

Conclusions: In those techniques with canal-wall techniques, canal-wall reconstruction techniques, or transcanal approaches, most surgical failures occur within the tympanic cavity and its hard-to-reach extensions, rather than within the mastoid. Using an endoscope enables us to see inside the facial recess, sinus tympani, and deep part of the round window niche, which are not fully visible under an operating microscope, thus leading to lower rates of cholesteatoma recurrence. These areas are minimally accessible even with extensive postauricular mastoidectomy. Microscopic surgery assisted by endoscope-guided dissection is therefore useful in such cases.

doi:10.1017/S0022215116006381

ID: IP142

Use of the apparent diffusion coefficient of conventional echo-planar imaging to differentiate between cholesteatomas and infectious lesions of the temporal bone

Presenting Author: **Hiroko Monobe**

Hiroko Monobe, Chikako Yamada, Kazunari Okada, Wakako Nakanishi, Miyako Ishii

Japanese Red Cross Medical Center

Learning Objectives:

Introduction: As therapeutic alternatives and technologies have advanced, the use of non-invasive modes of therapy to avoid surgery has increased. From this perspective the focus of this study was to evaluate the diagnostic benefit of the ADC in conventional echo-planar magnetic resonance imaging (MRI) as a means of differentiating between cholesteatomas and inflammatory lesions.

Methods: We evaluated three patients with suspected temporal-bone cholesteatomas, one infected cholesteatoma and three with inflammatory lesions by using MRI, including standard T2-weighted spin-echo and echo-planar DW/ADC sequences, and computed tomography (CT) as aligned with regions of interest (ROIs) determined in DW imaging. The ADC values in the selected ROIs were calculated by using a 2-point linear regression method ($b = 0$ and $b = 1000 \text{ s/mm}^2$). To test the reliability, all measurements were performed twice; the coefficient of correlation was 0.94.

Results: Three of the patients with suspected cholesteatoma and one patient with temporal-lobe abscessation due to temporal-bone inflammatory lesions subsequently underwent surgical confirmation and excision or drainage of their lesions. The ADC values were $0.759\text{--}0.915 \times 10^{-3} \text{ mm}^2/\text{s}$ (mean, $0.840 \times 10^{-3} \pm 0.0586 \text{ mm}^2/\text{s}$) for cases of uninfected cholesteatoma, $0.538\text{--}0.573 \times 10^{-3} \text{ mm}^2/\text{s}$ (mean, $0.555 \times 10^{-3} \pm 0.0141 \text{ mm}^2/\text{s}$) for infected cholesteatomas, and $0.905\text{--}1.272 \times 10^{-3} \text{ mm}^2/\text{s}$ (mean, $1.063 \times 10^{-3} \pm 0.123 \text{ mm}^2/\text{s}$) for inflammatory lesions. These ADC

values differed significantly (one-way analysis of variance: $F(2,11) = 18.1, P < 0.05$).

Conclusions: The ADC value can be used preoperatively to differentiate between temporal-bone cholesteatomas compared with infectious lesions. However, T2-weighted, FIESTA, or CISS images must be matched carefully to temporal-bone CT scans to accurately define ROIs.

doi:10.1017/S0022215116006393

ID: IP143

Surgical treatment for markedly advanced petrous apex cholesteatoma via the translabyrinthine and trans-sphenoidal approach

Presenting Author: **Tsunetaro Morino**

Tsunetaro Morino¹, Kazuhisa Yamamoto¹, Yuichiro Yaguchi², Yutaka Yamamoto¹, Hiromi Kojima¹

¹Jikei University School of Medicine,

²St. Marianna University School of Medicine

Learning Objectives:

Introduction: Cholesteatoma is one of the most frequent lesions in the petrous portion of the temporal bone. It is difficult to completely remove the lesions of the petrous apex, specifically cholesteatoma. Selection of a surgical approach is determined by the location of the cholesteatoma in the petrous bone. We report a case of an intractable petrous apex cholesteatoma, which was managed with combined surgery, involving a translabyrinthine approach and trans-sphenoidal approach.

Case report: A 71-year-old Japanese man underwent right tympanoplasty 6 years previously. He visited our hospital because of recurrent cholesteatoma. He could not hear because of obstruction of the right external auditory meatus caused by the previous surgery. Computed tomography (CT) revealed a soft tissue density lesion that extended widely from the petrous portion of the temporal bone to the sphenoid sinus. Cholesteatoma had extensively spread to the nearby carotid artery and posterior cranial fossa. It was considered difficult to completely remove this lesion. Surgery was performed via a translabyrinthine approach to remove most of the cholesteatoma. A trans-sphenoidal approach was used to create a drainage and observation hole. The post-operative course was uneventful, and the remainder of his clinical course was benign. Post-operative CT findings after 10 months revealed that the drainage route leads to the petrous portion of the temporal bone.

