

중이 환기관 탈출에 관한 연구

이순호 · 반영수 · 고광련 · 박병철 · 김남걸

Factors Influencing Tympanostomy Tube Extrusion

- A study of 214 ears -

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- ABSTRACT -

Background and Objectives : Tympanostomy tube replacement is common proper treatment of refractory otitis media with effusion. However, early extrusion of tympanostomy tube was commonly encountered, in spite of development of antibiotics, tube materials and operative methods. This study was performed to evaluate the factors influencing tympanostomy tube extrusion, excluding the selectable factors such as design and nature of tube, site of incision and operative methods, etc. **Materials and Methods :** We reviewed 214 ears of 144 patients who were operated in the department of otolaryngology of the Kwang-ju christian hospital from January 1994 to December 1998. **Results :** Tympanostomy tube extrusion rate according to placement period was 1) Children over 12 years old and adult, 49.3% was extruded within 6 months and 20.3% within 2 months, 2) Local anesthesia, 49.3% was extruded within 6 months and 20.3% within 2 months, 3) Mucoid middle ear effusion, 38.8% was extruded within 6 months and 15.2% within 2 months, 4) Previous tympanostomy tube replacement history, 73.2% was extruded within 6 months, 20.0% within 2 months, 5) Allergy, 66.6% was extruded both 6 months and 2 months, 6) Associated disease, 51.4% was extruded within 6 months, 24.1% was extruded within 2 months. **Conclusion :** Average duration of tympanostomy tube placement time was 9.09 (± 5.88) months. Positive correlations for early extrusion of tube were found in (1) age over 12 years, (2) local anesthesia and (3) allergy. Statistically significance of early extrusion was seen in (1) mucoid middle ear effusion, (2) previous tympanostomy tube replacement history and (3) associated disease. (**J Clinical Otolaryngol 1999;10:184-189**)

KEY WORDS : Tympanostomy tube replacement · Early extrusion.

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Table 1. Age and sex distribution

Age	Sex		Total%
	Male	Female	
Infant (0 - 1)	0 (0)	0 (0)	0 (0)
Preschool children (2 - 6)	40 (27.8)	21 (14.5)	61 (42.3)
School children (7 - 12)	17 (11.9)	3 (2.0)	20 (13.9)
Adolescence (13 - 19)	11 (7.6)	0 (0)	11 (7.6)
Young adult (20 - 39)	12 (8.3)	11 (7.7)	23 (16)
Old age (60 -)	1 (0.6)	11 (7.7)	12 (8.3)
Total	88 (61.1)	56 (38.9)	144 (100.0)

대상 및 방법

1994 1998
144 214
20 80
가 (Table 1).

Table 2. Extrusion rate according to placement period

Duration (month)	No. of extrusion (%)	Cumulative No. (%)
0 - 2	29 (13.5)	29 (13.5)
2 - 4	22 (10.2)	51 (23.7)
4 - 6	27 (12.6)	78 (36.3)
6 - 8	34 (10.2)	112 (52.1)
8 - 10	22 (10.2)	134 (62.3)
10 - 12	19 (8.9)	153 (71.2)
12 -	61 (28.5)	214 (100.0)
Total	214 (100.0)	214 (100.0)

결 과

평균 튜브 유치 기간

가 1.14 mm Xomed® Silicon Pa- 9.09(±5.88)
parella type I 214 78 (36.3%) 6
29 (13.5%) 2 (Table 2).

63 Mast allergy 12

(Table 3).

2 12 6
6 34 (49.3%), 2 14 (20.3%)
2 12 6 44 (30.3%), 2 15 (10.3%)
0.05, p< 12 R=0.052

Table 3. Average extrusion time according to variable factors

Factor	Subdivision	Average extrusion time(month)	p-value
Age	Child	9.32 (± 5.33)	0.049
	Adult	8.59 (± 6.91)	
Anesthesia	General	9.32 (± 5.33)	0.397
	Local	8.59 (± 6.91)	
Discharge	Serous	10.23 (± 5.85)	0.031
	Mucoid	8.43 (± 5.82)	
Previous op. Hx.	Yes	6.49 (± 5.05)	0.000
	No	9.90 (± 5.90)	
Allergy	Yes	4.67 (± 4.62)	0.190
	No	9.15 (± 5.88)	
Associated disease	Yes	9.58 (± 5.84)	0.047
	No	7.80 (± 5.83)	
Total		9.09 (± 5.88)	

(p=0.049)

Ethrane
 1:100,000 2%
 6 34
 (49.3%), 2 14 (20.3%)
 6 44 (30.3%), 2
 15 (10.3%)
 p=0.397

6 51 (38.8%), 2
 20 (15.2%)
 , p=0.031
 가 (Table 4).
 12 98 (67.6%)
 , 12 36 (52.2%)
 p
 =0.039

