

## 선천성등골 기형의 임상적 고찰

박기현 · 박홍준 · 이동훈 · 전상훈 · 오정훈

### Clinical Evaluation of Congenital Stapedial Anomalies

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#### ABSTRACT

**Background and Objectives** : A nonprogressive and conductive hearing loss in the range of 40 to 60 dB with normal tympanic membrane is highly suggestive of a congenital ossicular malformation. Among the ossicular anomalies, congenital stapedial anomaly is most common, and it is clinically important because hearing loss can be corrected by appropriate procedure. In this study, we attempted to describe patterns of stapes anomalies encountered in patients who have a normal ear drum. We also analysed the surgical result with special reference to the patterns of stapes anomaly. **Materials and Methods** : We experienced 17 cases (20 ears) of congenital stapedial anomalies which were confirmed through the exploratory tympanotomy at Ajou University Hospital between June 1994 and March 1997. The preoperative and postoperative audiologic findings, operative findings and CT findings were analysed. **Result** : There were 5 types of stapes anomalies with 7 anomalous patterns among which stapes footplate fixation was the most common anomaly. We could get 78.9% of hearing improvement after ossiculoplasty with several prosthesis. **Conclusion** : Stapes footplate fixation was usually bilateral, while partial stapes anomalies or anomalies associated with incus anomaly was usually unilateral. The surgical result of stapes anomaly was good. (Korean J Otolaryngol 1998;41(12):1545-1549)

**KEY WORDS** : Stapes footplate fixation · Ossicular anomaly · Stapedotomy · Stapes prosthesis.

가

가 17

40 60 dB

가

: 1998 6 3 /  
: , 442 - 749

: 1998 10 7  
5

1994 6 1997 6 3

: (0331) 219 - 5266 · : (0331) 219 - 5264

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8 (16 )

9 (9 )

17 (20 )

9 , 3

5

11 , 20

6 (12 ) 5 (10 )

가

1

가 1

24.3(8 62) , 1 : 1.2

500, 1000, 2000 Hz 가

40.5(35 50) dB

(pro-

sthesi)

(tympanogram),

500, 1000, 2000 Hz

가 20 dB

가 가 .

가 12 ,

7 가

가 5 , 5가

7가

(Table 1). 7가

7 (Fig. 1), 2 ,

가 1 (Fig. 2), 가

가 1 , 1 (Fig. 3),

가 4 (Fig. 4),



Fig. 1. This photograph shows a stapes with fractured anterior and posterior crus.

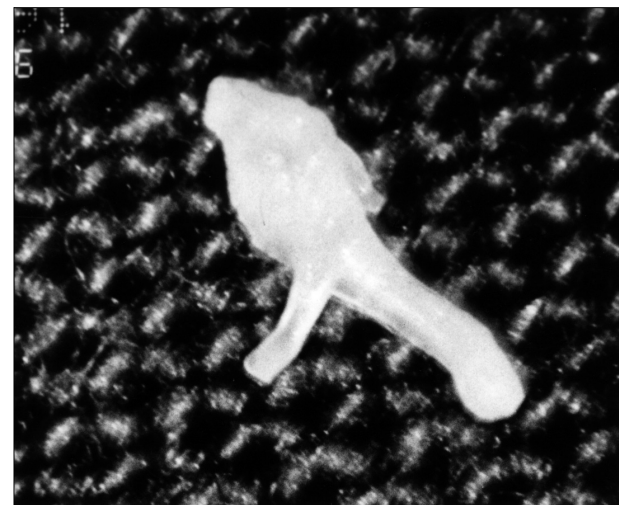
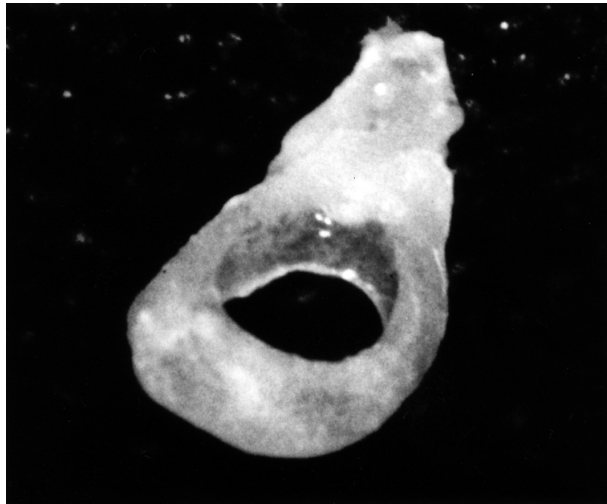


