ME-cleft is shown (important for the functional prognosis) and important preoperative landmarks warn the surgeon for eventual pitfalls.

The advent of the non-EP diffusion weighted sequence in MR-imaging makes this sequence a very useful adjunctive tool in the pre-op work-up of cholesteatoma cases specially in cases suspected of intralabyrinthine spread, or extension medial to the otic capsule or intracranial invasion. Its today almost undisputed value has been demonstrated in the postoperative follow-up of cholesteatoma by the high sensitivity and specificity (in most studies well above 90%). By this innovation many "unnecessary" (because absence of residual pathology) second stage operations can today be avoided. Advantages and limitations of the two imaging techniques will be discussed.

An algorithm usefull in clinical practice will be proposed

doi:10.1017/S0022215116002632

Percutaneous and transcutaneous BCHD (V677)

ID: 677.1

Implantation technique of the semi-implantable transcutaneous bone conduction hearing device Sophono

Presenting Author: **Ralf Siegert**

Ralf Siegert

Prosper-Hospital

Learning Objectives:

Introduction: Patients with air bone gaps can be treated with bone conducting hearing aids. The disadvantages of the conventional and percutaneous systems are the obvious external fixation components or the biological and psychosocial problems of open implants. This project was set up to develop a semi-implantable transcutaneous bone conducting device, introduce it into clinical application and follow-up on the results.

Material and Method: The principle of this bone conducting device is the magnetic coupling between implanted and external magnets. After extensive lab tests it was introduced clinically in 2006. Since then there have been performed more than 300 implantations in Recklinghausen and more than 3000 worldwide.

We will demonstrate different implantation techniques: The "classical" one and the Up-Side-Down-Technique" and discuss pros and cons of each.

doi:10.1017/S0022215116002644

Percutaneous and transcutaneous BCHD (V677)

ID: 677.2

Bone Conduction Implant, clinical trial of a new transcutaneous implant and results so far

Presenting Author: **Peter Monksfield**

Peter Monksfield[1], Malou Hultcrantz[2], Sabine Reinfeldt[3], Bo Håkansson[3], Måns Eeg-Olofsson[4]

[1]University Hospitals Birmingham, [2]Karolinska University Hospital, the [3]Chalmers University of Technology, [4]Sahlgrenska Academy, University of Gothenburg

Introduction: The bone conduction implant (BCI), is a new active transcutaneous hearing implant with a transducer surgically implanted under intact skin.

We present the surgical procedure and the results so far of a multicentre clinical trial of this novel device.

Patients and Methods: 11 patients aged 18–67 years at 2 academic university hospitals in Sweden have been recruited and implanted with the BCI.

All patients have a mild to moderate conductive or mixed hearing loss and underwent audiometric assessment as well as completed abbreviated profile of hearing aid benefit (APHAB) and Glasgow benefit inventory (GBI) questionnaires. Results presented here are from the 6 month follow up the first 6 patients. As a reference device, a Ponto Pro Power (Oticon Medical) was used on a softband for a month prior to surgery.

All patients then underwent placement of the BCI device under general anaesthesia. The device was switched on at 1 month post surgery and audiometric assessment was repeated.

Results: The surgical procedure was uneventful with no immediate adverse events.

The BCI had a statistically significant improvement over the unaided condition with a pure-tone-average improvement of 31.0 dB, a speech recognition threshold improvement in quiet (27.0 dB), and a speech recognition score improvement in noise (51.2 %). At speech levels, the signal-to-noise ratio threshold for BCI was - 5.5 dB. All BCI results were better than, or similar to the reference device results, and the APHAB and GBI questionnaires scores showed statistically significant improvements versus the unaided situation.

Conclusion: The BCI provides significant hearing rehabilitation for patients with mild-to-moderate conductive or mixed hearing impairments, and can be easily and safely implanted under intact skin.

doi:10.1017/S0022215116002656

Long-term results of chronic ear surgery (R711)

ID: 711.1

Long-term outcome obliteration of radical cavities with autogenous cortical bone

Presenting Author: **Jussi Jero**

Jussi Jero[1], Saku Sinkkonen[2], Akram Abdel-Rahman[3], Matti Pietola[2], Teemu Kinnari[2], Hans Ramsay[2], Antti Aarnisalo[2]

[1]Helsinki University Hospital, [2]Dep of ORL, Helsinki University Hospital, Finland, [3]Dep of Audiology, Mansoura University, Egypt

Learning Objectives: Obliteration of radical cavities in canal-wall down (CWD) operations due to cholesteatoma with autologous cortical bone chips, bone pate and meatally-based musculoperiosteal (Palva) flap technique is safe and considerably stable in terms of cavitation and hearing outcome. In our material, no intracranial complications due to hidden residual cholesteatoma have been observed.

