

CT : 1

. 2 . . .

: CT

.

:

30 ,

30

14

CT

,

(tegmen tympani),

(scutum),

,

S

,

.

:

(100%)

29 (96.7%),

26 (86.7%)

13 (92.8%)

7 (23.3%),

12 (40%)

4 (28.5%),

5

(16.7%)

,

가

9

(65%)

4 (13.3%),

3 (10%)

.

6 (42.8%)

12 (40%),

26 (86.7%)

,

1 (7.1%),

5 (16.7%),

15 (50%)

1

9

CT

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CT

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가

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(6), CT

가

가

14

30

AIDS

가 가

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30

CT

(1-5).

(5),

1993 1

1997 1

32

CT

¹

²

14

200

1998 4 27

1999 3 12

30

30

CT

cell)
(tympanic eminence
(scutum),
(tegmen tympani),
S

CT

59.1 , 62 ,
55.6 , 14
10 44 31.7 , 가 4 ,
가 10 30 17
58 36.5 가 14 , 가 16
30 24 58 37.5
가 13 , 가 17
14 11
3 6-9
1

CT
CT
(anthropologic base line) 30 °, 120 °
, 1mm 1.5mm
CT GE Hispeed ad-
vantage GE 9800 (General electric medical system,
Milwaukee, USA)

X-
CT 가
2
(mastoid antrum) (mastoid air

exact test
Chi-square-test Fisher's
X-
13 , 3 , 10 , 1 , 3
1 , 12 , 8 ,
7
CT
14
13 (92.8%),
(7.1%)
4 (28.5%)
6 (42.8%)
(total ossicle) 1 , 3 [(long process)
1 , (lenticular process) 2], (incu-
dostapedial joint) 2
5 (35%)
1 ,
1 (Fig. 1), 2
, 1
(Table 1).
CT
3 1

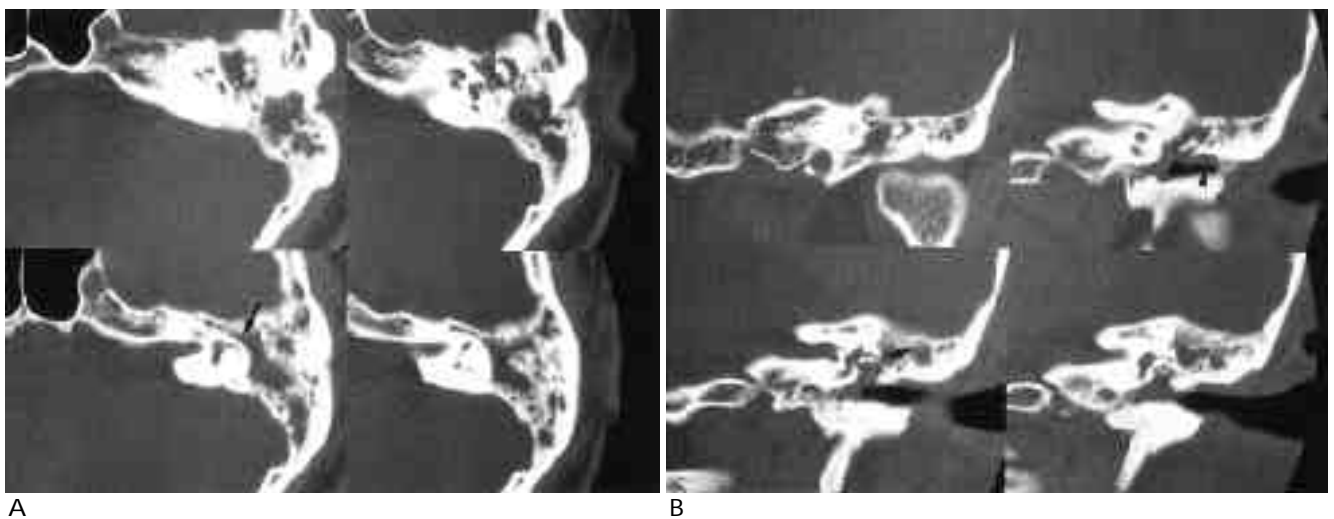


Fig. 1. Tuberculous otitis media in a 26-year-old woman
Axial(A) and coronal(B) CT scans demonstrate focal erosion of lateral semicircular canal (arrow) and soft tissue density in the entire middle ear cavity. The mastoid air cells are preserved with little sclerotic change of the mastoid bone. The soft tissue thickening of superior wall of external auditory canal is also noted (arrowhead).

