

CT

1

CT scan

1992 3 1998 7 6 5 44

18 (17 , 1)

6 , 3 , , ,

CT

1) (I ; , II ;

, III ; , IV ; III , V ;), 2)

, 3) , 4) , 5) , 6)

plaque, 7) , 8) 87가 CT

IV (8/14) II (4/14)

IV (8/18) I (6/18)

I IV

I (p<0.05).

(p<0.05).

(8/18, 9/18) (8/12,4/12) (1/12,1/12)

(p<0.05).

CT

CT

(1-6).

1992 3 1998 7

44

(CT)

CT

(7,8).

(1-6)

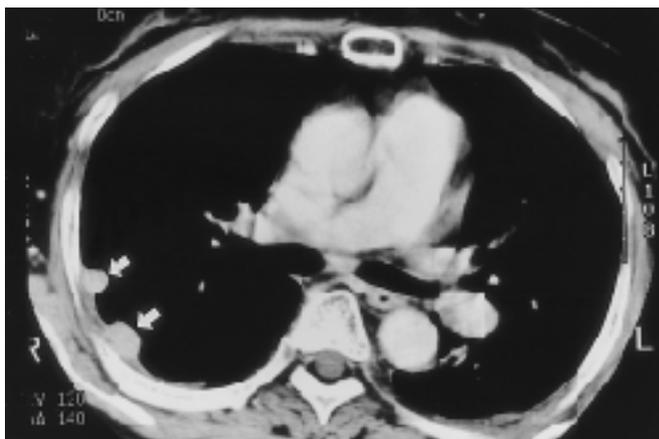
CT

1cm

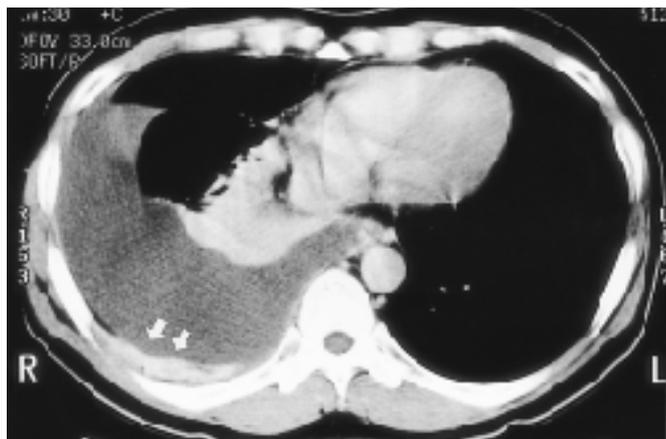
(7)

(9). CT

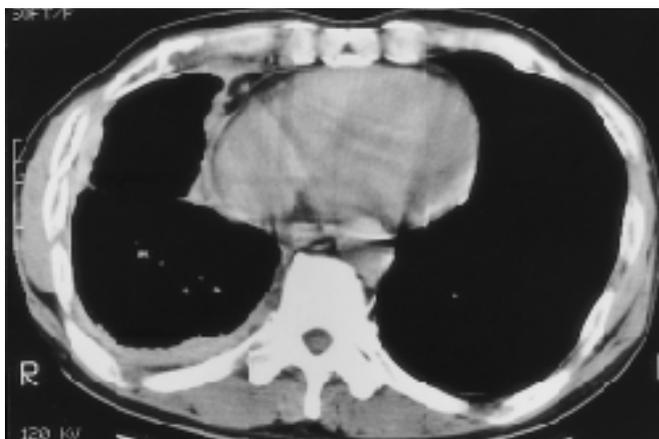
가 39-72 (55.4) ,
 41-75 (61.2)
 35-79 (56.8) . 13:5, 3:9
 가 3 (17 ,
 14 , 18 , CT 2 1 .
 12)