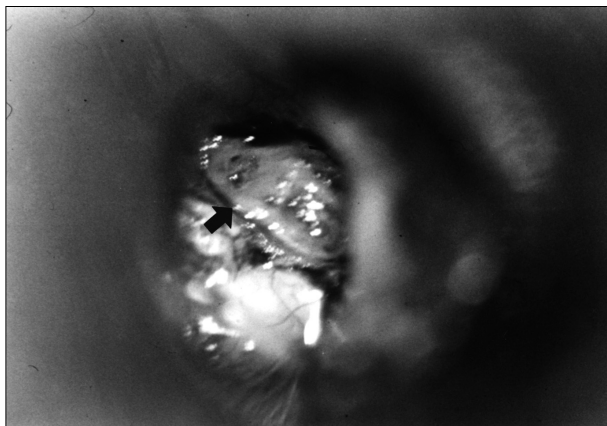
Fig. 2. This photograph shows abnormal stapes with a partial anterior crus and absence of footplate.

Table 1. Characteristics of stapes anomaly

Footplate fixation (7 cases)
Anomalous stapes
- anterior and posterior crural fusion (1 case)
Totally absent stapes (1 case)
Partially absent stapes
- stapes without anterior crus (2 cases)
- stapes without anterior crus and footplate (1 case)
Associated incus anomaly
- stapes without suprastructure and incus long process (4 cases)
- stapes without anterior crus and incus long process (1 case)
case : number of patient



**Fig. 3.** This photograph shows the stapes with anterior and posterior crural fusion.



**Fig. 4.** This photograph shows stapes footplate (arrow) without suprastructures of the stapes and incus long process.

**Table 2.** Results of tympanogram of operated stapes anomaly (n = 20)

Type	A	As	Ad
Footplate fixation	2	8	-
Anomalous stapes	-	1	-
Totally absent stapes	1	-	-
Partially absent stapes	-	-	3
Associated incus anomaly	-	-	5
Total	3	9	8

n : number of ear

**Table 3.** Operative procedure according to types of anomaly (n = 19)

Type	Mobilization	Schuknecht's prosthesis	Fisch piston	Cause piston	TORP
Footplate fixation	2	1	6	1	-
Anomalous stapes	-	-	-	-	1
Totally absent stapes	-	-	-	-	-
Partially absent stapes	-	1	-	-	2
Associated incus anomaly	-	-	-	-	5
Total	2	2	6	1	8

n : number of ear

**Table 4.** Hearing results according to types of anomaly (n = 19)

Type	Hearing improvement
Footplate fixation	8/10
Anomalous stapes	1/1
Partially absent stapes	2/3
Associated incus anomaly	4/5
Total	15/19

n : number of ear

**Table 5.** Results according to the types of operative procedures (n = 19)

Procedure	Ear	Hearing improvement (%)
Mobilization	2	1 ( 50.0)
Schuknecht's Prosthesis	2	1 ( 50.0)
Fisch Tef-stainless Piston	6	5 ( 83.3)
Cause Tef-Piston	1	1 (100.0)
TORP	8	7 ( 87.5)
Total	19	15 ( 78.9)

n : number of ear

가 1  
5가  
,  
,  
가  
7 6 가  
, 1  
1 ( 2 )  
,  
3  
5  
5가  
As  
Ad (Table 2).  
가  
,  
(TORP : total

ossicular replacement prosthesis)

1 15 30 dB 가  
(Table 3). 가  
가 20 가 ,  
dB 19 가  
15 78.9% (Table 4 and 5).

9)  
1 가  
2 가  
가 ,  
가 ,  
1 가  
1)2) 가 ,  
가 가  
가 25% 10)  
3)  
(Pixel) 0.25 mm 1 mm  
Jahrsdoerfer<sup>4)</sup> (major  
type) (minor type)

Park Moon <sup>11)</sup> 22  
77.8% As  
가  
8 Choi <sup>5)</sup> , 34 Park <sup>6)</sup> As  
9가 Nomura<sup>7)</sup> 52 Ad

가  
가 29 (56%) 가  
가 (prosthesis)  
가  
Schuknecht's prosthesis

8)  
가  
가  
17  
20 dB 17 13  
(77%) Oh <sup>12)</sup>(1997)  
가 가

