

CT MR 1

2 3

(anthracofibrosis) CT MR

41

CT 5 MR CT MR

70 (53-89 , 5: 36) CT 34 (83%)

24 (60%) 26 (65%) 4

(10%) 가 2 1

39 (95%) 35 (85%) 2

가 22 (55%)

(98%).

30% MR 5 4 T1 T2

, 1 가 T2

CT

, MR T2

(anthracofibrosis)

가

(1-3).

1996 9 1997 9

50 CT

(CT)

41

CT Somatom plus 4(Siemens, Erlangen, Ger-many)

(300;

iopromide, ,) 100 ml 2 ml/s

(MR)

가 CT MR

10mm, 1.3 pitch CT 8mm

mediastinal window(level, 0-20 HU ; width, 300-400 HU) lung window(level, -700 ; width 1500 HU)

CT

(1cm

) , , ,

1999 3 19

1999 10 30

MR 5 Magnetom
Impact 1.0T (Siemens, Erlangen, Germany) T1
(600/30/3, repetition time/echo time/excitations) T2
(3500/99/4)

CT MR
34 (83%) (Fig. 1A)
가
CT
가 25 (61%)
24 (60%) (Fig. 1B) 44
가 12 (50%)
26 (65%) (Fig. 2A) 42
2 12
(30%)
39(95%) (Fig. 1A) 10R, 11R,
4R, 7, 4L, 11L (Table 2). 2
34 (83%)

70 (53-89) 5 : 36
가 88 % 가 37 (90 %)
37 (90%) 124
(Table 1).
2 가 31
(75%)

Table 1. Frequency of Lesions According to the Anatomical Location in 41 Patients of Anthracofibrosis

Location	Bronchostenosis by Bronchoscope	Bronchostenosis on CT	Atelctasis	Consolidation and Infiltration
RUL	27	24	14	13
RML	22	23	14	7
RLL	13	10	3	4
BI	13	12	-	-
LUL	24	19	8	11
LLL	24	12	5	7
RMB	1	0	-	-
Total	124	100	44	42

RUL: Right upper lobe, RML: Right middle lobe,
BI: Bronchus intermedius, LUL: Left upper lobe
LLL: Left lower lobe, RMB: Right main bronchus

Table 2. Frequency of Enlarged Lymph Nodes and Calcified Lymph Nodes According to the Location

Location	Lymph Node	CaLymph Node
2R	5	2
4R	14	8
10R	31	10
11R	21	13
4L	9	5
5	7	5
6	5	2
7	12	8
8	1	0
10L	6	2
11L	11	7



A



B

Fig. 1. Bronchial anthracofibrosis in a 74-year-old female.

A. Postcontrast CT scan at the level of carina shows narrowing of right upper lobar bronchus (arrowheads) with enlarged 10R and 7 lymph nodes (arrows).

B. Postcontrast CT scan shows mass like lesion containing multiple calcifications (arrow) in right middle lobe and enlarged main pulmonary artery.

