

CT

8 CT 31 (19 , 12 , 17-80) 94

CT

94 67 (71%) 27 (29%)

27 (14), (7), (3),

(2), (1) 1/3(n=10)

2/3(n=17) 1mm-30mm 10.9mm 1mm-30mm 6.0mm

(p<0.05). CT

29% CT 가

가

1:1

1990 12 1998 12

31 (19 , 12) 94

CT 54 (17 -80) CT 3cm

CT

31

Table 1

¹ CT Somatom Plus-S(Siemens, Erlangen, Germany)

² GE 9800 Quick(GE medical system, Milwaukee, U.S.A.)

1999 6 12 1999 9 30

Omnipaque (Iohexol, Nycomed, Korea) Rayvist
(Meglumine iogliclate, Schering (Korea), Seoul, Korea) 100cc
2.5 ml/sec 140kVp, 145mAs
10mm
(width 350HU ;
level 35HU) (width 1500HU ; level -650HU)

CT
CT
(size), (shape), (margin characteristics),
(cavity), (location), (distance
from pleura) lung window setting 2
가 가

(short axis diameter)
(round) (oval)
(lobulation) (spiculation)
(mediasti-
nal pleura), (parietal pleura), (major fissure)
가 가
t-test qui-square test
, p value 0.05

31 94 30 67
(71%), 12 27 (29%)
8
(n=1), (n=2), (n=1),
(n=1), (n=2), (n=1)

23
(n=3), (n=3), (n=2),
(n=2), (n=2), (n=2),
(n=2), (n=2), (n=1),
(n=1), (n=1) (Table 1).
CT Table

2 6.0mm(1-30mm)
10.9mm(1-30mm)
(p<0.05), 10mm (n=5), 10mm
(n=35)
가 (p<0.05).

(Table 2).
1 (3%),
7 (10%)
(7%)
1 (3%), 5 (7%)

Table 1. Primary Extrathoracic Malignant Tumors Metastasizing to Lung

| Maligancy | No. of Patients |
|--------------------------------|-----------------|
| Carcinoma | |
| Colorectal | 7 |
| Breast | 4 |
| Liver | 3 |
| Kidney | 3 |
| Bladder | 3 |
| Trachea | 2 |
| Stomach | 1 |
| Nasopharynx | 1 |
| Sarcoma | |
| Osteosarcoma | 2 |
| Malignant fibrous histiocytoma | 2 |
| Melanoma | 2 |
| Germ cell tumor | 1 |
| Total No. of patients | 31 |

Table 2. Summary of CT Features of Benign and Metastatic Pulmonary Nodules

| CT features | No. of Patients | | |
|-----------------------|----------------------|----------------------|---------|
| | Benign nodule | Malignant nodule | p-value |
| Size 6.0mm(1-30mm) * | 10.9mm(1-30mm) * | < 0.05 | |
| Shape : round | 15 | 32 | > 0.05 |
| oval | 12 | 35 | > 0.05 |
| Margin : lobulation | 1 | 7 | > 0.05 |
| spiculation | 0 | 5 | > 0.05 |
| Cavity | 1 | 5 | > 0.05 |
| Location : upper lobe | 9 | 24 | > 0.05 |
| middle lobe | 5 | 12 | > 0.05 |
| lower lobe | 13 | 31 | > 0.05 |
| Distance from pleura | 10.4 mm [†] | 10.5 mm [†] | > 0.05 |

*mean diameter (range)

[†]mean distance from pleura

(Fig.1), 가 1 (Fig. 3B) .
 , 가 10.4mm,
 10.5mm 가 .
 27
 14 (Fig. 2), 7 (Fig. 4), 가 3
 (Fig. 3A), 2 (Fig. 5), (3,4). 20% 54%
 15%