9 CT 12 (40%, :83.3%, :93.3%)
(Fig. 2). (malleus) 4 11 ,
CT 5
가 29 (96.7%), 26 (86.7%) ,
7 (23.3%), 가 14 5 (16.7%), 2 (6.7%) (Table
(46.7%)(Fig. 3), 가 2 (6.7%), 1).
1 (3.3%),
4 (13.3%) . 가 26 (86.7%), 12

Table 1. CT Finding of Tuberculous Otitis Media versus Chronic Suppurative Otitis Media

CT findings	Tuberculous Otitis Media(n= 14)	COM only(n= 30)	COM with Cholesteatoma(n= 30)
Soft tissue location			
Mastoid antrum	14(100%)	29(96.7%)	26(86.7%)
Middle ear cavity* [†]			
entire middle ear cavity* [†]	13 (92.8%)	7(23.3%)	12(40%)
epitympanium	14(100%)	28(93.3%)	25(83.3%)
mesotympanium* [†]	13 (92.8%)	11(36.7%)	12(40%)
hypotympanium* [†]	14(100%)	11(36.7%)	12(40%)
Soft tissue extension to external auditory canal*	4 (28.5%)	0 (0%)	5(16.7%)
Preservation of mastoid air cell with little sclerotic change* [†]	9 (65%)	4(13.3%)	3(10%)
Erosion of ossicle [†]	6 (42.8%)	12(40%)	26(86.7%)
malleus [†]	1 (7%)	4(13.3%)	26(86.7%)
incus [†]	6 (42.8%)	11(36.7%)	25(83.3%)
stapes	4 (28.5%)	5(16.7%)	14(46.7%)
Erosion of scutum [†]	1 (7.1%)	5(16.7%)	15(50%)
Erosion of bony labyrinth	1 (7.1%) [‡]	0 (0%)	2 (6.7%)
Erosion of facial nerve canal	0 (0%) [§]	0 (0%)	3(10%)
Erosion of tegmen tympani	0 (0%)	2 (6.7%)	2 (6.7%)

* : Comparison between tuberculous otitis media and chronic otitis media without cholesteatoma(P < 0.05)

† : Comparison between tuberculous otitis media and chronic otitis media with cholesteatoma(P < 0.05)

‡ : Two cases were seen on operative field.

§ : Two cases were seen on operative field.

: Seven cases were seen on operative field.

COM : Chronic Otitis Media



Fig. 2. Tuberculous otitis media in a 43-year-old woman

A. Initial coronal CT scan shows soft tissue materials filled in the entire middle ear cavity and left mastoid antrum(visualized at other section).

B. After antituberculous medication for 9 months, a follow up CT scan shows complete clearing of the previously noted soft tissue materials in the entire middle ear cavity and mastoid antrum(visualized at other section).

