

## 만성중이염으로 인한 유양동의 면적변화

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## Changes of the Mastoid Pneumatization According to the Chronic Otitis Media

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## -ABSTRACT-

**Background and Objectives** : Since Wittmaack, there have been many argument on the development of pneumatization of the temporal bone. It seems generally accepted that the size variation is conducted by disposition, and that inflammation middle ear diseases occur more commonly in the smaller air cell system than in the larger. **Materials and Method** : High-resolution temporal bone computed tomographic (CT) images of 60 patients were measured and analyzed. Patients were aged from 4 to 67 years old. The size of air cell system on temporal bone tomography were measured by using the pie view program. Authors recognized the characteristic pattern in the distribution of size and difference between the diseased and the healthy mastoid air cells. **Result** : The rate of decreased mastoid pneumatization due to inflammation was 74% and the mean decreased rate was 14%. The relation between the disease duration and the decrease ratio was lowest in below 5 year of age group, and the relation between age of onset and decrease ratio was highest in below 10 year of age group. The relation between the disease severity and the decrease ratio was statistically no significant difference. **Conclusion** : These results consequently suggest the influence of inflammation of the middle ear on the development of pneumatization. (J Clinical Otolaryngol 2003;14:262-268)

**KEY WORDS** : Otitis media · Mastoid · Measure.

## 서 론

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3 가 가 가<sup>4)</sup> (CT) 가 , , , 가 대상 및 방법 대상 1997 2 2000 2 (CT) 가 가 60 4 CT 12 CT (Kodak 290, 330 ) CT pie view 2.0 program CT 8 (Fig. 1). 1) (section through the superior

semicircular canal) : 가 2) (section through the genu of facial nerve) : 가 3) (Aditus ad antrum) : , 가 4) (oval window level) : , , , , , 5) (round window level) : , 6) (section through basal turn of cochlea) : , , , 7) (section through jugular fossa level) : 8) (section through hypoglossal ca-

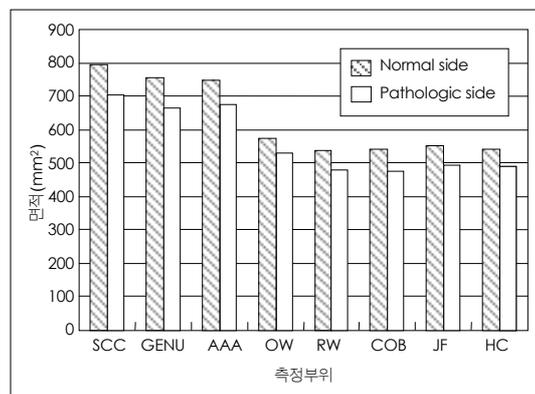


Fig. 1. Average area unit of mastoid pneumatization on normal and pathologic side according to the measured site. SCC : Section through semicircular canal, GENU : section through the genu of facial nerve, AAA : Aditus ad Antrum, OW : Section through the oval window, RW : Section through the round window, CBT : Section through cochlear basal turn, JF : Section through jugular fossa, HC : Section through hypoglossal canal.

nal) :

Pie view 2.0 program  
 CT  
 program  
 (Fig. 2).  
 General liner mode  
 Kruskal -  
 Wallis test  
 CT  
 5, 5, 10, 11  
 20, 21, 30, 31, 40  
 41

결 과

4.3%, 5%  
 74%  
 16% 가 10%  
 가  
 4, 67  
 37, 30

62%  
 5 가 28% 가 , 6  
 10 가 17%, 11 20 가 27%, 31  
 40 가 6%, 41 2%  
 (large perforation) 43% 가  
 (medium perforation), (small perforation)  
 25%  
 가  
 가  
 (Fig. 3). 11  
 20 가 , 31  
 40 가

