

# 측두골 외상에 의한 침골 전위에 대한 고분해능 전산화 단층촬영의 유용성

전영명 · 박기현 · 신상준 · 김희준

= Abstract =

## Clinical Values of HRCT for Diagnosis of Incus Dislocations

Young-Myoung Chun, M.D., Keehyun Park, M.D.,  
Sang-Joon Shin, M.D., Hui-Jun Kim, M.D.

*Department of Otolaryngology, School of Medicine, Ajou University, Suwon, Korea*

**Background** : The quick and accurate radiologic evaluation is essential to minimize the sequelae of temporal bone trauma. High resolution computed tomography(HRCT) is regarded as a method of choice in the evaluation of the head trauma including temporal bone fractures. Although the diagnosis of ossicular dislocation with HRCT has been described, we could find only one report on the usefulness of coronal sections in the diagnosis of lateral displacement of the incus.

**Objectives** : The purpose of this study is to evaluate the usefulness of a recently reported radiologic sign, named the "Y" sign, for the diagnosis of lateral dislocation of the incus on the coronal HRCT sections of the temporal bones.

**Materials and Methods** : We retrospectively reviewed the axial and coronal HRCT sections of 13 cases who the laterally dislocated incus was confirmed operatively.

**Results** : In the axial HRCT sections, abnormal ice cream cone was shown in only 3 cases, but normal ice cream cone was shown in 10 cases. In the coronal HRCT sections, the Y-sign was shown in 11 cases - open Y-sign : 3 cases, closed Y-sign : 8 cases, in contrast, only 2 cases did not shown Y-sign.

**Conclusion** : The Y-sign in the coronal sections is more correlated with the dislocated incus than with abnormal ice cream cone configuration in the axial sections. So, the Y-sign seems to be very useful in the diagnosis of the dislocated incus. (**Korean J Otolaryngol 40 : 7, 1997**)

**KEY WORDS** : Y-sign · HRCT · Dislocated incus.

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(High Resolution Computed Tomography, HRCT)

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ice cream cone

Y - sign

재료 및 방법

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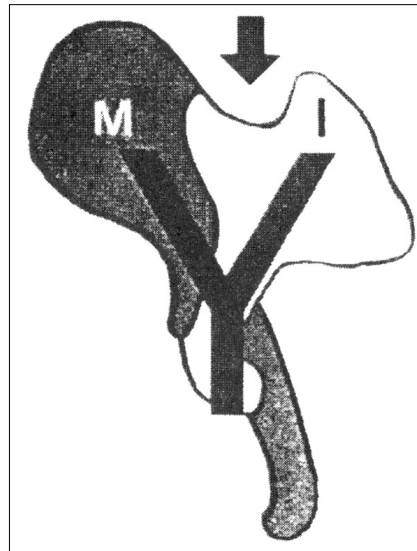


Fig. 1. When the incus is laterally displaced, a cleft (arrow) becomes apparent between the head of the malleus(M) and the body of the incus(I). The composit radiographic image of the malleoincudal complex in the coronal sections assumes a Y-shaped configuration in the case of lateral displacement of the incus.

Table 1. High resolution computed tomographic findings and surgical findings

Case No.	Sex/Age	30 degree axial (Ice Cream Cone)	105 degree coronal (Y-sign)	Surgical findings
1	F/17	+	Closed Y	Displaced incus
2	F/17	+	Closed Y	Displaced incus
3	M/22	+	-	Displaced incus
4	M/6	-	Open Y	Displaced incus®
5	F/59	+	Closed Y	Displaced incus
6	M/31	+	Closed Y	Displaced incus
7	M/70	+	Closed Y	Displaced incus
8	M/10	+	Closed Y	Displaced incus
9	F/4	-	Open Y	Displaced incus®
10	M/5m	-	Open Y	Displaced incus®
11	F/21	+	Closed Y	Displaced incus
12	M/13	+	-	*Fx of I & S
13	F/13	+	Closed Y	Displaced incus

\*Fx of I & S : Fx on incudal long process & both crura of stapes  
 Displaced incus® : Extremely laterally displaced incus  
 Ice cream cone - (+) : normal., (-) : disrupted, absent or abnormal

Y - sign (open Y - sign) (closed Y - sign)

30 ice cream cone (+), ice cream cone (-)

HRCT Table 1

ice cream cone Y - sign (Table 2).