In Helsinki University Hospital we are used to obliterate radical cavities in canal-wall down (CWD) operations due to cholesteatoma with autologous cortical bone chips, bone pate and meatally-based musculoperiosteal (Palva) flap technique. In this study we retrospectively evaluated 70 patients operated in our institution during 1986–1991 with a mean follow-up of 18 years. Outer ear canal configuration was evaluated with a modified Likert scale (1–4) and outer ear canal physical volume assessed by tympanometry. The posterior wall of the ear canal and the attic region were analyzed separately. The posterior wall results were 1.8 (± 0.9 SD) in Likert scale and the attic region 1.8 (± 0.9 SD) indicating no cavity formation or minor formation of a cavity. The functional result was usually good. The mean volume of the operated ear canal was 1.7 (± 0.5 SD) ml. The volume of the contralateral ear canal was 1.2 (± 0.3 SD) ml. One tympanic membrane perforation was seen. An aerated tympanum was found in 52 patients and an adhesive tympanum was found in 18 patients. In audiometry a comparison of the current mean ABG to the preoperative mean ABG and to the ABG at one-year postoperatively, 5-years postoperatively or 10-years postoperatively showed no statistical significance. 36% of the patients had an excellent or good air-bone gap closure in the operated ear after follow-up. The need for debridement generally diminished over time and 50% of the patients had no need for debridement of the cavity after 18 years' of follow-up. To date no intracranial complications due to hidden residual cholesteatoma have been observed. In summary, our obliteration method is considerably stable in terms of cavitation and hearing outcome.

doi:10.1017/S0022215116002668

Long-term results of chronic ear surgery (R711)

ID: 711.2

Our long-term outcomes of tympanoplasty and mastoidectomy in patients with cholesteatoma and chronic otitis media (COM)

Presenting Author: **Masafumi Sakagami**

Masafumi Sakagami

Hyogo College of Medicine

Learning Objectives: How to report on term results of tympanoplasty and mastoidectomy.

Introduction: (1) Exact etiology of middle ear cholesteatoma remains unknown and its recurrence is unavoidable during the long-term follow up. We showed recurrence rate using Kaplan-Meier analysis because follow-up patients decreased with the time. (2) We analyzed the long-term outcomes of perforated COM using multivariate analysis to examine the prognostic factors and to determine whether mastoidectomy is useful for tympanoplasty in patients with perforated COM.

Subjects: (1) Between 1987 and 2002, 345 patients with cholesteatoma were operated on by the same surgeon. They were 140 attic cholesteatomas (40.6%) and 90 pars tensa cholesteatoma, and 115 other types (33.3%). Canal wall down tympanoplasty (CWDT) was performed in 113 patients (32.8%), canal wall reconstruction (CWR) after CWDT in 70 patients (20.3%) and intact canal wall up tympanoplasty (ICWT) in 162 patients (47.0%). (2) Between 1989 and 2002, 213 patients with perforated COM underwent tympanoplasty with mastoidectomy (34 ears, 16.0%) and without mastoidectomy (179 ears, 84.0%), and were followed up for more than 5 years.

Results: (1) The mean follow-up period was 6.3 years. Using the standard calculation method, the 5-year recurrence rate in patients with CWDT and with ICWT/CWR were 3.5% and 12.1%, respectively. Using Kaplan-Meier analysis, they were 3.9 and 16.7%, respectively. (2) Successful hearing outcomes (A-B gap: 20 dB or smaller) was 174/213 (81.7%). Using multivariate logistic regression analysis, normal ossicular chain was the only factor to long-term successful hearing outcomes. Graft success rate was 204/213 (95.8%). There were no significant predictors of long-term successful graft outcomes.

Conclusion: (1) Because the follow-up rate decreased with year, Kaplan-Meier analysis shows more correct recurrence rate than the standard calculation method. (2) Mastoidectomy was not a significant factor predicting long-term outcomes.

doi:10.1017/S002221511600267X

Long-term results of chronic ear surgery (R711)

ID: 711.3

Long-Term Hearing and Functional Outcomes and Complications after Ossiculoplasty

Presenting Author: **John Dornhoffer**

John Dornhoffer, Matthew Cox

UAMS

Learning Objectives: To study intermediate-term and long-term hearing results after ossiculoplasty and long-term goodness-of-fit for the ossiculoplasty outcomes parameter staging (OOPS) index.

Objective: To study intermediate-term and long-term hearing results after ossiculoplasty and long-term goodness-of-fit for the ossiculoplasty outcomes parameter staging (OOPS) index.

Patients: 417 patients (3-88 years of age; 258 adults and 159 children) undergoing ossiculoplasty with tympanoplasty or tympanomastoidectomy using cartilage tympanic membrane grafts, retrograde mastoidectomy with canal wall reconstruction or mastoid obliteration techniques between July 1998 and July 2012. All patients had at least 1 year of clinical follow-up. All patients had a minimum of 1 year of post-operative audiometric data and 185 (44.4%) patients (111 adults and 74 children) had ≥ 5 years of post-operative audiometric data.