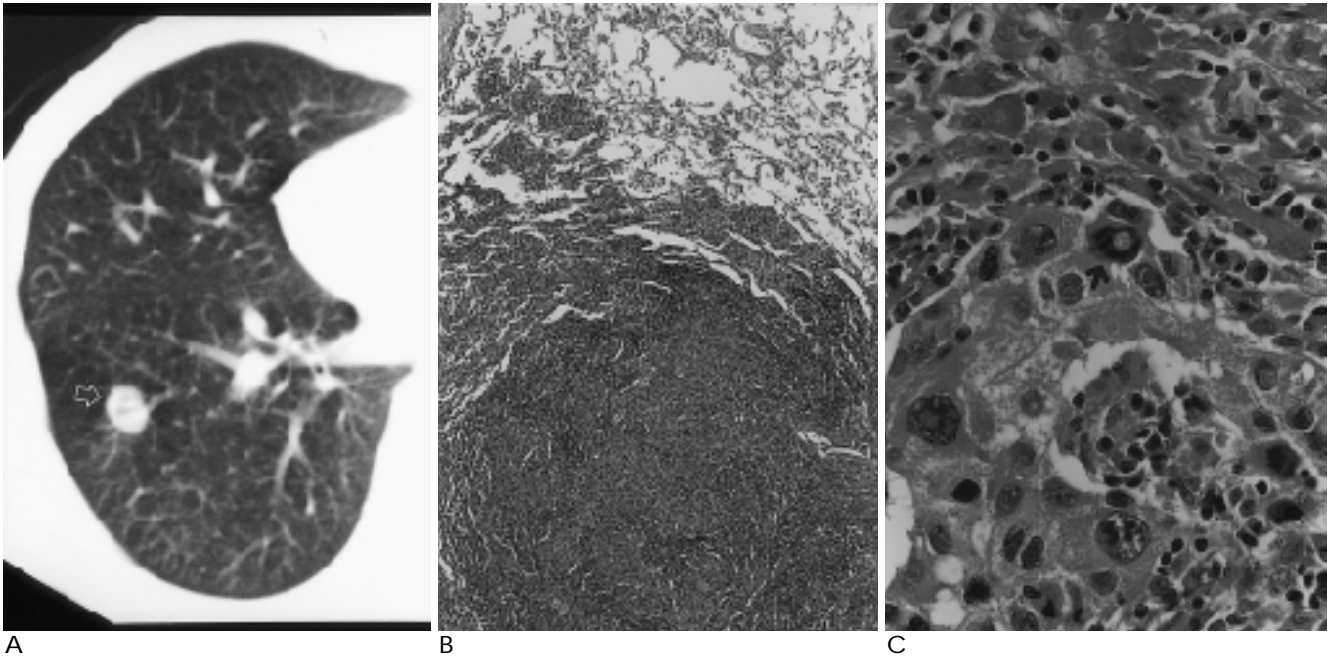


Fig. 1. Metastasis in a 64-year-old man with melanoma.
 A. CT scan shows an oval-shaped nodule of 12mm in diameter (arrow) with cavitation in right lower lobe.
 B, C. Photomicrograph of the specimen shows pleomorphic cells (arrow) having a large and dark nucleus (H&E, $\times 100$, $\times 400$ respectively).

