

고막 천공이 없는 외상성 이소골 탈구의 임상적 고찰

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Clinical Study of Traumatic Ossicular Disruption without Tympanic Membrane Perforation

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ABSTRACT

Background and Objectives : Ossicular disruptions following trauma can occur without perforation of the tympanic membrane. It is difficult to confirm the presence of ossicular disruption in such cases. We have reviewed the clinical characteristics of patients with traumatic ossicular disruption with an intact tympanic membrane, and purposed a new diagnostic flow chart that utilizes three-dimensional CT scanning. **Materials & Methods** : Twenty patients who had ossicular disruption with an intact tympanic membrane that was confirmed by exploratory-tympanotomy were studied. In two cases where the ossicular chain appeared intact on conventional temporal bone CT, a three-dimensional CT scan was performed. **Results** : Concomitant temporal bone fracture was not found in 60% of the patients, and only eleven patients showed an Ad-type tympanogram. The most common site of disruption on preoperative temporal bone CT scans was the incudostapedial joint, but exploratory-tympanotomy revealed that dislocation of the incus was the most common. The temporal bone CT scans of five patients appeared normal, but the three-dimensional CT scan performed on two of these patients exhibited evidences of ossicular disruption. **Conclusion** : The diagnosis of ossicular disruption with an intact tympanic membrane can be made through a history of head trauma, audiologic studies (pure tone audiometry, impedance audiometry), and temporal bone CT scans. However, diagnosis may occasionally be difficult with these modalities, and three-dimensional CT scanning can be helpful in such cases. (**Korean J Otolaryngol 2001;44:696-9**)

KEY WORDS : Ossicular disruption · Intact tympanic membrane · Three-dimensional CT scan.

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Table 1. Drum findings of the traumatic ossicular disruption patients with intact tympanic membrane

Drum finding	No. of patients
Normal	14
Blue ear drum	3
Retraction	3

Table 2. Causes of ossicular disruption with intact tympanic membrane

Causes of trauma	No. of patients
Car accident	14
Falling down	3
Slipping down	2
Unknown	1

Table 3. Preoperative and postoperative air-bone gap

AB Gap	Preoperative	Postoperative
<20 dB	0	5
<30 dB	5	10
<40 dB	6	4
<50 dB	5	1
>50 dB	4	0

*AB Gap : Air-bonegap

Table 4. Combined temporal bone fracture in traumatic ossicular disruption patients with intact tympanic membrane

Temporal bone fracture	No. of patients
Longitudinal fracture	5
Transverse fracture	1
Mixed fracture	2
No fracture	12

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Table 5. Comparison of ossicular findings on CT scanning with ossicular status in explorotympanotomy in traumatic ossicular disruption patients with intact tympanic membrane

Types of ossicular disruption	CT finding	Exploro-tymp (No. of patients)
Malleoincudal joint separation	6	5
Incudostapedial joint separation	3	7
Incus dislocation	3	3
Malleus fracture	3	3
Normal	5	2

*Exploro-tymp : Exploro-tympano

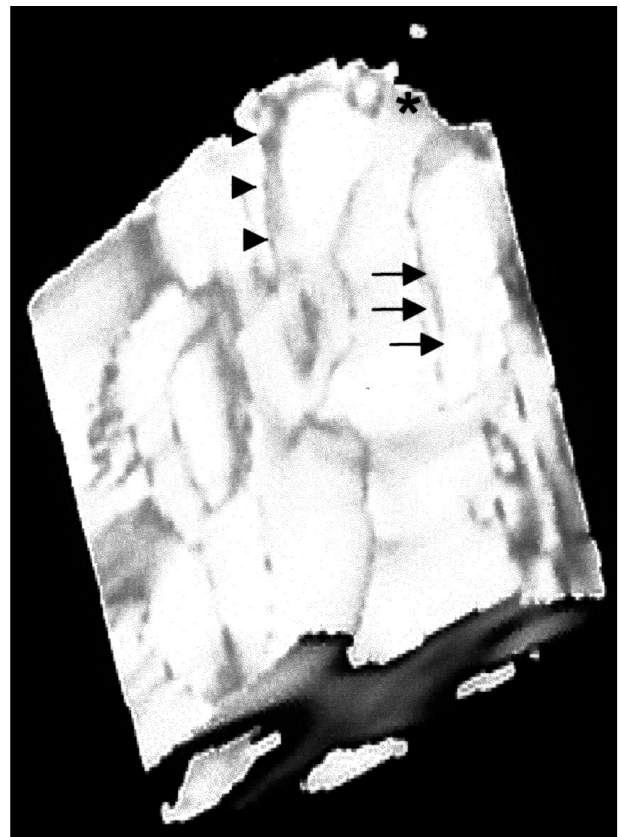


Fig. 1. 3-dimensional CT scanning of traumatic ossicular disruption. In this patient 2-dimensional CT scanning showed normal ossicular finding (arrow : malleus, arrow head : incus, * : disrupted malleoincudal joint).

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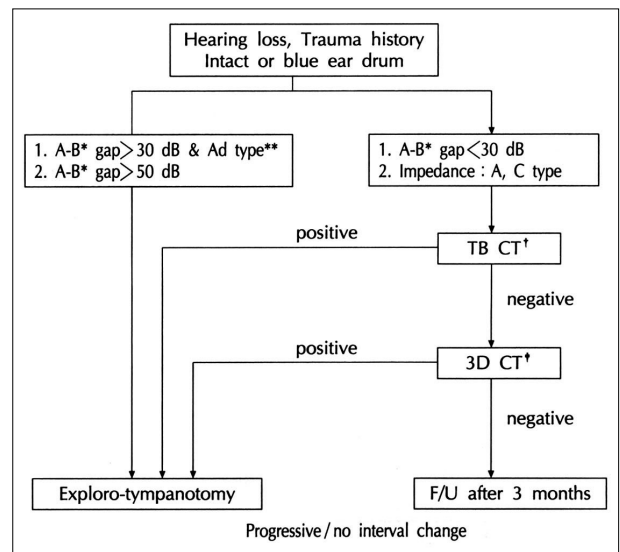


Fig. 2. Diagnostic flow chart in traumatic ossicular disruption without perforation (* : air-bone, ** : Ad type in impedance audiometry, † : temporal bone computed tomogram, ‡ : 3 dimensional temporal bone computed tomogram).

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