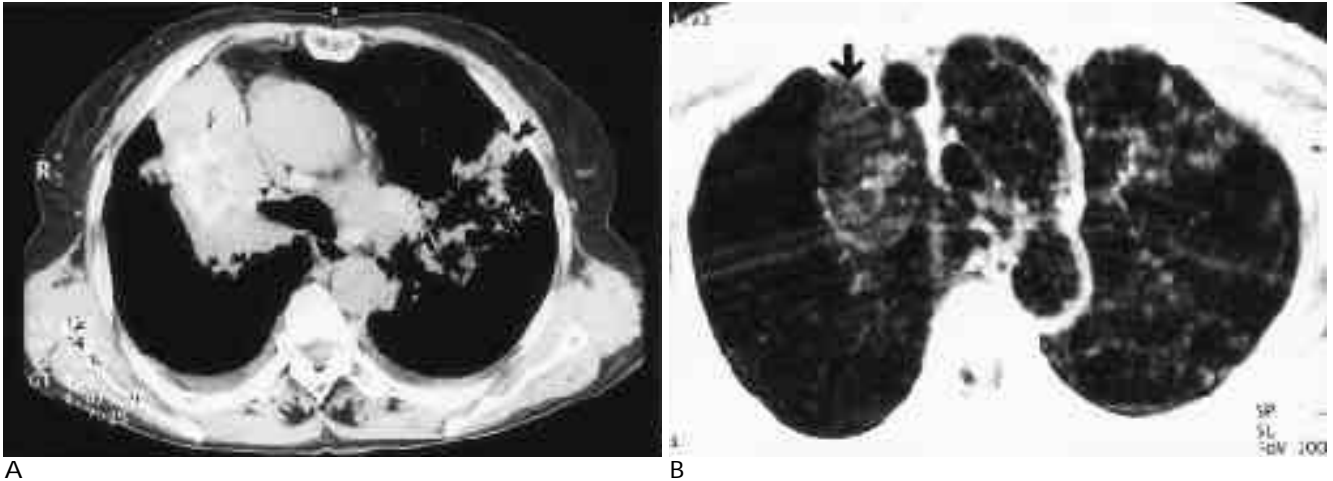


Fig. 2. Bronchial anthracofibrosis in a 73-year-old female.
A. Postcontrast CT scan shows mass with multiple calcifications (thin arrow) and obstruction (arrowhead) of the right upper lobar bronchus. Pneumonic consolidation in left upper lobe due to tuberculosis (arrow) and enlarged 10R lymph node with calcification are also noted. At 5 month ago, size of mass in right upper lobe was decreased during the steroid treatment (not shown). Percutaneous needle aspiration of mass showed proliferation of fibroblast and anthracotic pigment.
B. Axial T2 wighted MR image shows low signal intensity of mass (arrow) in right upper lobe.

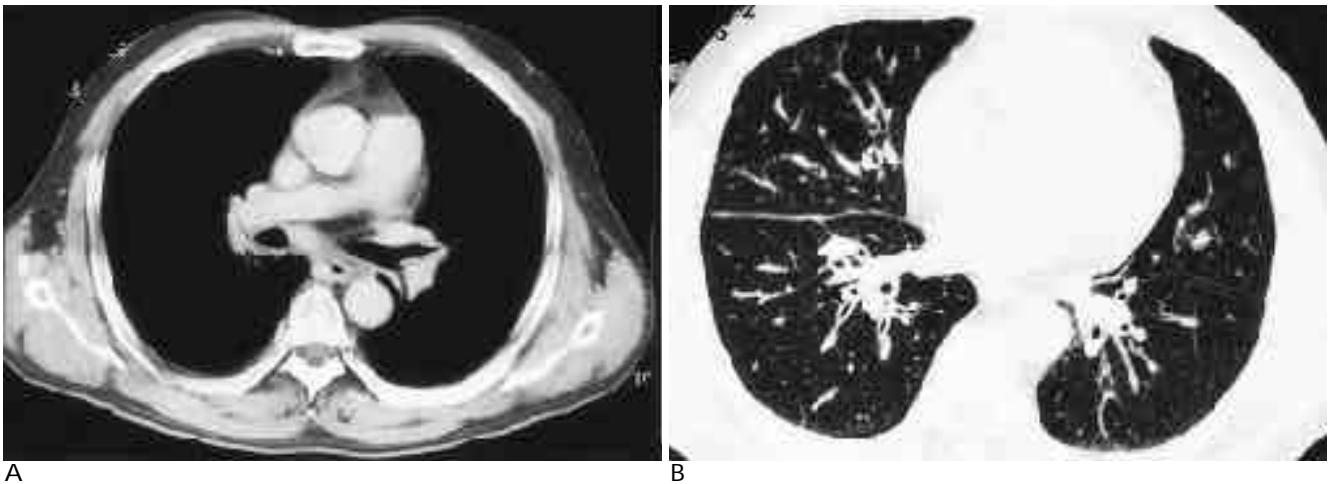
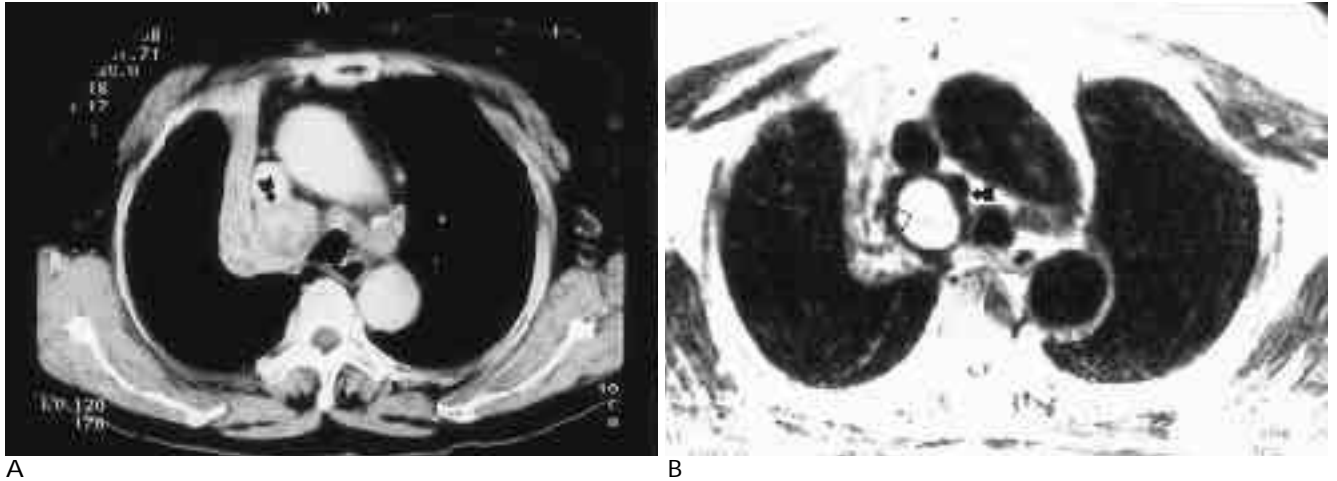