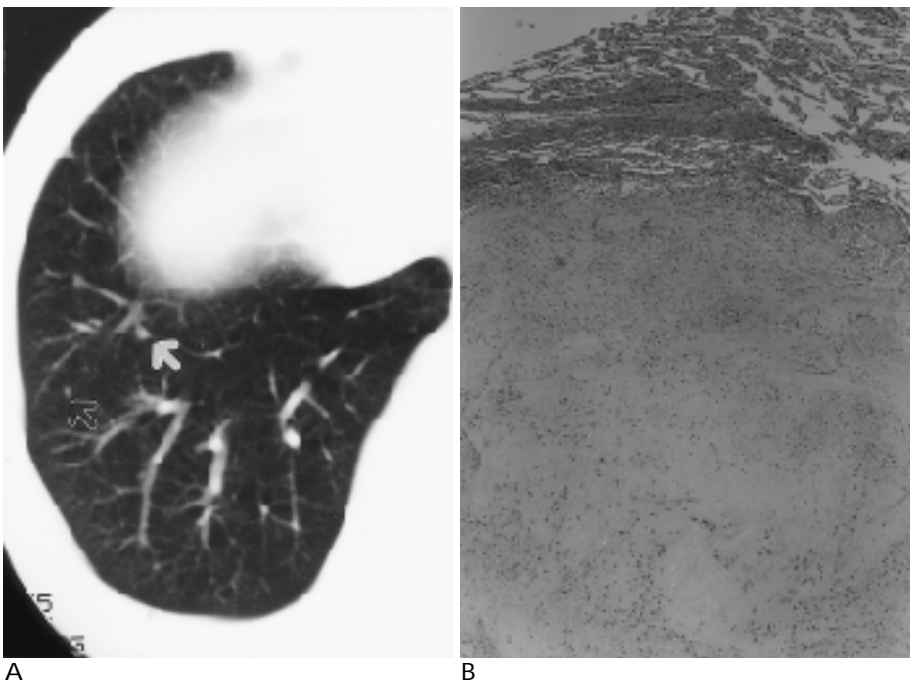


Fig. 2. Fibrosis in a 65-year-old man with hepatocellular carcinoma.
 A. CT scan shows two nodules in right lower lobe. One is a round nodule of 2mm in diameter (open arrow) and the other a round nodule of 5mm in diameter (solid arrow).
 B. Photomicrograph of the specimen shows fibrosis with central degenerative change (H&E, $\times 100$).

