

선천성 외이도 폐쇄증의 임상

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전경명 · 이일우 · 조규섭 · 최진식 · 이상준 · 고의경

Clinical Findings of Congenital Aural Atresia

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—ABSTRACT—

Background and Objectives : Congenital aural atresia is very serious disease because its morphologic and functional deficit can affect the life of the child and parents significantly. Morphologic and audiologic restoration through surgical correction is mandatory to otologist. We analysed our experiences in surgical treatment of congenital aural atresia for the purpose of better understanding of this disease. **Subjects and Methods** : Present study analysed thirty three cases (34 ears) of canaloplasty patient for six years. The pre- and post-operative clinical findings and audiologic results were collected from retrospective chart reviews. **Results** : The most common ossicular anomaly was malleus-incus fusion (38.2%). There was no significant relationship between the degree of auricular malformation and degree of ossicular anomaly. The patient with hearing gain more than 20 dB of air-conduction was twelve out of 23 (52.2%). Postoperative complication occurred 23.5% (8/34) of cases and half of them were canal stenosis. **Conclusions** : For prevention of postoperative stenosis and to get a better hearing results, we should make the external canal more widely. A meticulous management of canal skin and graft is mandatory. (J Clinical Otolaryngol 2004;15:261-269)

KEY WORD : Congenital aural atresia.

서론

가 , 15~20%
3)
가
10,000~20,000 1 가
1)2)
bach가 1950 , 1882 Kiessel-
Wullstein Zöllner

: 2004 9 30
: 2004 11 23
: , 602 - 739 1가
: (051) 240 - 7330 · : (051) 246 - 8668 가
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Plus, GE Light Speed Qxi
 가
 Jahrsdoerfer⁴⁾ Mattox
 Fisch,⁵⁾ Schuknecht,⁶⁾ Shih Crabtree,⁷⁾ Bauer⁸⁾
 가
 1990 (neo-
 Chang,⁹⁾ Chung,¹⁰⁾ Park,¹¹⁾ 15~50 meter) Cadwell Quantum 84
 , 1996
 Cho 50 (ABR)
 가 가
 Interacoustic AC 40
 , ABR
 63 33,898
 18.5 10,000
 ,¹²⁾
 , 1967 ISO , PTA 4
 6
 33 , 34
 , CT , ,

결 과

대상 및 방법

6
 33 , 34
 ,
 19 (57.6%),
 4
 14 (42.4%)
 36 19.3 (Table 1).
 27 (81.8%), 6 (18.2%)
 , 27 20
 (74.1%), 7 (25.9%) (Table 2).
 CT Siemen Somatome

Table 1. Age & sex distribution Cases (%)

Sex	Age (yrs)				
	0 - 9	10 - 19	20 - 29	30 - 39	Total
Male	9	6	4	0	19 (57.6)
Female	6	4	2	2	14 (42.4)
Total	15 (45.5)	10 (30.3)	6 (18.2)	2 (6.0)	33 (100)

동반증상

33 ()가
 25 (75.8%), 6 (18.2%)
 1
 (3.0%) (Table 3). 25

Table 2. Side of atresia

Side	Cases (%)
Unilat.	27 (81.8)
Rt.	20
Lt.	7
Bilat.	6 (18.2)
Total	33 (100)

Table 3. Preoperative symptoms

Symptoms	Cases (%)
Auricle anomaly	25 (75.8)
Hearing loss	6 (18.2)
Otorrhea	1 (3)
Retroauricular swelling	1 (3)
Total (%)	33 (100)

가 12 ,
 가 13 .

이개 상태 및 동반된 선천성 이상

34 Marx
¹³⁾ 가 1 (2.9%),
 grade 15 (44.1%), grade 가 17 (50%)
 가 , grade 1 (2.9%) 가
 (Table 4).

외이도와 측두골 상태

Altmann ¹⁴⁾
 group 가 34 23 (67.6%) 가
 , group 9 (26.5%), group 2
 (5.9%) . Schuknecht ⁶⁾ type
 C가 26 76.5% 가 , type B가
 5 (14.7%), type D 2 (5.9%), type A 1 (2.9%)
 (Table 5).