Conclusions: We encountered a markedly advanced, intractable petrous apex cholesteatoma. A surgical procedure, including trans-sphenoidal approach can maintain debris drainage and facilitate observation of the lesion from the

sphenoid sinus. This therapy will help prevent complications in the future.

doi:10.1017/S002221511600640X

ID: IP144

Management for temporal bone cancer: A single institution experience

Presenting Author: **Shinya Morita**

Shinya Morita, Akihiro Homma, Yuji Nakamaru, Tomohiro Sakashita, Atsushi Fukuda, Takatsugu Mizumachi, Satoshi Fukuda

Hokkaido University Graduate School of Medicine

Learning Objectives:

Objective: We aimed to evaluate the prognostic factors and efficacy of treatment modalities for patients with temporal bone cancer, and to determine if definitive chemoradiotherapy (CRT) for advanced-stage disease can provide a substitute for highly invasive surgeries.

Methods: We performed a retrospective, single-institution review of 66 patients with previously-untreated squamous cell carcinoma of the temporal bone treated with curative intent between April 1997 and March 2015. Lateral temporal bone resection was selected as the initial choice of treatment for patients with T1–2 tumors. If histologic examination revealed positive surgical margins or more extensive involvement than preoperative imaging suggested, post-operative radiotherapy (RT) or CRT was performed. For patients with T3–4, lateral or subtotal temporal bone resection was performed. Adjuvant RT or CRT for T3–4 disease was systematically proposed after surgical resection. For locally advanced tumors with extension to the pyramidal apex, posterior cranial fossa, middle cranial fossa or internal carotid artery, definitive CRT or RT was also selected.

Results: The 5-year overall survival (OS) rate for each T classification was 100% for T1, 76.2% for T2, 55.6% for T3 and 36.7% for T4. Univariate and multivariate analysis showed that T classification was an independent predictor of the OS rate (hazard ratio 5.64; 95% confidence interval 1.34–23.8; $p = 0.0184$). Analysis by treatment modality revealed that the 5-year OS rate for patients with T1–2 was 100% for surgery and 81.3% for RT alone. The rate for patients with T3–4 was 52.1% for definitive CRT and 55.6% for surgery followed by RT with or without chemotherapy.

Conclusions: Patients with T1–2 benefited from surgical intervention without significant morbidity or mortality. Our findings also suggested that definitive CRT might be

appropriate as the first-line treatment for T3–4, especially in cases with unresectable tumors.

doi:10.1017/S0022215116006411

ID: IP145

Recurrent cases in pediatric congenital cholesteatoma

Presenting Author: **Yuka Morita**

Yuka Morita¹, Kuniyuki Takahashi², Shinsuke Oshima², Shuji Izumi², Yamato Kubota², Yutaka Yamamoto³, Sugata Takahashi², Arata Horii²

¹Niigata university, ²Niigata University, ³Jikei University

Learning Objectives:

Congenital cholesteatoma in children is a challenging condition because complete resections sometimes difficult and it often recurs. There are two types of recurrence: residual cholesteatoma and the retraction cholesteatoma. It is very important to know the risk factors of recurrence for the management of congenital cholesteatoma. For this purpose, we compared various factors between the recurrence (+) group and (-) group.

Medical records of 67 children under 15 years old who underwent surgery for tympanic type of congenital cholesteatoma from 1999 to 2012 were retrospectively reviewed. Not only cholesteatoma found after onestage surgery but also found during or after second-look operation was defined as recurrence. Because pathophysiology of residual cholesteatoma and retraction cholesteatoma may be different, we investigated risk factors of each type of recurrence separately. Factors compared between the recurrence (+) and (-) groups are age, gender, and stage according to the Potosic classification.

Residual cholesteatoma and retraction cholesteatoma was seen in 14 ears (20.8%) and 4 (6%) ears out of 67 ears, respectively, and 49 patients had no recurrence. There was no significant difference in age and gender between the residual recurrence (+) and recurrence (-) group. However, patients with advanced stage of Potosic classification had more residual recurrence than no recurrence group ($p = 0.004$). All cases of retraction cholesteatomas were Potosic stage IV, male and age at surgery was 4 ± 0.8 , which was significantly younger than recurrence (-) patients (6.4 ± 3.6).

Advanced stage was the significant risk factor for residual cholesteatoma. In contrast, younger patients with advanced stage were the risk factors of retraction recurrence. In surgeries for younger patients with advanced stage, extensive removal of mucosa as well as epithelium have to be performed in young patients with developing tubal function, which might result in retraction recurrence.