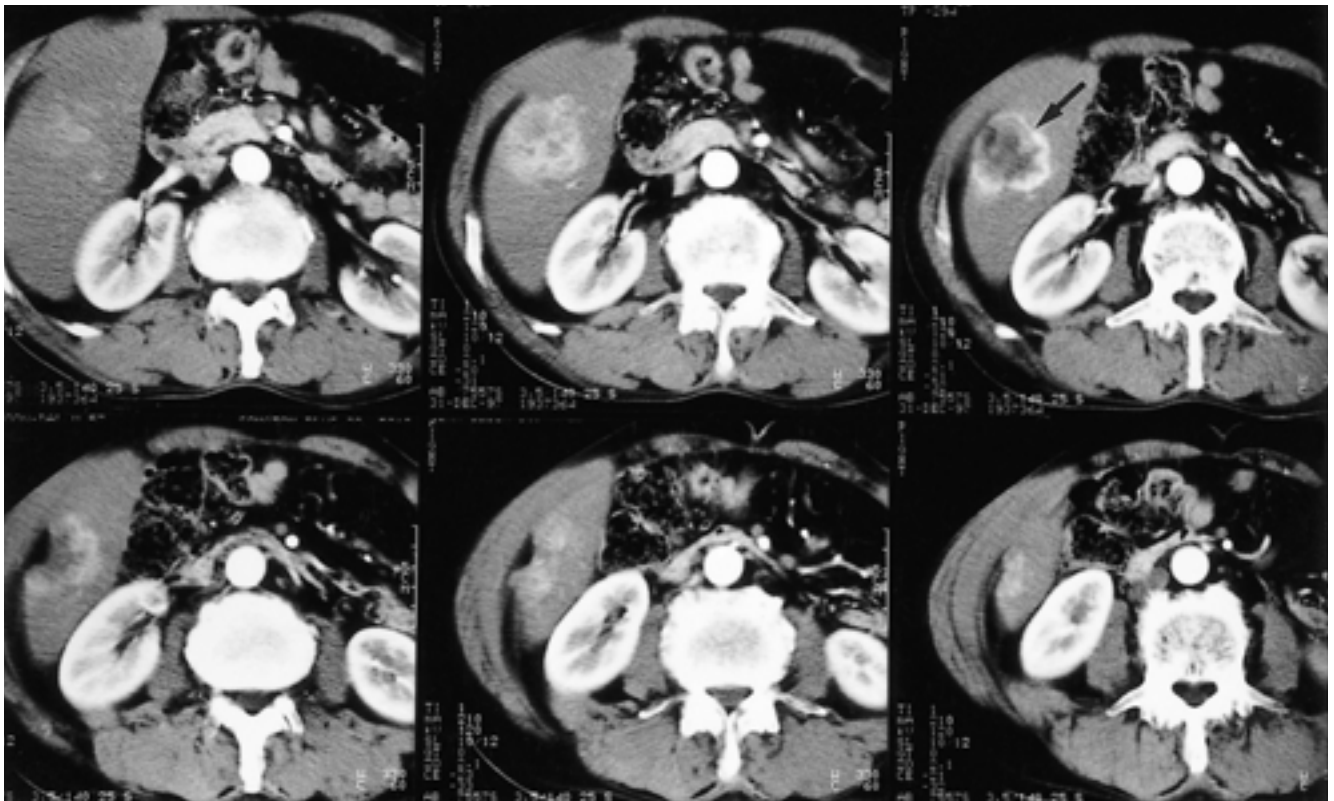
가 가 (skipped image) , CT 가 CT gantry (overlapped image) . 2 20-30 CT cm , 가 (interscan delay), , Chi-square test (p-value < 0.05). (3-6).

CT , , 14 (7%) (Table 1), 5 4 가 7% (Fig. 1), 1 5 mm Stockberger (7) CT (motion artifact) 가 (dome)가 30 가 2 cm 가 8 (6 , 2) , 2 cm 가 6 (3 , 3) . (8) CT가 1 5가 2 , 3 8 1 . 20-30 가 (digital subtraction angiography; DSA) , DSA (9).