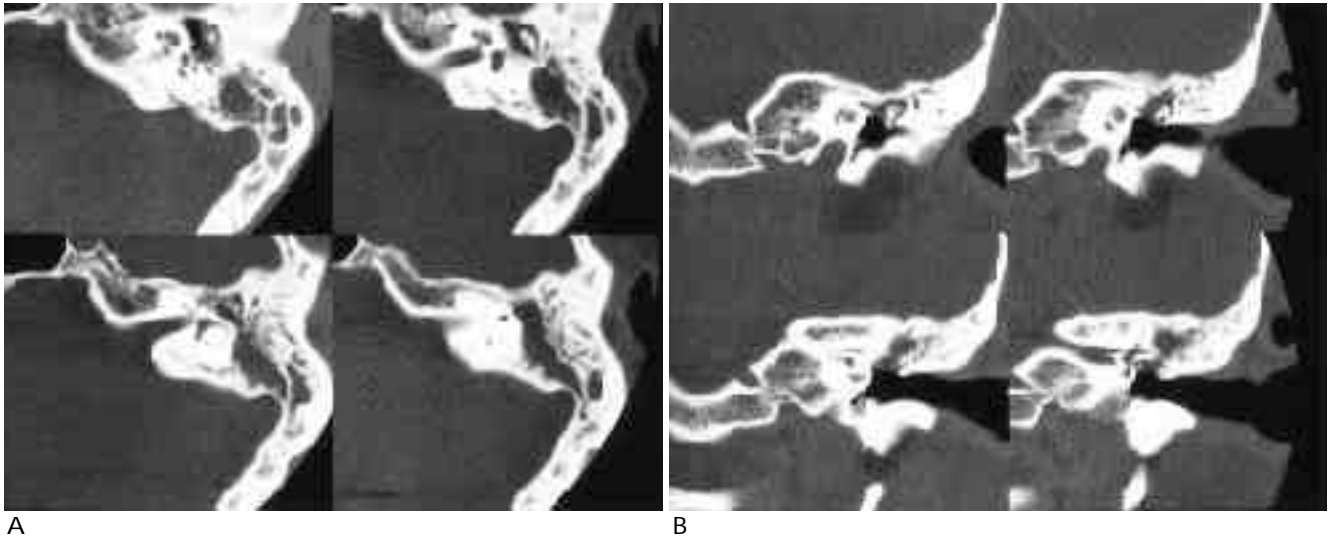


Fig. 3. Chronic otitis media in a 26-year-old woman

Axial(A) and coronal(B) CT scans reveal soft tissue density at the epitympanium and mastoid antrum. The long process and lenticular process of the incus are eroded. The mastoid air cells are relatively well preserved.

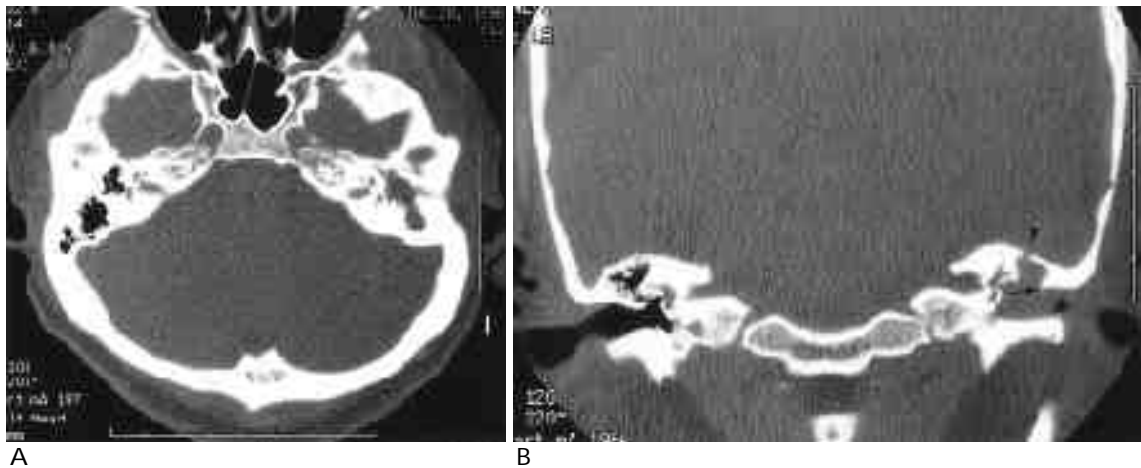


Fig. 4. Chronic otitis media with cholesteatoma in a 35-year-old woman

Axial(A) and coronal(B) CT scans reveal soft tissue mass-like lesion at the left middle ear cleft and mastoid antrum with expansion to the external auditory canal. Focal defect of left tegmen tympani (arrowhead) and erosion of scutum (arrow) are also noted. The ossicles are totally destroyed.

(40%) (Fig. 4),
5),

가 15 (50%) (Fig.
3 (10%),

가 1 (3.3%)

($P < 0.05$)

5 (16.7%)

가 (Table 1).

(Fig. 5).

26 (86.7%, :85.7%,

:80%)

2 (6.7%) (Fig. 5), S

가

(sigmoid sinus plate)

1

가

($P < 0.05$).

27 (90%)

7 (23.3%)

CT

3

(Table 1).

0.9%

가

0.04-

(3-5).