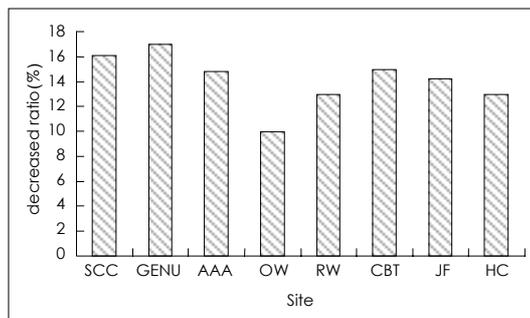


Fig. 3. Decreased ratio of the mastoid peumatization area according to the measured site. The decreased ratio was the greatest on section through the genu of facial nerve. SCC : Section through semicircular canal, GENU : Section through the genu of facial nerve, AAA : Aditus ad antrum, OW : Section through the oval window, RW : Section through the round window, CBT : Section through cochlear basal turn, JF : Section through jugular fossa, HC : Section through hypoglossal canal.

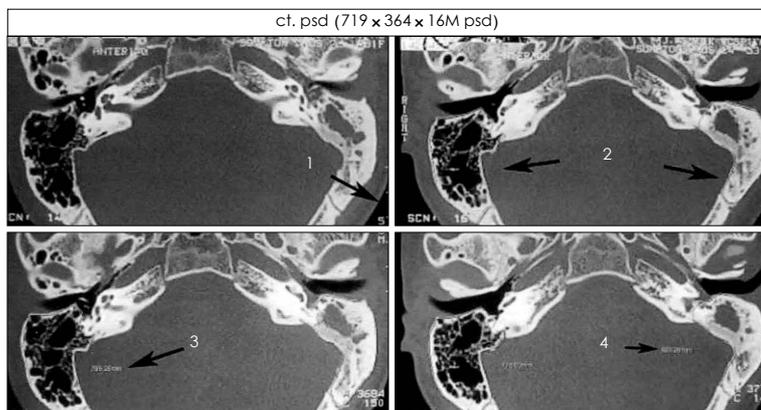
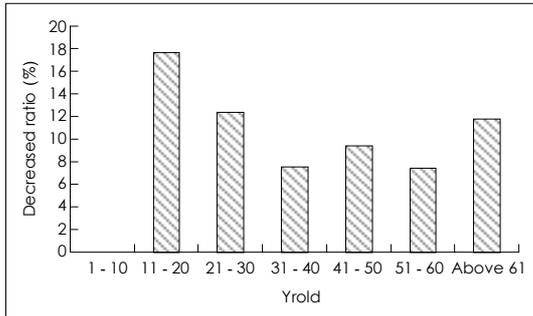


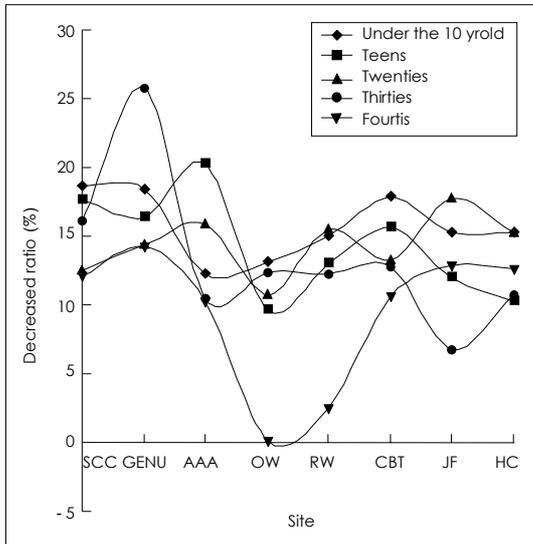
Fig. 2. The method of automatic calculation of cross sectional area using Pie view® 2.0 program. 1) Calibrate the number of pix cell to millimeter unit. 2) Tracing the area that be calculated. 3) and 4) Automatic calculation was done.

(Fig. 4).  
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 , 6 10 30

가 (Fig. 5).