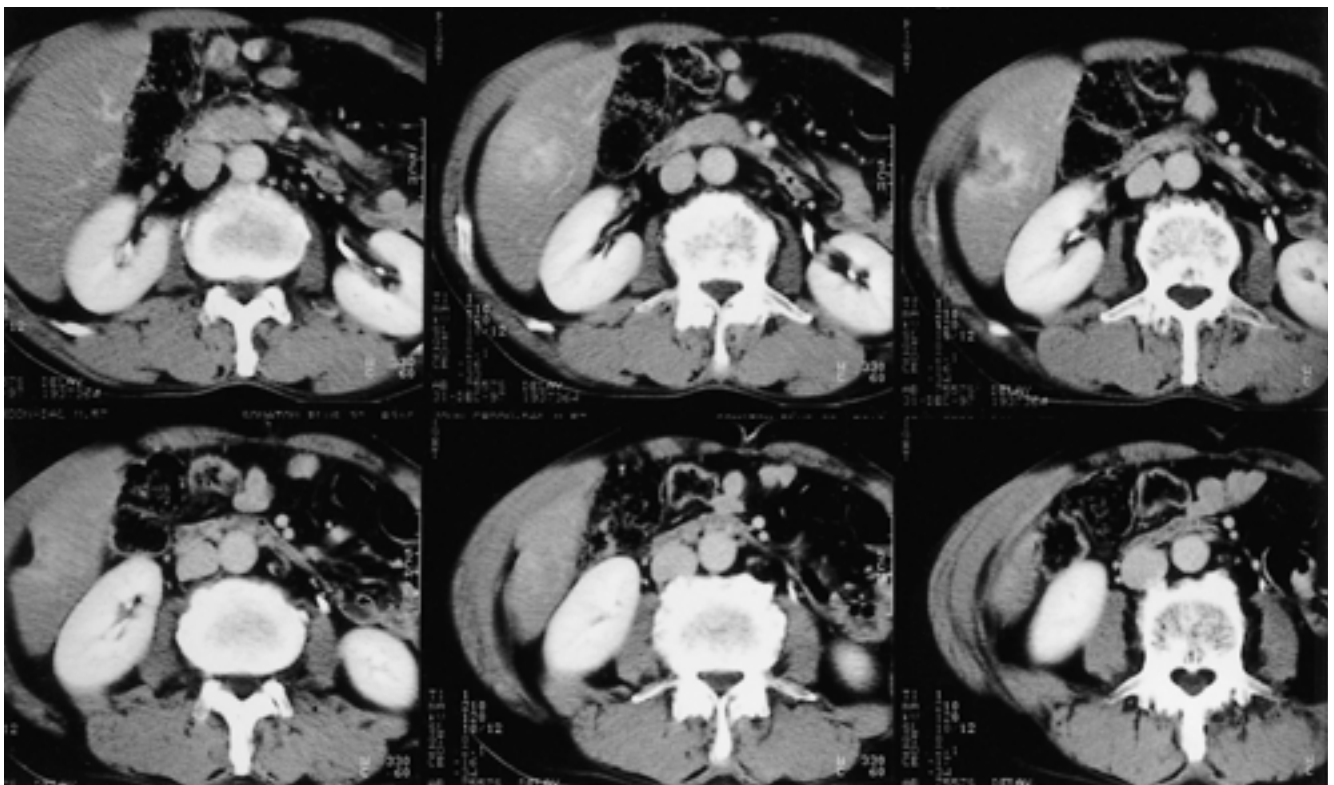
CT Luker (10) (ghost artifact) CT Z-

Table 1. Summary of 14 Patients with Respiratory-induced Misregistration Artifact on Spiral CT of the Liver

Case	Age/Sex	Hepatic mass		Patterns of the Misregistration Artifact
		Location	Size	
1	76/M	segment 8	< 2cm	overlapped
2	58/M	segment 3	> 2cm	overlapped
3	47/M	segment 7	> 2cm	overlapped
4	65/F	segment 5	< 2cm	overlapped
5	54/M	segment 6	< 2cm	skipped
6	63/F	segment 7	> 2cm	overlapped
7	55/M	segment 7	> 2cm	skipped
8	42/M	segment 6	< 2cm	overlapped
9	57/M	segment 5	> 2cm	skipped
10	66/M	segment 7	> 2cm	overlapped
11	55/M	segment 7	> 2cm	overlapped
12	57/M	segment 6	< 2cm	skipped
13	56/F	segment 6	> 2cm	overlapped
14	53/F	segment 6	< 2cm	skipped



