

loss on both side. Pure tone average was 38.3 dB on right ear and 63.8 dB on left ear. The speech audiometry showed 100% (60 dB) on the right and 100% (100 dB) on the left. The Eustachian tube function were normal.

Tympanoplasty was done on the right ear first and on the left ear half year after.

The pure tone average improved to 20 dB on the right ear and 30 dB on the left ear.

She used the hearing aid for the left ear before the operation, but not used it after the operation. It shows the patient does not have the handicap in dairy conversation.

Hearing improvement affect not only the dairy life activity but social life activity.

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Three cases of intracranial infection due to middle ear cholesteatoma

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Learning Objectives:

Introduction: Cholesteatoma can erode and destroy important structures within the temporal bone, thus it can cause the spreading of intracranial infections. We will describe three otogenic infectious cases by their routes of infection.

Case:

case 1: A 69-year-old man was treated for meningitis at another hospital. He was introduced to our hospital for further survey. We found meningitis caused by cholesteatoma, then we performed a tympanoplasty. Cholesteatoma eroded some parts of the temporal bone, and the otitis interna seemed to be a cause.

case 2: A 28-year-old man was introduced to our hospital because of temporal abscess. A CT revealed an area of low density in the middle ear associated with a bony defect at a part of the sigmoid sinus, and we found sinus-thrombosis around that area. Then we performed a tympanoplasty, and need to treat it with antibiotics for 2 months.

case 3: A 60-year-old man was treated for a brain abscess at another hospital. He was introduced to our hospital because cholesteatoma was pointed out. We performed a tympanoplasty and an abscess drainage, then continued to treat it with antibiotics for 4 months.

Discussion: Concerning the routes of otogenic intracranial infection, there are three routes: otitis interna, a direct invasion through the eroded temporal bone and a hematogenous infection such as phlebitis of meningeal veins. In all cases, it is important to remove the primary disease and continue treatment with the effective antibiotics. But in certain cases, performing an abscess drainage was also required. We decide the indication for surgery depending on the patients' condition and a proposal from the neuro-surgeon.

For our patients, a tympanoplasty was performed first because their conditions were stable due to the antecedent treatment.

Conclusions: It is controversial when to operate for cholesteatoma with intracranial complications. The appropriate treatment should be required in accordance with the condition.

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Differences in clinical features between cholesteatoma in external auditory meatus and middle ear

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Learning Objectives:

Objective: Differences in clinical features, especially facial nerve canal lesion between cholesteatoma in external auditory meatus and middle ear were compared.

Method: A retrospective clinical analysis was made. Clinical data included 125 cases of middle ear cholesteatoma with facial nerve canal lesion and 28 cases of cholesteatoma occurred in external auditory canal from Jan. 2003 to Aug. 2014 in our hospital.

Results: Clinical course of cholesteatoma in external auditory canal was 4.97 ± 7.51 years, course of middle ear cholesteatoma was 16.60 ± 14.42 years ($P < 0.01$). 21 cases (75%) of external auditory canal cholesteatoma were manifested as pneumatic mastoid and 110 cases (88%) of middle ear cholesteatoma were manifested as diploic mastoid respectively. 22 cases (78.6%) of facial nerve canal damage in mastoid segment in cholesteatoma of external auditory meatus and 76 cases (60.8%) of facial nerve canal damage in tympanic segment in cholesteatoma of middle ear were observed ($P < 0.01$). The incidence rate of ossicular erosion in middle ear cholesteatoma was significantly higher than that in external auditory meatus ($P < 0.01$). The incidence of semicircular canal defects in middle ear cholesteatoma (30.4%), was significantly higher when compared to the incidence (10.7%) in cholesteatoma of external auditory meatus ($P < 0.05$).

Conclusion: The sites of facial nerve canal lesion in middle ear cholesteatoma and cholesteatoma of external auditory meatus were different. More attention should be paid before and during operation to avoid facial nerve injury, including physical examinations, especially otologic exams, radiological reading and careful operation.