

In most cases, prompt nerve decompression is enough to achieve recovery. However, facial nerve reconstruction may be needed in certain patients.

Regarding the management of the facial nerve in temporal bone surgery, some aspects are still controversial:

1. Should we use intraoperative facial nerve monitoring in a routine basis?
2. How should the compressed nerve be managed intraoperatively?
3. What is the best reinnervation technique for a particular situation?

Methods: A series of cholesteatoma cases with difficult management of the facial nerve will be presented in a step-by-step manner. Pictures and videos with the key aspects will be shown.

Results: Different surgical techniques including nerve decompression, nerve grafting, and reinnervation procedures were included. Eye care including eyelid surgical procedures, as well as botox injection and neuromuscular retraining were also needed for some patients. All the patients improved facial function following different therapeutic options.

Conclusions: Facial paralysis is still a possible complication of cholesteatoma and chronic ear surgery. Early management with the appropriate technique is mandatory. The preoperative facial nerve grade, the duration of symptoms, and the intraoperative findings, including the location and type of facial nerve injury are the main factors to consider. A multidisciplinary approach in a Facial Paralysis Unit is the key to achieve the best results for a particular patient.

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Cholesteatoma Management in the XXI Century (N773)

ID: 773.2

Preventing Cholesteatoma

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Learning Objectives: Summary abstract presentation in the session: "Cholesteatoma management in the XXI century".

Nowadays health and technological development allow for prevention strategies in order to reduce cholesteatoma incidence.

This session is titled "Cholesteatoma management in the XXI century". Attention will be addressed to present an algorithm to prevent the development of a cholesteatoma.

Starting point will be Eustachian tube obstructive dysfunction how to evaluate and treat it so as to reduce chronic disease in middle ear. If eardrum perforation or atelectasia occur, what is the expected attitude to prevent cholesteatoma. Novel technologies and knowledge will be shown to explain its role preventing cholesteatoma.

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Cholesteatoma Management in the XXI Century (N773)

ID: 773.3

Cholesteatoma in children: Actual situation

Presenting Author: **Jaime Marco**

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Learning Objectives: Cholesteatoma surgery is always in the edge for different decisions but when the disease takes place in children the situation is critical in many instances; preservation of hearing, surgical approach, surgical technique and diagnostic tools.

We will be presenting you, based upon our experience, the actual situation that cholesteatoma in children faces regarding diagnosis, surgical approach and results.

68 consecutive cases of cholesteatoma in children have been studied 71% underwent a closed technique and 29% an open technique. The most frequent clinical symptom was otorrhea and hearing loss (54%) followed by otorrhea (28%). 50% of the cases had an attic perforation and 26% a posterior marginal perforation. 83% of the cases had an sclerotic or diploic mastoid. The contralateral ear was normal in 70% of the cases. In the cases of cholesteatoma the mucosa was hiperplasic or polipoid in 92%. Cholesteatoma extended to attic in 79%, antrum 58%, posterior recess 38% and to mastoid 23%. The ossicles where damaged in 92% of the cases, being the incus the most frequently involved (70%). Residual or recurrent cholesteatoma appeared in 37% of the cases of closed surgery and 12% of the cases of open surgery. Recurrence of the cholesteatoma took place between 1 and 2 years postsurgery in 75% of the cases.

A critical review of the literature is made regarding diagnostic tools, recurrences in relation with open or closed techniques, functional results and a discussion about wether to perform single or second look surgery in closed techniques.

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Cholesteatoma Management in the XXI Century (N773)

ID: 773.4

Diffusion MRI in cholesteatoma control. Advantages and pitfalls

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Introduction: Diffusion-weighted magnetic resonance imaging has been proven to be a very effective technique for the follow up and diagnosis of cholesteatoma. Non-ecoplanar techniques offer the best results as far as sensibility and specificity are concerned. However, one of the main problems of these techniques is the appearance of false positives.