A



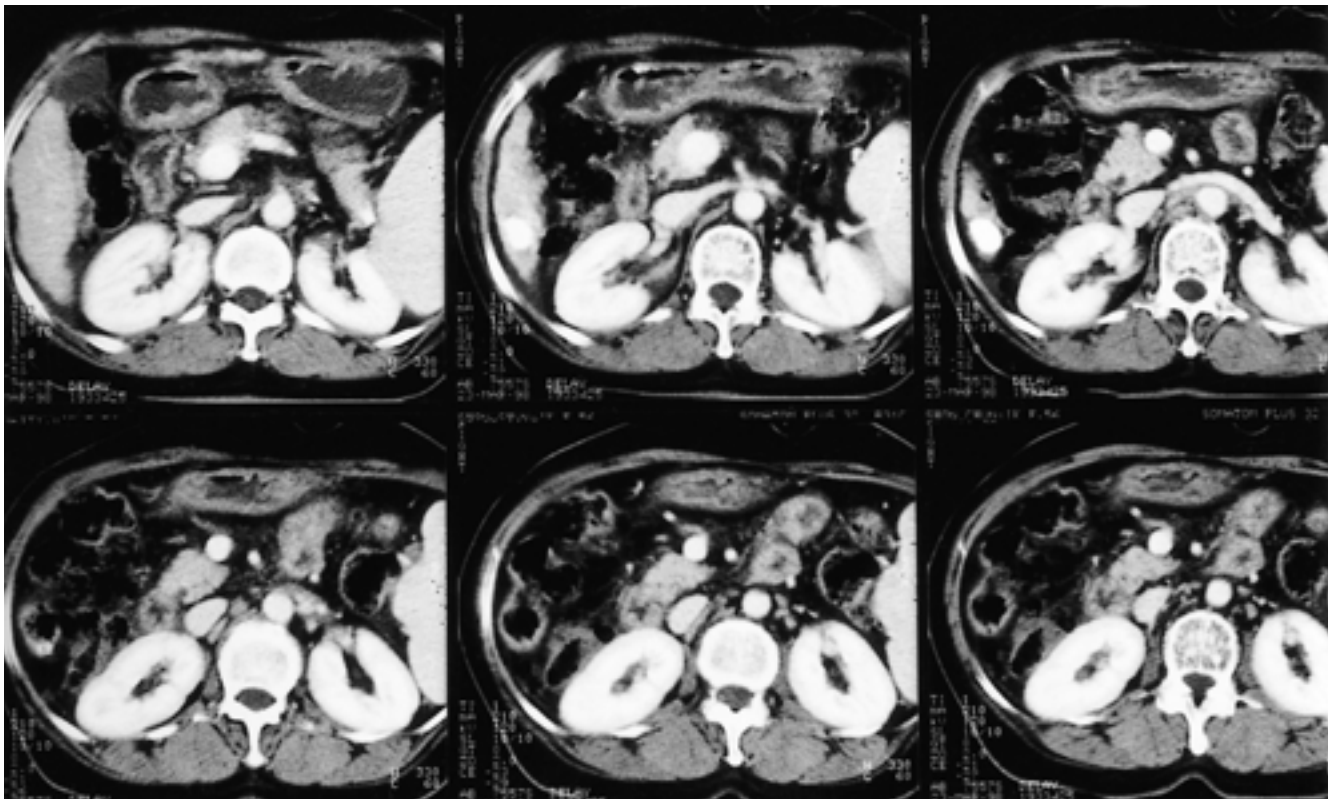
B

Fig. 1. 57-year-old man with cholangiocarcinoma in the hepatic segment 5 (skipped image).