Fig. 3. Bronchial anthracofibrosis in a 60-year-old man.
A. CT scan shows diffuse wall thickening (arrow) of right bronchus intermedius.
B. HRCT scan shows bronchial wall thickening of right lower lobe (arrows) and thickening of right major fissure.
C. Axial T2-weighted MR image shows low signal intensity of 4R lymph node (arrow) suggesting fibrosis.





A
Fig. 4. Bronchial anthracofibrosis in a 79-year-old female.
A. CT scan shows atelectasis with mass and enlarged lymph node (arrow) in right upper lobe.
B. Axial T2 weighted image shows central high signal intensity (open arrow) with peripheral low signal intensity (black arrow) in mass and lymph node and pathologic specimen shows moderate chronic inflammation, suggesting reactivation of tuberculosis.

22(55%) (Fig. 2A) 20 (50%) (2)
(Table 2). 1 (Fig. 40% , 10%
4A) MR 5 4 2 . Chung (1)
3 (Fig. 가
2) T1 1 (Fig. 3) MR 30% , 23%
(Fig. 4) T1 T2 1 , 8%
T2 가 Cohen(7)
8
가
Smith (8) 75
가 (1-3). 가
(1-5) 가 88% (9) (3)
70 Ichiki (10) 1 가
가 , 가
가 (4, 6).
, 가 가
(1-3).
(3)
가 CT (83%), (60%),
(65%), (95%), (55%)

(70%), (54%) (4) (30%), (96%), (80%), MR 가 가
 61%, 50% 30% 10R, 11R 4R Im (12)
 가 54% Moon
 (5). 37 (13)
 (90%) CT 34 (83%) MR T1 T2
 CT Chung (1) (4)
 (1,4). (12, 13)
 CT (4) (46%), (41%), (30%), 가
 (30%) (4). 가 가
 MR 4 1
 (5) Chung CT
 (1) 2 (15%) 4 MR T2
 4 (10%) 3 가
 2 T1 T2 1 MR
 가 T1
 T2 10
 T2 1
 가 가
 (Fig. 2). CT
 T1 1 MR
 T2 MR (11). Cohen(7)
 가 MR
 가 (1). Chung (1)
 가
 CT 가

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CT and MR Findings of Bronchial Anthracofibrosis¹

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Purpose : To evaluate the CT and MR findings of bronchial anthracofibrosis.

Materials and Methods : Forty-one patients with bronchoscopically confirmed bronchial anthracofibrosis were included in this study. Thirty-six were female and five were male, and all were aged between 53 and 89 (mean, 70) years. The CT (n= 41) and MR findings (n= 5) were retrospectively analysed with regard to bronchostenosis, atelectasis, air-space consolidation, lymph node enlargement, calcified lymph node, mass and bronchial wall thickening, as seen on CT, and signal intensity of the mass and lymph nodes, as seen on MR.

Results : CT scans revealed the presence of bronchostenosis (n= 34, 83 %), atelectasis (n= 24, 59 %), pneumonic consolidation (n= 26, 63 %), enlarged mediastinal lymph node (n= 39, 95 %), calcified lymph node (n= 22, 54 %), mass (n= 4, 10 %), and thickening of bronchial wall (n= 1, 2.4 %). Multifocal involvement of bronchostenosis, atelectasis, and air-space consolidation occurred in 61%, 50 % and 30 % of cases, retrospectively. MR imaging showed low signal intensity of mass (n= 3) and lymph nodes (n= 10) on T1WI and T2WI. but in one case, mass and lymph node showed central high signal intensity on T2WI.

Conclusion : A multiplicity of bronchostenosis, atelectasis, air-space consolidation and enlarged mediastinal lymph nodes were characteristic CT findings of bronchial anthracofibrosis. Most MR findings included relatively low signal intensity of masses and lymph nodes on T2WI, possibly indicating the benign nature of the disease.

Index words : Lung, CT
Lung, diseases
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