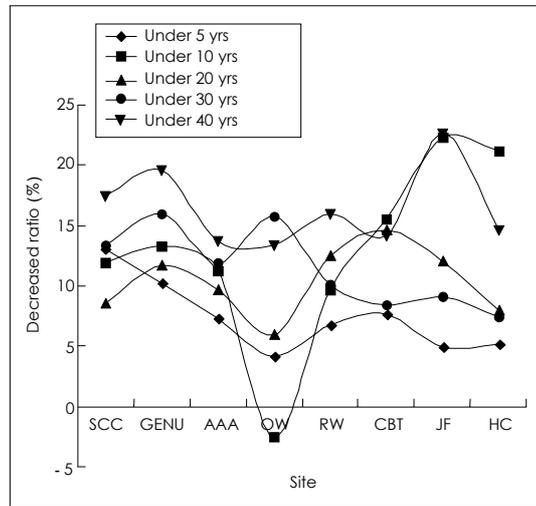
**Fig. 4.** Decreased ratio of the mastoid pneumatization area according to the age. The decreased ratio was the greatest on age over 11 yr old and under 20 year old, but there's no statistic significance.



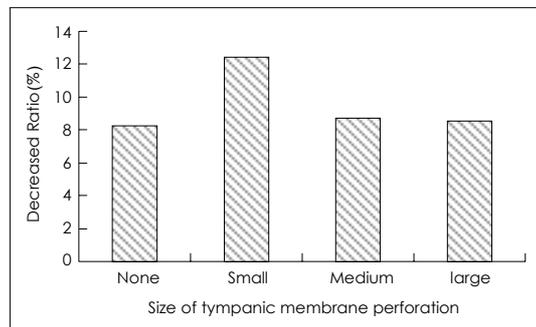
**Fig. 5.** Decreased ratio of the mastoid pneumatization area at each site according to the onset age of otorhea. SCC : section through semicircular canal, GENU : section through the genu of facial nerve, AAA : Aditus ad Antrum, OW : section through the oval window, RW : section through the round window, CBT : section through cochlear basal turn, JF : section through jugular fossa, HC : section through hypoglossal canal.

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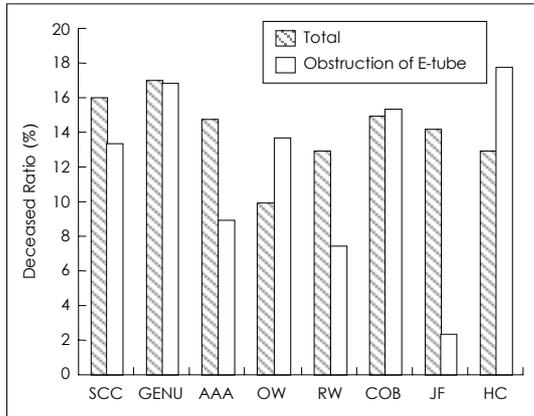
(Fig. 6).



**Fig. 6.** Decreased ratio of the mastoid pneumatization area at each site according to the duration. SCC : section through semicircular canal, GENU : section through the genu of facial nerve, AAA : Aditus ad Antrum, OW : section through the oval window, RW : section through the round window, CBT : section through cochlear basal turn, JF : section through jugular fossa, HC : section through hypoglossal canal.



**Fig. 7.** Decreased ratio of the mastoid pneumatization area according to the size of tympanic membrane perforation. There's no statistic significance.



**Fig. 8.** Decreased ratio of the mastoid pneumatization area at each site according to the patency of Eustachian tube. The decreased ratio was the greatest on section through hypoglossal canal, but there's no statistic significance.

(Fig. 7).

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(Fig. 8).

**고찰**

가

24

5)

(posterosuperior tract)

(subarcuate tract)가

5)

2

2

5

3

5)

2

가

가

가

가

10

17~18

가

6)



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