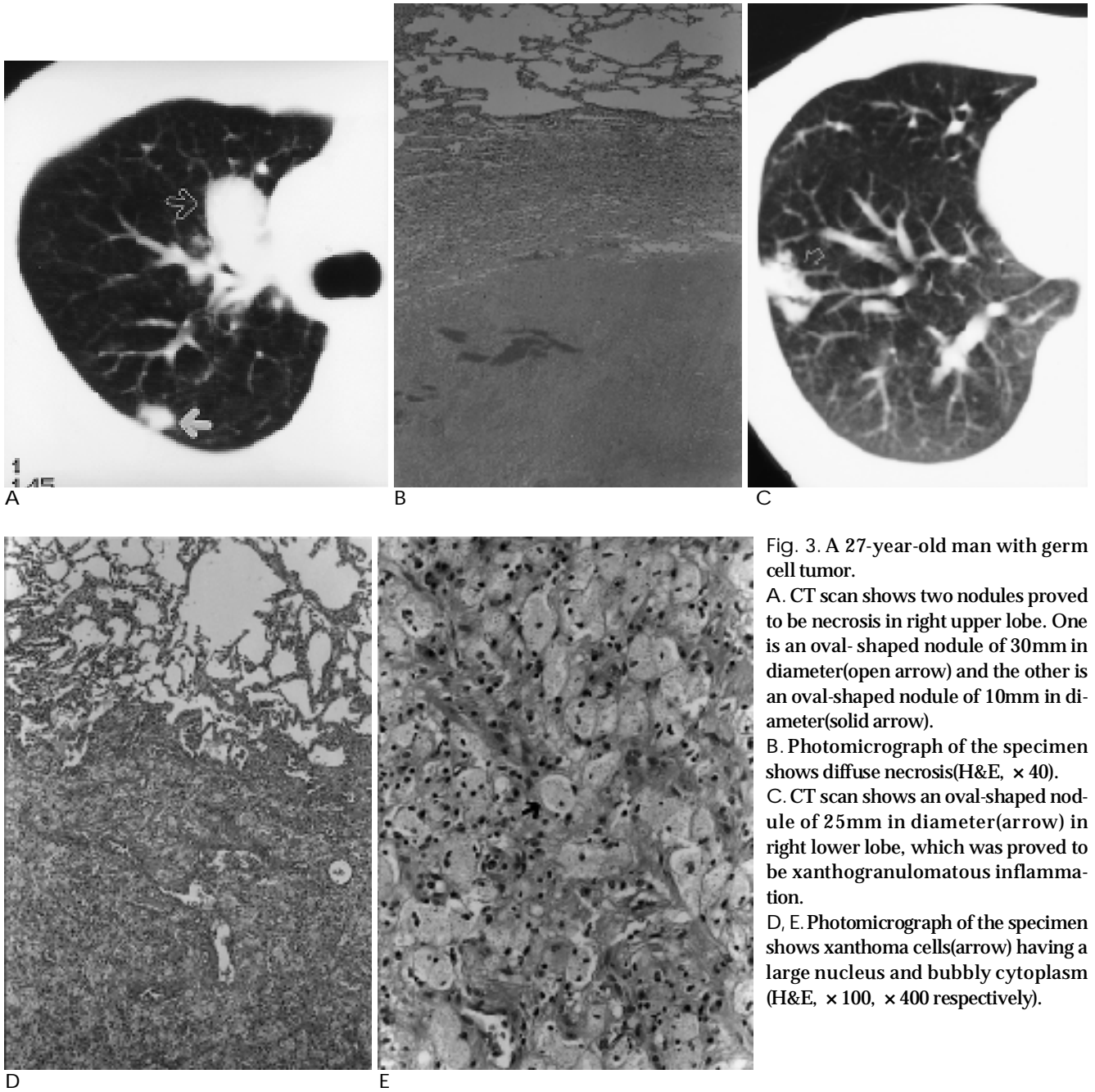


Fig. 3. A 27-year-old man with germ cell tumor.

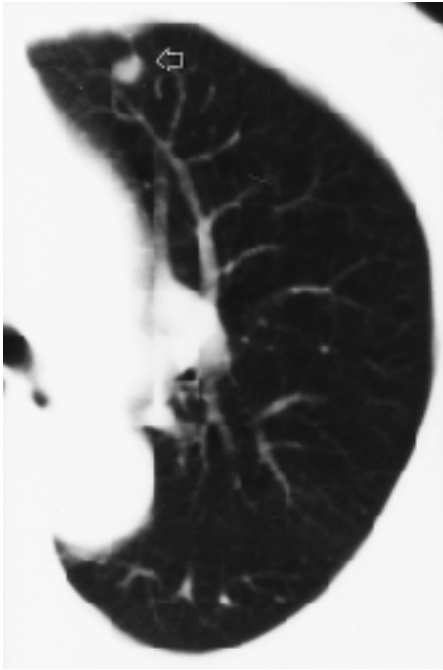
A. CT scan shows two nodules proved to be necrosis in right upper lobe. One is an oval-shaped nodule of 30mm in diameter(open arrow) and the other is an oval-shaped nodule of 10mm in diameter(solid arrow).

B. Photomicrograph of the specimen shows diffuse necrosis(H&E, $\times 40$).

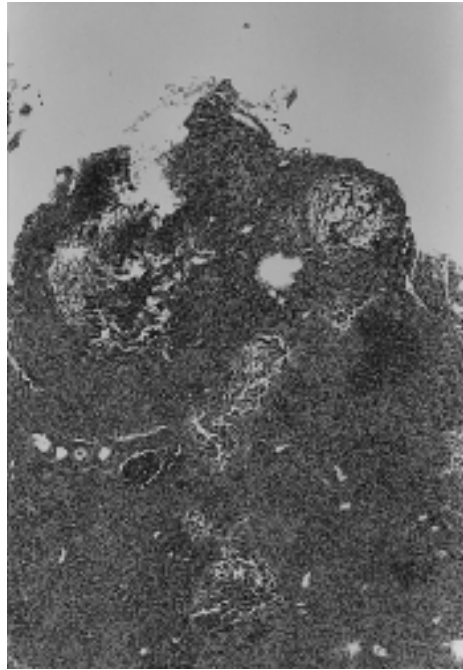
C. CT scan shows an oval-shaped nodule of 25mm in diameter(arrow) in right lower lobe, which was proved to be xanthogranulomatous inflammation.

D, E. Photomicrograph of the specimen shows xanthoma cells(arrow) having a large nucleus and bubbly cytoplasm (H&E, $\times 100$, $\times 400$ respectively).