A



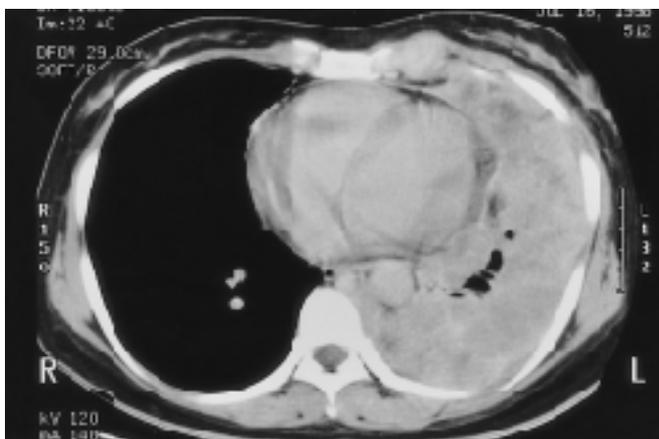
B



C



D



E

Fig. 1. The configuration of pleural lesion
 A. Type I pleural lesion. On enhanced CT, multiple pleural nodules (arrows) in right hemithorax and pleural effusion are noted.
 B. Type II pleural lesion. On enhanced CT, localized flat pleural thickening (arrows) and pleural effusion is noted.
 C. Type III pleural lesion. On enhanced CT, diffuse circumferential flat pleural thickening is noted.
 D. Type IV pleural lesion. On enhanced CT, diffuse flat pleural thickening with several nodules (arrows) is noted.
 E. Type V pleural lesion. On enhanced CT, mass filling entire left hemithorax is noted.

6, 3, (2/12) (10/14)
 1. CT GE 9800 Scanner (General Electric Medical System, Milwaukee, U.S.A.)
 (300; Iopromide, (bolus injection) (Table 2).
) 100ml (8/18,9/18) (8/12,4/12)
 1cm (1/12,1/12)
 1cm CT (p<0.05).
 87† CT, 1) plaque (Table 2).
 (10) (I ; , II ; (Table 2).
 , III ; , IV ; III , V ;
 (Fig. 1A-E), 2) , 3)
 , 4) , 5) , 6)
 plaque , 7) , 8) 가

(2/12) (10/14)
 (p<0.05). 2 1
 가
 (Table 2).
 (8/18,9/18) (8/12,4/12)
 (1/12,1/12)
 (p<0.05).
 plaque (Table 2).
 가

CT
 CT
 CT
 1cm CT
 가
 Chi-square test (p<0.05)
 IV (8/14)
 II (4/14) I
 IV (8/18) I (6/18)
 I IV
 (Table 1), I (Fig. 2)
 (p<0.05). , 1
 I II (Fig.3) (4/18) (Fig.
 2B).

Table 1. CT Features of Pleural Lesion in Malignant Pleural Mesothelioma and Pleural Metastasis from Lung Cancer and Extrathoracic Primary Tumor

Configuration of Pleural Thickening	Group A (n= 14)	Group B (n= 18)	Group C (n= 12)
Type I*	0	6	4
Type II	4	2 ⁺	2
Type III	1	2	3
Type IV	8	8	3
Type V	1	1	0

Group A: malignant mesothelioma, Group B: pleural metastasis of lung cancer, Group C: pleural metastasis from extrathoracic primary tumor

Type I: single or multiple separate nodules, Type II: localized flat pleural thickening, Type III: diffuse flat pleural thickening, Type IV: diffuse flat pleural thickening with some superimposed pleural nodules, Type V: mass filling the hemithorax

* statistically significant difference between group A and groups B, and C (chi-square, p< 0.05)

+ : one case of Group B showed both type I and type II pleural lesion.