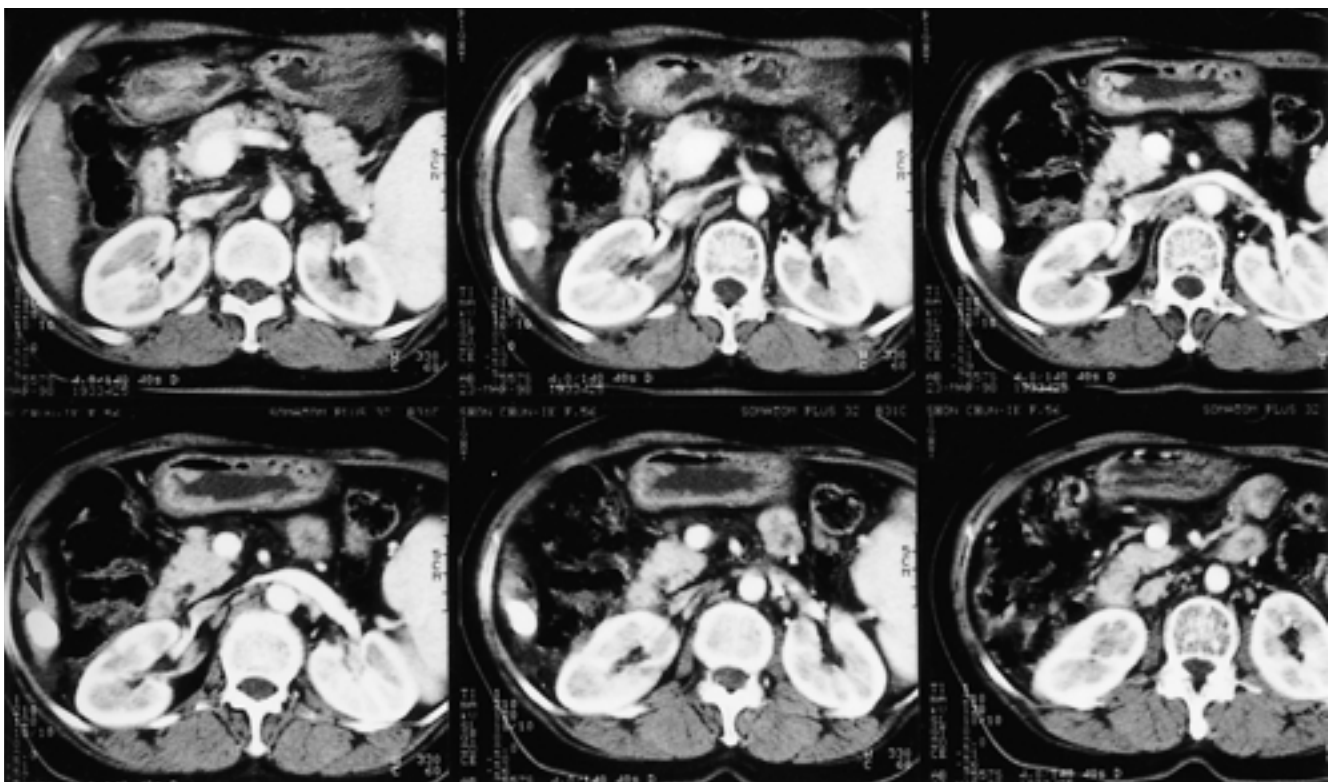
A. CT scan demonstrates the mass (arrow) in 6 slices on arterial phase.

B. On delayed phase, the mass is demonstrated in only 4 slices and the previous rim enhancing lesion on arterial phase (arrow in A) is not shown.

