

well as review those technical factors that are critical for successful outcomes.

Methods: Patients (n = 240) that underwent subtotal petrosectomy with closure of the external auditory canal and obliteration of the cavity with abdominal fat for various presentations of cholesteatoma were analyzed.

Results: The most frequent indication for subtotal petrosectomy was in recurrent disease, previous radical cavities, in petrous bone cholesteatomas and in meningoencephalic herniations. Recurrence of cholesteatoma was seen in only 4 (1.7%) cases. Other minor postoperative complications like wound dehiscence and infection of fat in the cavity etc occurred in 13 patients (11.83%).

Conclusions: Subtotal petrosectomy permits obtaining a cavity isolated from the external environment, and when needed, it improves the access and visibility during the surgical procedure. Subtotal petrosectomy is a safe technique, with a low rate of complications.

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How do we approach cholesteatoma (N613)

ID: 613.4

Tips and tricks in Open Tympanoplasties

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Learning Objectives: To evaluate the outcomes of open tympanoplasties (canal wall down mastoidectomies) for cholesteatomas.

Study Design: Retrospective study.

Setting: Gruppo Otologico, a quaternary referral center for Otology and Skull Base Surgery in Italy.

Methods: 1324 cases with a minimum of 2-years follow-up that were operated for middle ear and mastoid cholesteatoma using the open technique were included in the study. The outcomes of were analyzed and the results were compared with a literature review.

Results: The mean follow up was 46.43 months. The mean pre-operative air bone gap was 37 ± 7 dB. Simultaneous ossicular reconstruction was performed in 32% of the cases. A second stage reconstruction was performed in 42% of the cases. Recurrent cholesteatomas were seen in 6% of cases in our series. 1% patients developed stenosis of the meatoplasty. Postoperative ear discharge was observed in 4% cases.

Conclusion: The open (canal wall down) technique is a tried and tested procedure in recurrent and large cholesteatoma with considerable pre-operative hearing loss.

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Evidence based practice in Cholesteatoma Surgery (R614)

ID: 614.1

What do we do in the absence of evidence?

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Modern medical practice should be based on evidence, but often in surgery we have little evidence for our surgical practice. Traditionally surgeons have relied on what they have been taught by their trainers or read in textbooks. The main source of information nowadays is the published literature but, in surgery, this is usually case series which is level 5 evidence. This raises several questions:

Are my patients comparable?

Do I have the skills to achieve these outcomes?

Has the surgeon included all the patients in the results?

The only results that you can rely on are your own. But human memory is selective and we tend to forget our poor results and remember the good ones. To reliably assess our own results requires audit. All surgeons should prospectively audit their own results. Using an established audit database is the most practical way to do this as others have already decided the most useful data to collect. Your data should be reviewed regularly, and results of your audit should be reported each year at your annual appraisal.

Auditing your own results allows you to compare your outcomes with those of other surgeons and tells you what is working and what needs improving.

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Evidence based practice in Cholesteatoma Surgery (R614)

ID: 614.2

Canal wall up versus canal wall down mastoidectomy for acquired cholesteatoma; a systematic review on disease recurrence rates

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Learning Objectives: The aim of this study is to compare the proportion of disease recurrences in patients with acquired cholesteatoma, 5 years after Canal Wall Up or Canal Wall Down mastoidectomy.

Introduction: Cholesteatoma is a destructive ear disease. Therapy consists of surgical removal by mainly the canal

wall down (CWD) or canal wall up (CWU) technique. Despite a lot of research in the past decades, the question which technique is best is still unanswered.

The aim of this study is to compare the proportion of disease recurrences in patients with acquired cholesteatoma, 5 years after Canal Wall Up or Canal Wall Down mastoidectomy.

Methods: We systematically searched Pubmed, CINAHL, Embase and PiCarta from inception up to January 2015 for cohort studies published in English with otoscopically confirmed acquired cholesteatoma patients that received either canal wall up, or down mastoidectomy, and in whom disease free status was confirmed with either otoscopy, second look surgery or DWI MRI scan. Risk of bias was critically appraised by 2 different investigators using the Quality in Prognostic Studies (QUIPS) tool. We extracted data on patients and disease status, disease recurrence rates, and diagnostic techniques used for follow-up.

Results: Eight studies on CWD (1092 patients) and CWU (1685 patients) mastoidectomy were included in this review. Risk of bias assessment showed that the decision for CWU or CWD surgical technique was dependent on the extent and location of the pathology in 100% of the studies. The follow up period was insufficient, no distinction was made between residual and recurrent disease, age of the patients was not mentioned or the procedures to detect residuals were not standardized in 50%, 38%, 38% and 100% respectively.

Conclusions: We were unable to compare the disease recurrence rates after the CWU or CWD technique without bias, as the extent and location of the pathology was related to both the choice of surgical approach as well as the outcome. To provide a valid comparison between CWU and CWD, either a randomized clinical trial or standardized prospective registry for cholesteatoma patients is warranted.

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Important clinical research in otology (N615)

ID: 615.1

Electrical auditory brainstem responses during cochlear implantation

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Objectives: The aim of this study was to investigate whether electrical auditory brainstem responses (eABR) obtained during cochlear implantation (CI) can predict CI outcomes. We also aimed to assess whether eABR can be used to select patients for auditory brainstem implantation (ABI).

Methods: The study was retrospective. The latencies and quality of the eABR waveforms from adult patients implanted with CI in Uppsala from 2011 to 2013 (n = 74) and four children with severe cochlear abnormalities were analyzed. Speech perception was assessed by postoperative

monosyllabic word (MS-word) recognition. A score was constructed for each patient based on wave II, III and V patency.

Results: Wave V for the mid- and low-frequency regions on the implant was the most robust. eABR latencies increased towards base stimulation of the cochlea. Significant latency shifts occurred in wave V from the low- to high-frequency regions on the implant ($P^{**} < 0.01$) and from the mid- to high-frequency regions on the implant ($P^{**} < 0.01$). No correlations were found between wave V latency, wave V-III interval, waveform score, and MS-word scores. A negative eABR always predicted a negative outcome. Among the patients with negative outcomes, 75% had eABRs.

Conclusions: Implant electrical auditory brainstem recordings can be used (eABRs wave V) to predict a negative functional outcome. Low-frequency wave V was observed in all patients with successful CI outcomes. Patients for whom eABR waveforms were completely absent had unsuccessful CI outcomes.

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Important clinical research in otology (N615)

ID: 615.2

Cochlear implantation in the elderly

Presenting Author: **Karin Lundin**

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Learning Objectives: To analyse complications and outcome of cochlear implant (CI) treatment in seniors receiving CIs during a 10-year period.

Introduction: The elderly population in Sweden is growing, particularly in those over 80 years of age (Statistics Sweden Demographic reports, 2009). This has led to an increasing incidence of age-related hearing loss and it is expected that this group will represent an important cohort to treat with cochlear implants (CIs).

Methods: A total of 28 patients, 79 years or older (mean age 81.6 years), were evaluated and compared with a younger group of 76 patients, 20–60 years old (mean age 48.9 years). A retrospective study of the patients' records was performed. Data on per- and post-operative complications, pre- and post-operative speech perception, estimated cognitive skills, and social situation was extracted. A subjective score was assessed and correlated with post-operative performance.

Results: No severe per- or post-operative surgical complications were noted. Speech perception improved significantly after surgery ($P < 0.001$). The younger age group showed better results post-operatively for monosyllabic words ($P < 0.01$) compared with the older group with no difference seen for bi-syllabic words. In both the groups, there were no significant differences between patients living with or without social support.