수술방법

Meatoplasty Altmann group
 34 2 (5.9%) ,
 canaloplasty 32 (94.1%)

Table 4. Marx classification of auricle

Classification	Ears (%)
Normal	1 (2.9)
Grade I	15 (44.1)
Grade II	17 (67.6)
Grade III	1 (2.9)
Total (%)	34 (100)

. canaloplasty (anterior app-
 roach) canaloplasty 32 14 (43.8%) ,
 (transmastoid approach) 18 (56.3%)

Wullstein ¹⁵⁾ type 7
 (20.6%), type 20 (58.8%) type 4 (11.8%),
 tympanization 3 (8.8%) ,
 가 (Table 6).

술 전 측두골 CT소견과 수술소견

15 (44.1%), 3 (8.8%), 3
 (8.8%), 7 (20.6%), 3 (8.8%),
 3 (8.8%) ,
 15 (44.1%), 5
 (14.7%), 3 (8.8%), 7 (20.6%),
 3 (8.8%), 3 (8.8%)
 2 CT
 ,
 가 .

Table 6. Operation technique

Operation technique	Ears (%)
Meatoplasty	2 (5.9)
Canaloplasty	32 (94.1)
Anterior app.	14 (43.8)
T-M app.	18 (56.3)
Tympanoplasty	
Type I	7 (20.6)
Type II	20 (58.8)
Type III	4 (11.8)
Type IV	3 (8.8)

T-M app. : tympanomastoid approach

Table 5. Altmann and schuknecht classification of ext. ear canal atresia

Altmann	Schuknecht				Total
	Type A	Type B	Type C	Type D	
Group I	1	4	4		9 (26.5)
Group II		1	22		23 (67.6)
Group III				2	2 (5.9)
Total	1 (2.9)	5 (14.7)	26 (76.5)	2 (5.9)	34 (100)

술 중 이소골 소견
 10 (29.4%)
 , 13 (38.2%) 가
 , 가 4 (11.8%),
 가 3 (8.8%),
 2 (5.9%), 2 (Table 7).
 11 (32.4%),
 16 (47.1%), 7 (20.6%) ,
 14 (41.2%), 17 (50.0%), 3 (8.8%),
 27 (79.4%), 2 (5.9%), 5

Table 7. Intraoperative ossicle finding

Anomaly	Ears (%)
Normal	10 (29.4)
Malleus-Incus fusion	13 (38.2)
All ossicular loss	4 (11.8)
Loss of malleus	3 (8.8)
Loss of incus	2 (5.9)
Other	2 (5.9)

Table 8. Intraoperative ossicular finding Ears (%)

Finding	Ears (%)		
	Normal	Anomaly	Absent
Malleus	11 (32.4)	16 (47.1)	7 (20.6)
Incus	14 (49.2)	17 (50)	3 (8.8)
Stapes	27 (79.4)	2 (5.9)	5 (14.7)

Table 9. Auricular anomaly and ossicular anomaly Ears (%)

Marx class.	Ossicular anomaly	Ears (%)					
		Normal	Loss of malleus	Loss of incus	Loss of stapes	M-I mass	All ossicular loss
Grade I		3 (20)	2 (13.3)			8 (53.3)	2 (13.3)
Grade II		6 (35.3)		4 (23.5)		4 (23.5)	2 (11/8)
Grade III							1 (100)

M-I : Malleus-Incus

Table 10. Auricular anomaly and ear canal atresia

Marx classification	Altmann classification (group)			Schuknecht classification (type)			
	I	II	III	A	B	C	D
Normal		1				1	
Grade I	3	10			2	3	
Grade II	5	12	1	1	3	22	
Grade III			1				2

(14.7%) (Table 8).

이개 기형 정도와 이소골 기형

(Table 9).

이개 기형과 외이도 기형

Altmann¹⁴⁾ Schuknecht⁶⁾

(Table 10).

Altmann group
 Marx¹³⁾ grade 가 34 12
 (35.3%) 가 , Schuknecht type C
 Marx grade 가 22 (64.7%) 가 .