Table 4. Duration until extrusion according to nature of middle ear effusion

Duration (month)	Cumulative No. of Serous (%)	Cumulative No. of Mucoid (%)	Cumulative No. of Total (%)
0- 2	0- 2	9 (10.8)	20 (15.2)
- 4	29 (13.5)	16 (19.2)	35 (26.6)
- 6	51 (23.7)	27 (32.4)	51 (38.8)
- 8	78 (36.3)	39 (46.8)	73 (55.5)
- 10	112 (52.1)	47 (56.4)	87 (66.1)
- 12	134 (62.3)	53 (63.6)	100 (76.0)
12-	153 (71.2)	83 (100.0)	131 (100.0)
Total	214 (100.0)	83 (100.0)	131 (100.0)

Table 5. Duration until extrusion according to previous tympanostomy tube placement history

Duration (month)	Cumulative No. of Previous TTP Hx. (%)	Cumulative No. of No TTP Hx. (%)	Cumulative No. of Total (%)
0- 2	6 (20.0)	23 (12.5)	29 (13.5)
- 4	17 (56.6)	34 (18.5)	51 (23.7)
- 6	22 (73.2)	56 (30.5)	78 (36.3)
- 8	25 (83.2)	87 (47.3)	112 (52.1)
- 10	28 (93.2)	106 (57.6)	134 (62.3)
- 12	28 (93.2)	125 (67.9)	153 (71.2)
12-	30 (100.0)	184 (100.0)	214 (100.0)
Total	30 (100.0)	184 (100.0)	214 (100.0)

*TTP : Tympanostomy tube placement

6 22 (73.2%), 2 6 (20.0%)
 , P=0.000
 가 (Table 5).
 Mast allergy
 6 , 2
 2 (66.0%)
 p=0.19

Table 6. Duration until extrusion according to associated disease

Duration (month)	Associated disease group							Cumulative No. of subtotal	Cumulative No. of No disease group	Cumulative No. of total
	T	A	S	C	TA	TS	AS			
0 - 2			5		1	7	1	14 (9.2)	15 (24.1)	29 (13.5)
2 - 4	2		5	3		5		29 (19.0)	22 (35.3)	51 (23.7)
4 - 6			10			4	3	46 (30.1)	32 (51.4)	78 (36.3)
6 - 8		1	9			13	6	75 (49.1)	37 (59.4)	112 (52.1)
8 - 10		2	8			2	3	90 (58.9)	44 (70.6)	134 (62.3)
10 - 12	2		2			4	5	103 (67.4)	50 (80.2)	153 (71.2)
12 -	4	2	21	2		9	11	152 (100.0)	62 (100.0)	214 (100.0)
Total	8	5	60	5	1	44	29	152 (100.0)	62 (100.0)	214 (100.0)
Average extrusion time (month)	12.5	12.2	10	9	1	8.1	11.6	9.9	7.5	9.2

T : tonsillar hypertrophy, A : adenoid vegetation, S : chronic sinusitis, C : cleft palate

Table 7. Time interval of extrusion in bilateral cases based on first extrusion time

Time interval (month)	1st extrusion time (month)				Total (%)
	02	24	46	6	
0 - 1/2	4	1	2	21	28 (40.0)
1/2 - 1		1	1	7	9 (12.9)
1 - 2		2	2	6	10 (14.3)
2 - 3	2	1	1	4	8 (11.4)
3 - 4	1	1	1	3	6 (8.4)
4 - 5	2	1			3 (4.3)
5 - 6				2	2 (2.9)
6 -				4	4 (5.7)
Total	9	7	11	11*	70 (100.0)
Average extrusion time (month)	2.06	2.07	1.46	1.48	1.93

*Two are 9 months, another is 10 months, the other is 13 months

일측 환기관 탈출 후 반대측 탈출까지의 시간 간격

144 70

1.93

6 32 (51.4%), 2 15 1 (Table 7). (24.1%)

p=0.047

고 찰

가 (Table 6).

가 19

Cooper,¹⁾ Politzer²⁾

p=0.000

1954 Armstrong³⁾

가 가 가 April¹³⁾ 가 Pap-

arella, Bleustone¹⁰⁾ 가 Guffenplano¹⁴⁾ 가

가

가

가 Silicon Paparella type 가 가 , , ,

(ep- thelial migration) (umbo)

9.09

30 가 가¹⁶⁾ (vascularity)

Van Baarle⁸⁾ 가 가 (cellularity) 가¹⁷⁾ 12 , Leopold⁹⁾

가

가 grommet 가 T- 가

2 6 1 ,

Flurocar- bon(Teflon), Silicone(Silastic), Stainless steal, Polyethylene, Titanium 가 가⁹⁾¹⁸⁾

Polyethylene Teflon⁶⁾ Silastic 가 가 가

중심 단어 :

가

가

가

가

(ascending infection) 가

가

19)

가

1

가

결 론

9.09(±5.88)

, 12

가

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