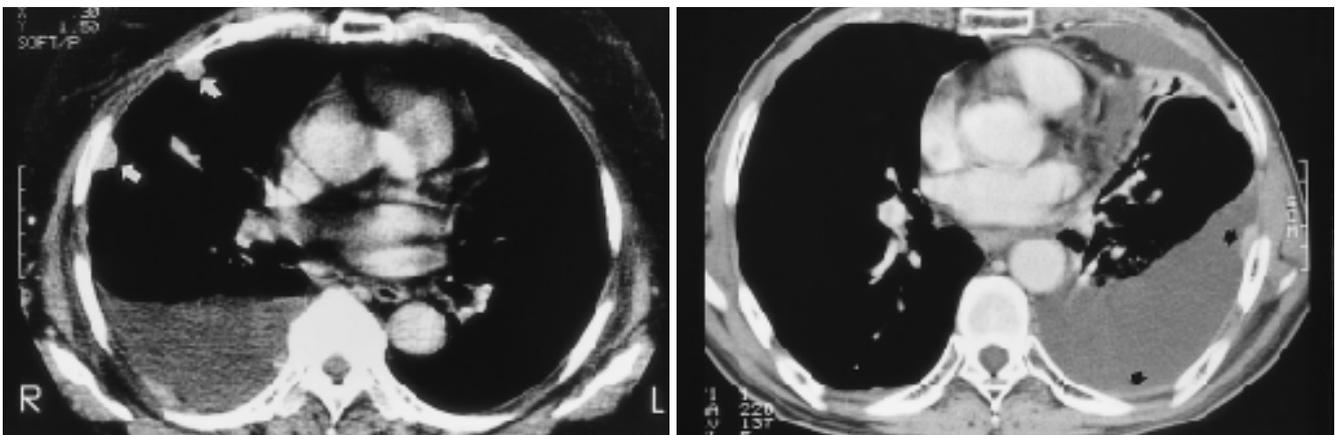


Fig. 2. A. A 57 year-old man with pleural metastasis from renal cell ca. showing type I pleural lesion(arrow). B. A 44 year-old man with pleural metastasis from lung cancer, showing both type I and type II pleural. On enhanced CT, the pleural nodule (lateral arrow) and localized flat pleural thickening (posterior arrow)

CT

가 95% (2), CT (8), (3,7). 가 (2,3). 가 (8,9). 가 40-86%

가 60% sheetlike (rindlike) (1-3). Erzen (10) 가 5가 가

Table 2. Associated CT Features in Malignant Mesothelioma and Pleural Metastasis from Lung Cancer and Extrathoracic Primary Tumor

CT features	Groups		
	A (n= 14)	B (n= 18)	C (n= 12)
Presence of pleural effusion	8	9	11
Chest wall or rib invasion	2	4	1
Fissural involvement*	10	4	2
Extrapleural fat proliferation	3	1	0
Calcified plaque	1	0	1
Lymph node metastasis†	1	8	8
Metastatic lung nodules‡	1	9	4

*, †, ‡ significant different features between group A and groups B, and C (p < 0.05)

Group A: malignant mesothelioma, Group B: pleural metastasis of lung cancer, Group C: pleural metastasis from extrathoracic primary tumor

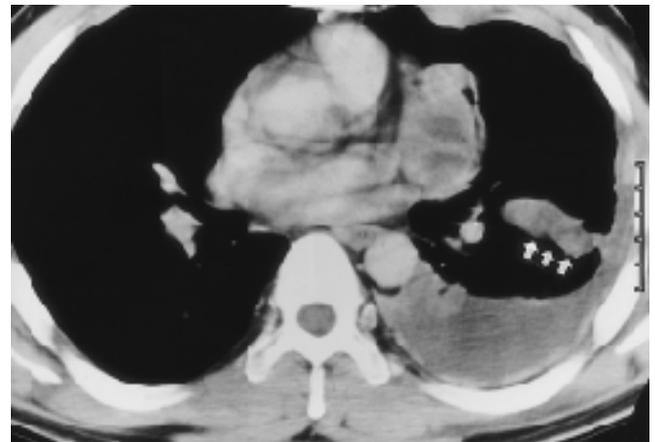


Fig. 3. A 66 year-old man with malignant mesothelioma, showing fissural involvement.

On mediastinal setting, nodular fissural thickening (arrows) is noted. Pleural effusion on left hemithorax is also noted.