: CT



A

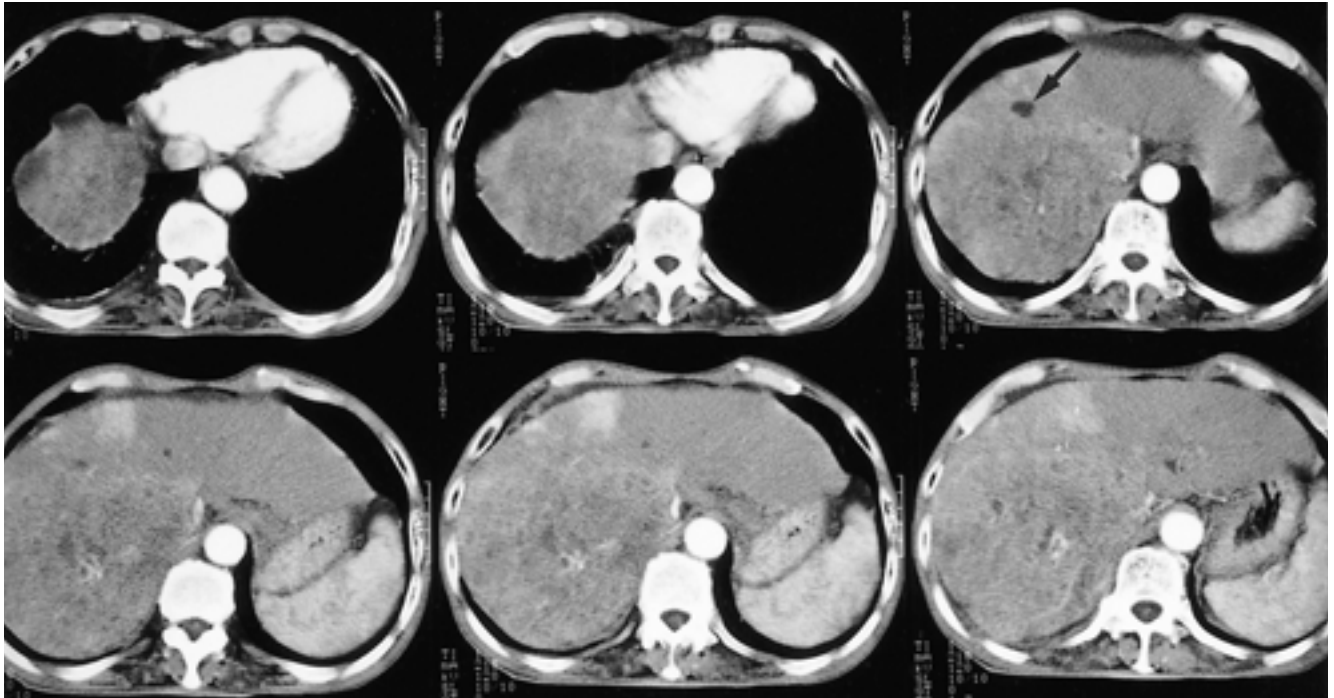


B

Fig. 2. 56-year-old woman with hepatoma after TACE (overlapped image).