술 전 청력 및 청력 변화

가 가 . 5
 , 29
 가

ABR
 11 23
 66.3 dB, 24.9
 dB 41.4 dB ,

Table 11. Pre. and postoperative puretone threshold

Case no.	PTA (dB)			PTA (dB)		
	A	B	A-B	A	B	A-B
1	65	20	45	43	20	23
2	68	14	54	50	14	36
3	63	19	44	56	24	32
4	40	10	30	18	8	10
5	85	55	30	51	39	12
6	50	15	35	53	15	38
7	75	36	39	56	30	26
8	60	25	35	50	25	25
9	83	34	49	53	35	18
10	40	15	25	20	13	7
11	86	55	31	38	24	14
12	61	10	51	58	10	48
13	74	25	49	49	24	25
14	64	16	48	36	16	20
15	73	28	45	51	26	25
16	71	26	45	48	21	27
17	63	34	29	29	20	9
18	69	45	24	60	44	16
19	65	30	35	56	15	41
20	58	15	43	46	15	31
21	63	13	50	56	13	43
22	65	18	47	24	15	9
23	55	15	40	53	15	38
Mean	66.3	24.9	41.4	50.9	20.9	30.0

50.9 dB, 20.9 dB, 30 dB
 15.4 dB
 4 dB
 11.4 dB
 20 dB, 30 dB
 23, 12, 52.2%
 7 (30.4%)
 (serviceable hearing level)
 40 dB, 23, 6 (26.1%)
 (Table 11).

술 후 합병증

34, 8 (23.5%)
 4 가
 가 2

Table 12. Postoperative complication

Complication	Ears
EAC Stenosis	4
Postop. otorrhea	2
Bleeding	1
Hearing loss	1

(Table 12).
 keloid 가 ,
 가 가 가
 고 잘
 4 1 2 (branchial groove)
 28
 2)14 가
 가 ,
 6)
 76%
 가

6 가 , , grade
 33 (34) () ,
 (atretic plate)
 1 2 1 가 가 , grade
¹⁾²⁾
 2 ¹⁾¹⁷⁾ 가 , ,
 1.36 : 1 가 . Altmann
 10~30% ²⁾⁸⁾¹⁶⁾¹⁷⁾¹⁹⁾ 가 , 1989 Schuknecht⁶⁾
 A
 15.2%(5/33) , B
 2.5 (20/8) ⁸⁾¹⁸⁾ , C
 가 , D C 가
 1985 De la Cruz ²⁰⁾
 , Klippel - Feil , hemifacial microsomia, Altmann Schuknecht
 , Treacher - Collins , Altmann
 (microtia) 가 , 1926 Marx¹³⁾ (major malformation)
 3 grade 가 1) , 2) , 3)
 , 4)
 가 , grade 1) , 2)
 (ridge) , 3)
 , grade
 grade , 가 grade
 15 (44.1%), grade 17 (50%)
 가
 1 , 1 .
 가 group 26.5%, group 67.6%, group
 S 5.9% Bauer ⁸⁾ group 35%, group
 (mastoid tegmen) , 65% . ⁴⁾¹⁹⁾
 , Shih Crabtree⁷⁾ Altmann
¹⁾²⁰⁾
 가
 가 가 ,
¹⁾
 1955 Alt- , 가
 mann¹⁴⁾ 3가 grade () 가 가

:
 가 , 4) , 5)
 , 6) , 7) ¹⁾²⁰⁾
 가 Altmann 가 ,
 grade meatoplasty 가 , 가 ,
 grade , canaloplasty , Treacher -
 Collins
 . canaloplasty (3 dimensional imaging
 (atretic plate) CT) ,
⁴⁾⁵⁾ 가
¹⁹⁾²⁰⁾ 5 .
 가 34 18
 가 , ⁶⁾ ,
 가 . Jahrsdoerfer ¹⁹⁾
 가 (2), (1), (1),
 가 , (1), (1), (1),
 , (1), (1), (1)
 , 10 (excellent), 9 (very good),
 가 8 (good), 7 (fair), 6 (marginal),
¹⁸⁾ 14 , 5 (poor)
 18 11.8%
 (4/34) , stent 4~6
 , 5.9%
 . (full - 6~9
 thickness skin graft) (split - thick- ²⁰⁾ .
 ness skin graft) 15~16
⁷⁾¹⁷⁾¹⁸⁾²⁰⁾ , 가
 . Wullstein type 가 ,
 가 가
 . Mo- 8 6 .
 lony De la Cruz¹⁸⁾ 3가
 , 1) 가 ,
 , 2) 3) 가 가 38.2% ,
 1) , 2) , 3) Marx

가 가
 5) 11.8%, 8.8%, 38.2%,
 5.9%, 29.4% , CT
 6) 20 dB 52.2%,
 30 dB 30.4%
 7) 23.5% ,
 가 ,
 Keloid , CT ,
 , 가 ,

중심 단어 :

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