

outpatient operation, and the other 7 were operated on under general anesthesia. No significant factors associated with residual or nearly recurrence were evident. In multivariate analysis, the proportion of postoperative mastoid aeration was significantly higher among cases with age

**Conclusions:** CWDT with SWR showed a low recurrence rate. More than half of residual and nearly recurrent ears could be easily treated with outpatient intervention. This procedure seems to be fully acceptable for surgical treatment of AC.

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## ID: IP208

### Pneumolabyrinth and Perilymphatic Fistula After 27 Years of Head Trauma

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**Learning Objectives:** To discuss possible problematic situations in cochlear implantation following temporal bone fractures such as pneumolabyrinth. To emphasize the importance of careful evaluation of repeated imaging studies to rule out perilymphatic fistula after temporal bone trauma. To discuss timing of cochlear implantation after temporal bone fracture. To interpret temporal bone CT in case of pneumolabyrinth.

**Introduction:** Pneumolabyrinth is usually associated with a temporal bone trauma or stapes footplate fracture and a part of perilymphatic fistula. In this presentation, a case with footplate fracture results in pneumolabyrinth which is still perpetual 27 years after the trauma and its management is discussed with his radiological data and intraoperative video.

**Case:** A 56 year old male patient who had a bilateral profound sensorineural hearing loss (SNHL) admitted to our clinic. He experienced a head trauma results in transverse temporal bone fracture 27 years ago. CT demonstrated a fracture line was passing from cochlea and vestibule and pneumolabyrinth on the left side. MRI revealed labyrinthine ossification (LO) on semicircular canals which is characterized by diminished fluid intensity on T2 weighted images. Exploratory tympanotomy was performed and the ossicular chain was mobile. At stapes footplate level there was a fracture line accompanied by perilymph leakage. By the help of a pick a small fenestra was created at the footplate and it was obliterated by packing temporalis fascia. It was so unlikely to encounter a perilymphatic fistula after 27 years from trauma. The patient had no meningitis or encephalitis during that period. Postoperative CT scan verified the resorption of pneumolabyrinth and Weber test was localized to the operation side. He has been discharged the day after the operation without any complication.

**Results:** On the basis of this case, exploratory tympanotomy should be performed in patients with SNHL in

association with radiologically detectable pneumolabyrinth. If cochlear implantation was performed to this ear without notification of the fistula, the patient would suffer from meningitis because of the electrode and the implantation would not be beneficial. When there is a significant time delay between the temporal bone trauma and the cochlear implantation, LO or other structural abnormalities such as fistula should be ruled out prior to surgery.

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### Development of the mastoid air cell system in children with congenital cholesteatoma

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#### Learning Objectives:

**Introduction:** Development of the mastoid air cell system in children with congenital cholesteatoma is said to be relatively good. However we sometimes encounter cases with poorly developed mastoid air cell system, but there have been few quantitative studies about the matter. The present study was undertaken in order to clarify the relationship between development of the mastoid air cell system in children with congenital cholesteatoma and various clinical factors.

**Methods:** Development of the mastoid air cell system of 53 children with congenital cholesteatoma was evaluated. The size of mastoid cells were measured from 0.5 mm sliced sectioned computed tomography scan of the temporal bone.

The sum of two areas, one showing the lateral semicircular canal and the other, 3 mm below it, was defined as the cross-section area of the pneumatized mastoid cells. Age, episode of otitis media, extension stage and location of the cholesteatoma, and size of the pneumatized mastoid cells were evaluated. Stage of the cholesteatoma was estimated with the grading system described by Potsic et al.

**Results:** The cross-section area of the affected side was significantly smaller than that of the unaffected side and this tendency was remarkable especially in the elder cases. The group with episode of otitis media was smaller in area than that without it. Cases with severe invasion of the cholesteatoma had smaller in area than that of others. Whether cholesteatoma present close to auditory tube or not made no difference in the development of the mastoid.

**Conclusions:** The mastoid cells in the ear of children with congenital cholesteatoma were poorly pneumatized compared with those of the unaffected side, and our data indicate that the suppression factor of pneumatization may be episode of otitis media, high age, and cholesteatoma presented in the mastoid portion.