A. CT scan reveals lipiodolized mass in 2 slices on delayed phase.

B. On arterial phase, the lesion (arrows) is demonstrated in 4 slices because 2 slices are overlapped.



A

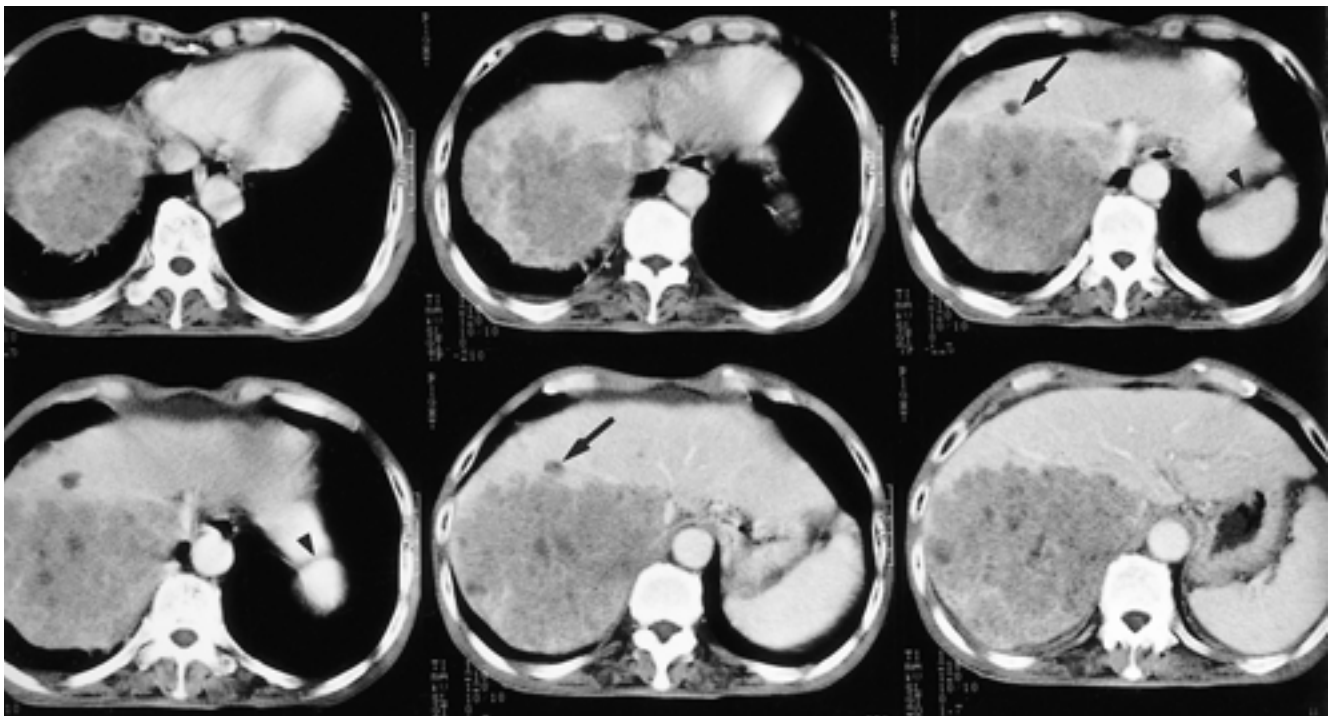
**B**

Fig. 3. 76-year-old man with a single hepatic nodule in the hepatic segment 4 (overlapped image).

A. The nodule (arrow) is demonstrated in only one slice on arterial phase.

B. On delayed phase, the lesion (arrows) is demonstrated in 3 slices because 2 slices are overlapped and the images of the spleen are reversed in sequence (arrowheads).

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1 cm
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1 cm
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Misregistration Artifact due to Respiratory Motion on Spiral CT of the Liver¹

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Purpose: To determine the frequency and patterns of respiratory-induced misregistration artifact seen on spiral CT of the liver.

Materials and Methods: Two hundred patients with hepatic mass underwent spiral CT, and arterial phase images were compared with those of the portal phase in all cases and or of the delayed phase in 138. The patterns of misregistration artifact were divided into two groups: skipping, where at least two slices in the craniocaudal length of the mass were missed, and the partial volume averaging artifact thus excluded; and overlapping, where the same or reversed images were seen in succeeding sequences. We reviewed the location and size of the masses, and the presence or absence, and patterns of the misregistration artifact.

Results: Fourteen (7%) of 200 spiral CT scans demonstrated the misregistration artifact; in five of these there was skipping (involving a hepatic mass larger than 2 cm in two cases, and one smaller than 2 cm in three cases), and in nine there was overlapping (six masses larger than 2 cm, and three smaller than this). A lipiodol-laden mass measuring 5 mm was completely missed during the arterial phase, and in one case the spleen sequence was reversed. Thirteen (93%) of fourteen masses were located in the right lobe.

Conclusion: Two patterns of misregistration artifact, skipping and overlapping, were observed, and their combined frequency was 7%. So as not to miss small hepatic masses or overestimate their size, careful respiratory control is therefore needed.

Index words : Liver, CT

Computed tomography (CT), artifact

Computed tomography (CT), helical

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1:00 - 1:40	Introduction to skeletal radiology and bone growth	(,)
1:40 - 2:10	Traumatic lesions of bones and joints	(,)
2:10 - 2:20	Discussion	
2:20 - 2:50	Diseases of the joints	(가 ,)
2:50 - 3:20	Bone tumors and related conditions	(,)
3:20 - 3:50	Infections and inflammatory of bones	(,)

2

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4:00 - 4:30	Metabolic, endocrine, and related bone diseases	(,)
4:30 - 5:00	Histiocytosis, osteochondrosis, osteonecrosis	(가 ,)
5:00 - 5:10	Discussion	
5:10 - 5:40	Normal anatomic variants and skeletal anomalies	(,)
5:40 - 6:10	The congenital malformation syndrome	(,)
6:10 - 6:40	The superficial soft tissues	(,)

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