

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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ID: IP166

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

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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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Learning Objectives:

Introduction: The most common place of damage of the conductive apparatus of the middle ear in cases of chronic otitis media is the area of the incudostapedial joint. The incudostapedial joint may be disconnected also in congenital deformations or after head and ear injuries.

Aim: The aim of the study was to analyze the results of hearing improving surgeries in ears with hearing loss caused by damages of the ear's conductive apparatus in the area of the incudostapedial joint.

Material and Methods: Analysis was performed in the group of patients operated in years 1999–2015. Reconstruction surgeries were performed using autogenous (incus interposition) or allogenuous (glassionomer cement or various types of prostheses) materials. The results were assessed, following the standard adopted by the Institute, after 1 month, 3 months, 6 months, one year and then after 2 and 3 years.

Results and conclusions: The results confirm that an isolated damage of the auditory ossicles within the incudostapedial joint allows, in most cases, to achieve stable reconstruction or connection of the damaged chain, resulting in improvement of hearing, measured as decrease or total closing of the air-bone gap. Good and very good results achieved in the large percent of ears after surgery confirm that the technique and materials applied may be a correct approach in this type of damages of the conductive apparatus of the middle ear.

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ID: IP169**The treatment of cholesteatoma with intact ossicular chain**

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Learning Objectives: To discuss the surgical treatment of cholesteatoma with intact ossicular chain.

Introduction: The primary goal of cholesteatoma surgery is complete eradication of the disease. The objective of this study is to compare the results obtained in patients affected by cholesteatoma with intact ossicular chain and submitted to Bondy Modified radical Mastoidectomy (BMRM) and canal wall up tympanoplasty (CWUT).

Methods: 65 patients were treated: 30 with BMRM (group A) and 35 with CWUT (group B). Of these last, 27 have undergone single stage technique (20 transcanal approach, with mastoidectomy 7) and 8 second look technique (2 transcanal approaches, with mastoidectomy 6). The location and the extension of the cholesteatoma was considered. The anatomical and functional postoperative complications were recorded. Functional analysis was conducted by comparing the Air Bone Gap (ABG) pre- and postoperatively.

Results: As for the group A, 2 patients (6.66%) presented post-operative complications (3,33% vertigo, 3,33% tinnitus); 5 patients (16.67%) had late anatomical complications (3,33% retraction pocket, 3,33% epidermal cyst, 10% otorrhea). As for the B group, 2 patients (5.9%) had post-operative complications (2,85% vertigo, 2,85% tinnitus); 7 patients (20%) had anatomical complications (8,75% recurrent cholesteatoma, 8,75% retraction pocket, 2,86% otorrhea). Group A had a preoperative ABG of $11,79 \pm 6,48$ dB and post operative of $13,86 \pm 9,03$ dB; group B had a pre-operative ABG of $17,45 \pm 9,18$ dB and a postoperative of $19,53 \pm 13,62$ dB. One patient of the group A and one of the B presented a significant decline of bone conduction (>30 dB).

Conclusion: Both techniques lead to good anatomical and functional results. In case of cholesteatoma with intact chain, RMB is indicated in cholesteatoma spreading posteriorly, in antrum and mastoid, while CWUT in case of cholesteatoma located in epitympanum and mesotympanum.

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ID: IP170**Study of Biocompatibility Between Bone Pâté with Fibrin Glue and Human Osteoblast in Vitro**

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Learning Objectives: To describe the fate of bone patè when in contact with osteoblast cultures.

Hypothesis: The aim of the present study was to evaluate the effect of bone patè (BP) on human osteoblast differentiation by measuring cellular viability, expression of the transcription factors and the major components of extracellular matrix.

Background: Although BP has been used in ear for many years and it has been reported that after surgery BP become viable bone, the cellular mechanisms that lead to BP osteointegration have never been described.

Methods: BP obtained from 4 patients subjected to mastoidectomy and affected by middle ear and mastoid cholesteatoma was placed in contact with osteoblast-like cell (OB) cultures obtained by mastoid bone. Cell culture were treated with BP, BP with fibrin glue (BPG) and with fibrin glue alone. Cells viability was evaluated after 24 hours; After one week of treatment OBs cultured in the different conditions were subjected to the evaluation of alkaline phosphatase expression, the expression of transcription factors and bone matrix proteins by qPCR.

Results: The MTT assay revealed that, after 24 hours, OBs have increased viability when treated with BP (19% increase)