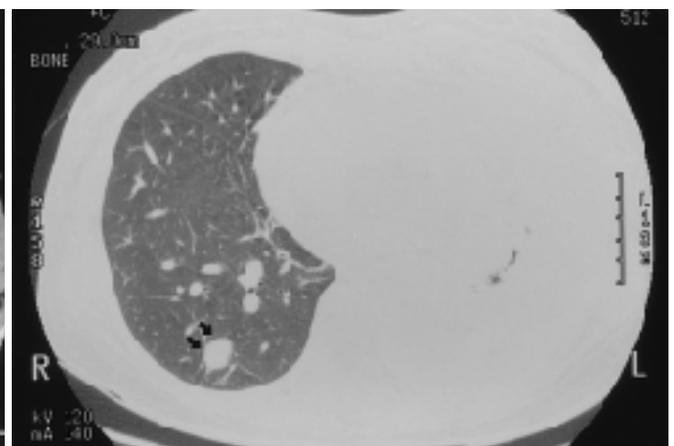
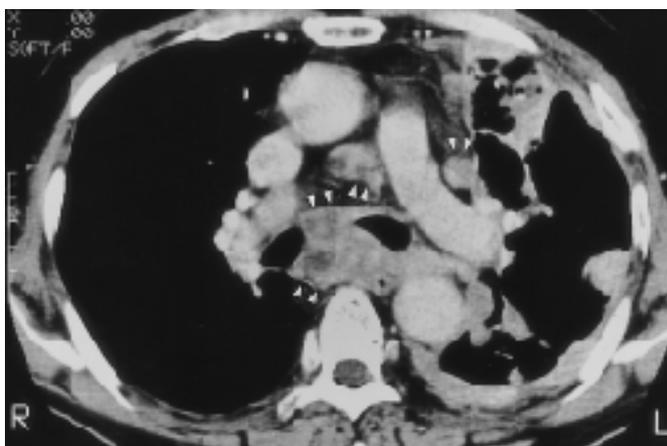


Fig. 4. A 60 year-old women with pleural metastasis from primary unknown adenocarcinoma.

On mediastinal window setting (A), multiple enlarged mediastinal nodes (arrowheads) with type IV pleural lesion are noted. Hematogenous metastatic lung nodules (arrows) are also noted on lung setting (B).

(1-3).

CT

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CT

(11)

7%
75%, 33%

가 40-45%

CT

가 (3).

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(7,9)

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(12,13).

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Differential CT Features between Malignant Mesothelioma and Pleural Metastasis from Lung Cancer or Extrathoracic Primary Tumor Mimicking Malignant Mesothelioma¹

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Purpose : To evaluate the differential CT features found among malignant mesothelioma and pleural metastasis from lung cancer and from extrathoracic primary tumor which on CT mimic malignant mesothelioma.

Materials and Methods : Forty-four patients who on chest CT scans showed pleural thickening suggesting malignant pleural disease and in whom this condition was pathologically confirmed were included in this study. On the basis of their pathologically proven primary disease [malignant mesothelioma (n= 14), pleural metastasis of lung cancer (n= 18), extrathoracic primary tumor (n= 12)], they were divided into three groups. Cases of lung which on CT showed a primary lung nodule or endobronchial mass with pleural lesion, or manifested only pleural effusion, were excluded. The following eight CT features were retrospectively analyzed: 1) configuration of pleural lesion (type I, single or multiple separate nodules, type II, localized flat pleural thickening, type III, diffuse flat pleural thickening; type IV, type III with pleural nodules superimposed; type V, mass filling the hemithorax), 2) the presence of pleural effusion, 3) chest wall or rib invasion, 4) the involvement of a major fissure, 5) extrapleural fat proliferation, 6) calcified plaque, 7) metastatic lymph nodes, 8) metastatic lung nodules.

Results : In malignant mesothelioma, type IV (8/14) or II (4/14) pleural thickening was relatively frequent. Pleural metastasis of lung cancer favored type IV (8/18) or I (6/18) pleural thickening, while pleural metastasis from extrathoracic primary tumor showed a variable thickening configuration, except type V. Pleural metastasis from lung cancer and extrapleural primary tumor more frequently showed type I configuration than did malignant mesothelioma, and there were significant differences among the three groups. Fissural involvement, on the other hand, was significantly more frequent in malignant mesothelioma than in pleural metastasis from lung cancer or extrapleural primary tumor. Metastatic lymph nodes and metastatic lung nodules were significantly more frequent in pleural metastasis from lung cancer and extrapleural primary tumor than in malignant mesothelioma.

Conclusion : Malignant mesothelioma showed significantly frequent fissural involvement and the frequency with which pleural metastasis from both lung cancer and extrathoracic primary tumor showed type I pleural lesion, metastatic lymph nodes or metastatic lung nodules, was significantly frequent. Even though no CT features for differentiating between pleural metastasis from lung cancer and from extrathoracic primary tumor were found, the CT features stated above would help differentiate malignant mesothelioma from the other two groups.

Index words : Pleura, CT
Pleura, neoplasms
Pleura, diseases

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