

For the right side, cholesteatoma was confined to the regions outside the ossicular chain. The incus and stapes were intact with good movement although the head of malleus was partly eroded. Therefore, the right ossicular chain was reserved and the epitympanum was reconstructed. The patient was followed up until 9 months after the last operation. No recurrence was found in either ear and the PTA was improved to 13 dB for the right side and 20 dB for the left.

*Conclusion:* For primary acquired cholesteatoma at early stage, there is possibility that hearing impairment was slight even though the lesions of middle ear already covered and eroded the ossicular chain. For these cases, surgical procedure to remove the cholesteatoma may result in further hearing loss, which lead to a dilemma for both doctors and patients.

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### Cholesteatoma treated by mastoid obliteration, recommendations from a personal follow-up of surgical results

Presenting Author: **Ronald Pennings**

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*Learning Objectives:*

*Introduction:* Despite declining prevalence, cholesteatoma remains the most devastating type of chronic otitis media that can affect hearing, balance and facial nerve function. In order to prevent such complications, cholesteatoma requires surgical removal. This study presents the lessons learned from an overview of personal results of a single otologic surgeon after starting in a staff position.

*Methods:* 183 patients that were operated for cholesteatoma between September 2009 and November 2015 by a single otologist were included in this retrospective evaluation. All patients underwent surgery for cholesteatoma and were followed-up by either MRI DWI (>95%) or a mandatory second look procedure (<5%). In general, a canal wall-up technique with ossicular chain reconstruction was used and in selected cases this was followed by mastoid obliteration with bone dust.

*Results:* Personal results will be presented on recurrent and residual disease after cholesteatoma surgery. A significant otologic learning curve was seen after evaluation of all cases and this was entirely related to a significant reduction of the percentage recurrent and not residual cholesteatoma. Additional mastoid obliteration leads to a significant reduction of recurrent but not residual disease. No difference was seen in results between pediatric and adult patients.

*Conclusion:* A strict personal follow-up of surgical results on cholesteatoma surgery identified mastoid obliteration as a key factor to reduce recurrent cholesteatoma.

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### Indications and techniques in Canal Wall Up Mastoidectomy

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*Learning Objectives:*

*Objective:* The aim of this study is to retrospectively analyse the functional and hearing outcomes of canal wall up mastoidectomy for cholesteatoma.

*Materials & Methods:* 252 patients who underwent canal wall up mastoidectomy for cholesteatoma were analysed. Charts were analysed for age of the patient, type of cholesteatoma, surgical procedures, hearing results, recurrence and follow up.

*Results:* 64% of the patients belonged to the pediatric population. 38% of the patients had a follow-up of at least five years. Of the patients who underwent two staged surgery, 46.1% had a residual lesion that was identified and excised during the second surgery. Over a five year follow-up period, there were 12.5% patients with recurrences, all belonging to the group in whom a residual cholesteatoma was identified during the second staged surgery. The rate of residual cholesteatoma tended to decrease as age increases. The type of cholesteatoma, acquired or congenital middle ear, were not statistically related to the incidence of residual cholesteatoma. Hearing analysis showed that hearing recovery was excellent with canal wall up procedures and remained stable over five years.

*Conclusion:* Surgery for cholesteatoma is especially challenging in a pediatric population because of the need for hearing preservation. Hence canal wall up mastoidectomy in a single or two stages should be the approach of choice in the pediatric population. Radiological follow-up by DWI is mandatory for more than 5 years as recurrences can be seen even after 5 years.

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### Reconstruction of the incudostapedial joint

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