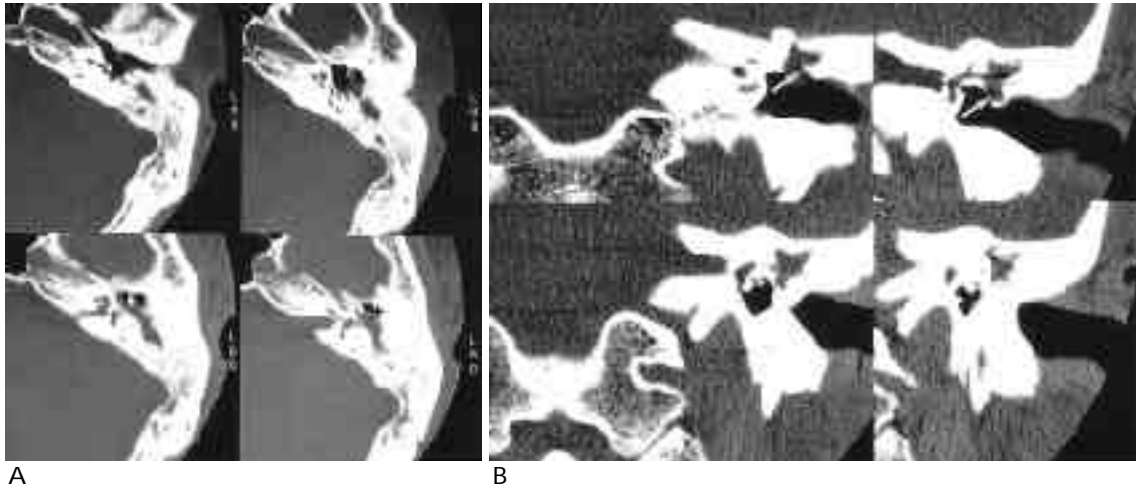


Fig. 5. Chronic otitis media with cholesteatoma in a 33-year-old woman

Axial(A) and coronal(B) CT scans show focal defect of lateral semicircular canal(arrowhead) and soft tissue density at the epitympanum and mastoid antrum. Destruction of total ossicles and blunting of scutum(white arrow) are also noted.

가 (4),
가
(8-10).
가 Hosino (6)
(2,3), 가
X-
가 (40%)
(86.7%)
가 , 14 5 2 2 가 ,
(36%) 가 1 CT
가 2 (6.7%), CT
가 7 (23.3%)
(abundant pale granulations), (malleus handle) (pars flaccida)
(1,2,7).
가
가
(2,3,8). 14 7 (50%) 4
가 14 9 (65%) 가
(8-10) 가
가

가
 12) 가
 CT
 CT
 가
 가

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Temporal Bone CT Findings of Tuberculous Otitis Media : Comparison with Chronic Otitis Media¹

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Purpose : To compare the differential findings of tuberculous otitis media(TOM) with those of chronic suppurative otitis media with or without cholesteatoma, as seen on high resolution temporal bone CT.

Materials and Methods : We retrospectively reviewed 14 cases of TOM, 30 cases of chronic suppurative otitis media(CSOM), and 30 cases of chronic otitis media with cholesteatoma(Chole). All had been pathologically confirmed. We evaluated the preservation of mastoid cells without sclerotic change, the location and extension of soft tissue to the external auditory canal, the erosion of ossicles, the tegmen tympani, scutum, bony labyrinth, facial nerve canal and sigmoid sinus, and the presence of intracranial complications.

Results : Soft tissue in the mastoid antrum was seen in all cases of TOM(100%), 29 cases of CSOM(96.7%), and 26 cases of Chole(86.7%). In contrast, the soft tissue in the entire middle ear cavity was noted in 13 cases of TOM(92.8%), 7 cases of CSOM(23.3%), and 12 cases of Chole(40%). Soft tissue extended to the superior aspect of the external auditory canal in 4 cases of TOM (28.6%) and 5 cases of Chole (16.7%). Mastoid air cells were seen in 9 cases of TOM (64.3%), 4 cases of CSOM (13.3%), and 3 cases of Chole(10%). Ossicular erosion was noted in 6 cases of TOM (42.9%), 12 cases of CSOM (40%), and 26 cases of Chole(86.7%), while in one case of TOM (7.1%), 5 cases of CSOM (16.7%), and 15 cases of Chole(50%) there was erosion of the scutum. In one case of TOM, follow-up CT study after 9 months of antituberculous medication without surgery revealed complete clearing of previously noted soft tissue in the middle ear cavity.

Conclusion : Specific CT findings of TOM were not seen, but if there were findings of soft tissue in the entire middle ear cavity, soft tissue extension to the external auditory canal, preservation of mastoid air cells without sclerotic change, and intact scutum, TOM may be differentiated from other chronic otitis media.

Index words : Tuberculosis

Temporal bone, CT

Ear, inflammation and infection

Ear, CT

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