ice cream cone Y - sign

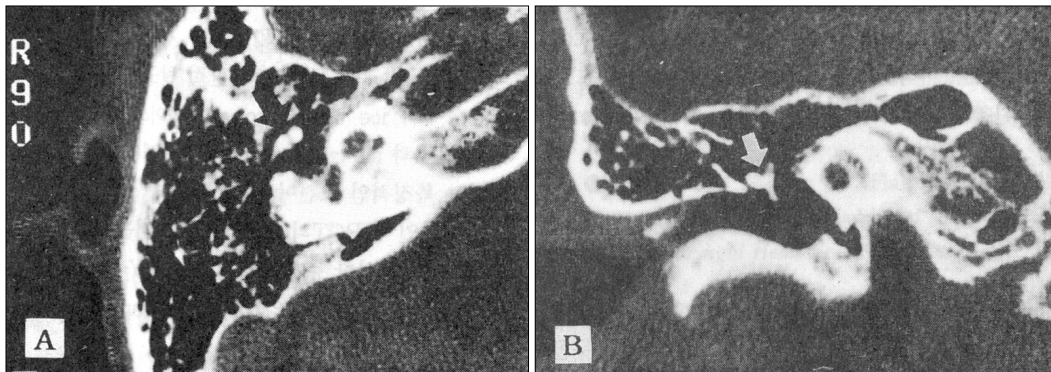
**Table 2.** High resolution computed tomographic findings

	Y-sign(+)	Y-sign(-)	Total
ICC(+)	8	2	10
ICC(-)	3	0	3
Total	11	2	13

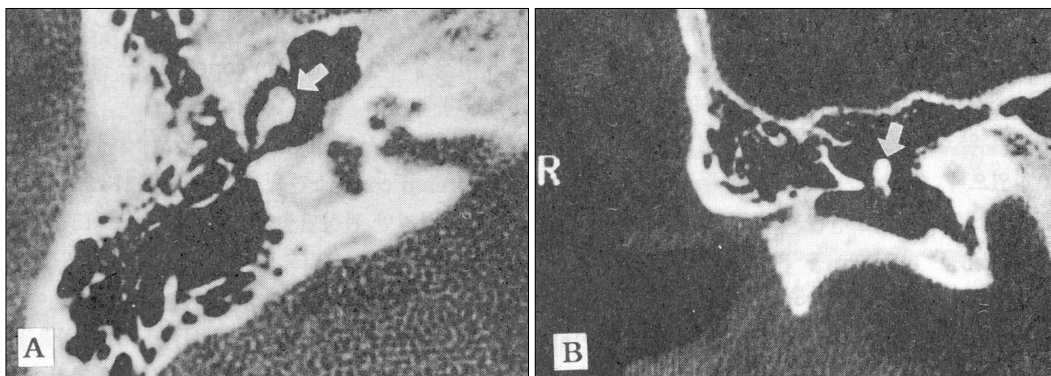
ICC(Ice Cream Cone) (+) : Normal (-) : Abnormal

**결 과**

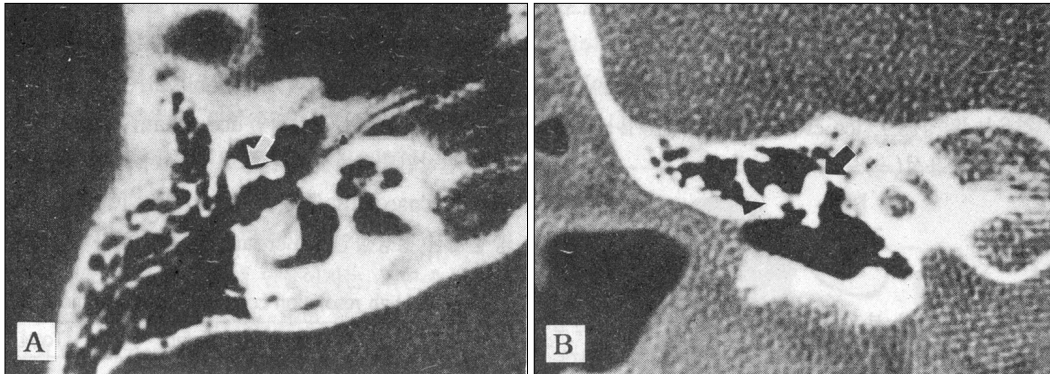
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**Fig. 2.** A : 30-degree axial HRCT sections showing a normal "ice cream cone" configuration (arrow) B : 105-degree coronal HRCT, Arrow indicates a closed Y-sign : the incus is laterally displaced (Case 1).



**Fig. 3.** A : 30-degree axial HRCT sections showing a normal "ice cream cone" configuration (arrow). B : 105-degree coronal HRCT showing the normal malleoincudal complex forming an inverted teardrop-shaped normal configuration (arrow). There is no Y-sign because the incus is dislocated in another plane, not laterally as is the case when the Y-sign is present (Case 3).



**Fig. 4.** A : 30-degree axial HRCT sections showing an abnormal "ice cream cone" configuration (arrow). B : 105-degree coronal HRCT showing an open Y-sign. Arrow indicates the long arm of the Y, arrow head indicates the short arm of the Y : the incus is extremely laterally displaced (Case 4).

8 (Case 1, 2, 5, 6, 7, 8, 11, 13 : Fig. 2),  
ice cream cone  
Y - sign 2  
(Case 3, 12 : Fig. 3),  
ice cream cone 3  
Y - sign Y -  
sign (Case 4, 9, 10 : Fig. 4).

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