Objective: The aim of this study is to review the number of patients diagnosed of cholesteatoma since 2008 and evaluate sensitivity, specificity, positive predictor value and negative predictor value of PROPELLER diffusion-weighted magnetic resonance imaging in cholesteatoma diagnosis, with special attention to false positive and false negative cases.

Results: In a sample of 146 patients since 2008 we have found a sensitivity of 95'12%, specificity of 83'09%, positive predictive value of 86'66% and negative predictive value of 93'65%. We have found that the main cause for false positives to be the presence of middle ear infections. False negative cases are due to auto-evacuation or suction cleaning in the clinic before MRI is performed.

Conclusions: T1 and diffusion sequences, and diffusion coefficient are useful in differentiating cholesteatoma from inflammatory/granulation tissue in order to avoid unnecessary surgical procedures due to false positive results. Suction cleaning is not recommended before radiological examination to avoid false negative cases.

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Middle ear implants in chronic ears (R774)

ID: 774.1

Long-term Results and Revision Surgery of the Vibrant Soundbridge

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Learning Objectives:

The number of patients treated with the Vibrant Soundbridge (VSB) has increased since its approval for conductive and mixed hearing loss. Patients with history of chronic otitis and cholesteatoma have subsequently been rehabilitated with the VSB. The revision rate in chronic otitis media and cholesteatoma patients is around 10% to 30% depending on the surgical technique used. Aim of this presentation is to analyze the long-term results of the VSB with focus on revision surgery. 238 VSB were implanted in two centers and revision cases reviewed. In 48 (20%) of the cases, a revision surgery was necessary to improve functional performance of the VSB or treat recurrent COM or cholesteatoma. A revision to a cochlea implant was necessary in 5 (2%) cases due to

insufficient rehabilitation with a VSB. Two (1%) patients were reimplanted with a Bonebridge. Seven (3%) patients had recurrent disease without functional impairment of the implant. The highest revision rate was found with FMT coupling to the round window not using couplers. A peak number of revision surgeries were observed 3 years after the initial surgery.

The rate of revision surgery is comparable to conventional tympanoplasty techniques. Fibrosis, insufficient aeration or recurrent perforations can be observed similarly. Revision surgery can be performed safely in patients with a VSB and recurrent middle ear disease.

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Middle ear implants in chronic ears (R774)

ID: 774.2

Middle ear implants – technique and outcome

Presenting Author: **Katsumi Doi**

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Learning Objectives: video instruction session

Introduction: Middle ear implants (MEIs) such as VSB[®] (Vibrant soundbridge) are attractive and alternative treatments for patients with conductive, sensorineural, and mixed hearing loss who do not benefit from, or who choose not to wear, conventional hearing aids (HA). Recent studies suggest that MEIs can provide better improvements in functional gain, speech perception, and quality of life than HA, while there certain risks associated with the surgery should be taken into consideration, including facial nerve or chorda tympanic nerve damage, dysfunctions of the middle and inner ears, and future device failure/explantation.

Materials and Methods: In our institute, twelve patients received VSB implantation. The cause of conductive or mixed hearing loss was middle ear diseases in all cases. Round window vibroplasty via transmastoid approach was conducted. The bony lip overhanging round window membrane (RWM) was extensively but very carefully drilled to introduce the Floating Mass Transducer (FMT). Perichondrium sheets were used to stabilize the FMT onto RWM.

Results: Significant improvements of free-field Pure Tone Audiogram (PTA) from 250 Hz to 8000 Hz were confirmed ($P < 0.001$). Hearing gain up to 40 dB was achieved from 1000 Hz to 4000 Hz range. No deterioration in both air conduction and bone conduction at PTA was noted at 20 weeks after the surgery. Monosyllable speech perception in both quiet and noise conditions improved significantly ($P < 0.001$). Speech discrimination score in both quiet and noise conditions improved significantly too ($P < 0.001$).

Discussion: In the future, it is likely that there will be an increasing population even in Japan that will meet the criteria for MEIs such as VSB. However, the long-term efficacy and safety of these devices should be established.