(3). 가 , 4)
(systemic therapy) , 5)
(6).
(Ewing's sarcoma), (3,4,5), (Karposi's sarcoma)
(1,6,7,8), 가 Muhm (9) CT
1) , 2) (83%) 가 , 18 15
, 3)



A

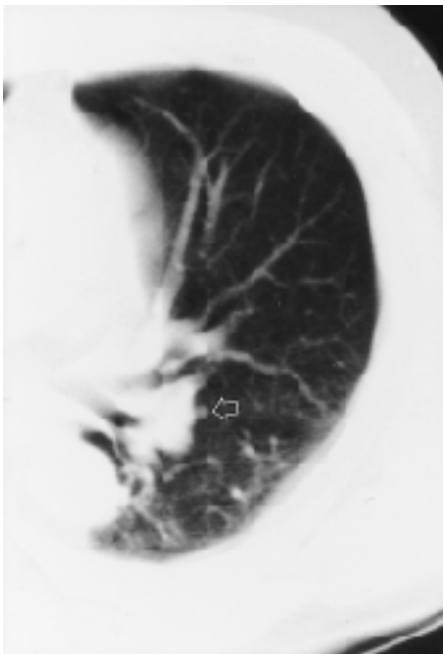


B

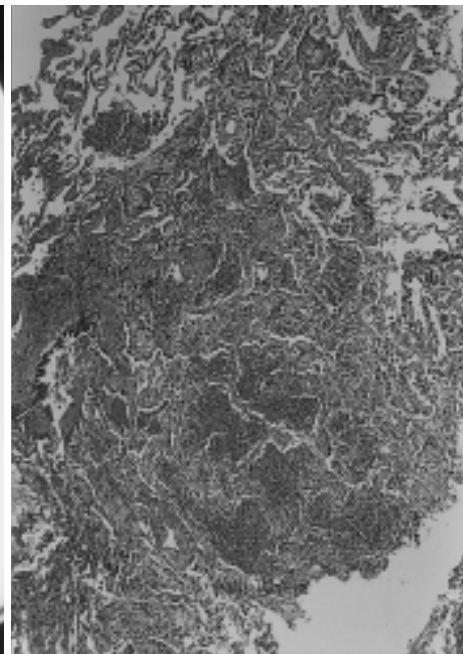
Fig. 4. Intrapulmonary lymph node in a 61-year-old woman with colon cancer.

A. CT scan shows an oval-shaped nodule of 15mm in diameter (arrow) with pleural tagging in lingular division of left upper lobe.

B. Photomicrograph of the specimen shows lymph node containing anthracotic pigmentation (H&E, x 40).



A



B

Fig. 5. Organizing pneumonia in a 60-year-old man with colon cancer.

A. CT shows a round nodule of 2mm in diameter (arrow) near the major fissure of left lung.

B. Photomicrograph of the specimen shows nodular structure with inflammatory cell infiltration in alveolar septa (H&E, x 100).

CT가 가
(2,9-14).
가 10mm 가
Gross (3,4), Gross (13) 25mm Hirakata (15)
(p<0.05) 4%
(3,16), 1
5
가
10mm 가
Gross (13) 가
가

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Pulmonary Nodules Resected for Suspected Metastasis from Extrapulmonary Malignancy : CT-Pathologic Correlation¹

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Purpose : To assess the relative frequency of benign and metastatic nodules in patients in whom nodules were resected due to suspected metastasis, and to compare the CT features of these nodules with pathologic findings in resected specimens.

Materials and Methods : Ninety-four pulmonary nodules resected by pulmonary metastasectomy in 31 patients with extrathoracic malignancies were included in our study. We retrospectively analyzed the CT features of each nodule with regard to size, shape, margin characteristics, the presence or absence of cavity, location and distance from the pleura.

Results : Among 94 resected nodules, 67 (71 %) were metastatic, and 27 (29 %), were benign. Among the pathologically benign nodules, involvement was as follows : fibrosis (n= 14), intrapulmonary lymph node (n= 7), necrosis (n= 3), organizing pneumonia (n= 2) and xanthogranulomatous inflammation (n= 1). The mean diameter of metastatic nodules was 10.9 (range, 1-30) mm, and that of benign nodules 6.0 (range, 1-30) mm. Statistically significant differences in nodule size were found between the two groups ($p < 0.05$), though CT revealed no significant differences in terms of shape, margin, the presence or absence of cavity, location and distance from the pleura.

Conclusions : Twenty-nine percent of surgically resected nodules in patients with extrathoracic malignancies were benign. Although the possibility of metastatic nodule increases with larger nodule size, the correct diagnosis of pulmonary nodules requires histopathologic confirmation or monitoring of serial changes in nodule size.

Index words : Lung, nodule
Lung, CT

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: Radiological Embryology

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