

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)

and BPG (34% increase), while the treatment with fibrin glue alone did not influence this parameter. BP with and without fibrin glue increased of 97% and 94% respectively the number of alkaline phosphatase (ALP) positive cells compared to the control. Finally BP determined the upregulation of transcription factors and component of the extracellular matrix.

Conclusion: The present data show that BP has a high osteoinductive potential on human OBs, enhancing their activity.

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ID: IP171

Clinical analysis on surgery of middle ear cholesteatoma and chronic otitis media

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Learning Objectives:

Objective: To evaluate the choice of microsurgical treatment modalities and its clinical effect on middle ear cholesteatoma and chronic suppurative otitis media.

Methods: 110 cases with middle ear and mastoid lesions including middle ear cholesteatoma and chronic suppurative otitis media were analysed which performed canal wall up mastoidectomy or at the same time tympanoplasty and canal wall down mastoidotomy depending on lesion extent and followed-up, observed the ear recovery, complications, recurrence and postoperative hearing improvement.

Results: 110 cases including 66 cases of middle ear cholesteatoma, 44 cases of chronic suppurative otitis media, 51 canal wall up mastoidotomy, 46 cases simultaneously followed by tympanoplasty, 59 canal wall down mastoidectomy, Intraoperative finding as followed auditory absence of bone destruction 36 cases including 7 cases of chronic suppurative otitis media, 29 cases of middle ear cholesteatoma; 7 cases of complete auditory ossicles including 4 cases of chronic suppurative otitis media, 3 cases of middle ear cholesteatoma; facial nerve canal bone destruction 22 cases, brain palate damaged and meningitis exposed in 13 cases.

Conclusion: According to different lesions of middle ear and mastoid the specific disease in intraoperative, different operative methods can be used to obtain the corresponding clinical curative effect, the canal wall up mastoidectomy plus tympanoplasty, if indications mastered properly, the technical conditions permitted, can effectively keep the original middle ear mastoid anatomical structure and improve

hearing skill, and this surgery is feasible; if tympanoplasty cannot be used to a wide range of middle ear cholesteatoma, canal wall down mastoidectomy should be preferred in order to avoid recurrence and affect the efficacy.

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ID: IP172

Analysis of Clinical characteristic of Simple congenital ossicular malformation and Ossicular chain reconstruction

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Learning Objectives:

Object: To study of simple congenital ossicular malformation clinical and audiological characteristics, and to discuss options to different auditory ossicles in ossicular chain reconstruction.

Methods: Ossicular chain malformations in 75 cases (79 ears) were studied involving 43 males and 32 females, aged from 6 to 57 years old (average 23.5 ± 14.5 years old). There are four cases of bilateral conductive deafness and 71 cases of unilateral conductive deafness (39 left ears and 32 right ears). Results of preoperative audiometry showed that air-bone gap was 38.7 dB of speech frequency. We operated exploratory tympanotomy in 79 ears (4 cases of bilateral). Among them, ossicular chain reconstruction was performed in 71 cases, while in six cases not done because of facial deformity, and in two cases ossicle joints'activities were good after incudostapedial joint release.

Results: According to Teunissen classification (1993), we divided 79 ears into four groups, including 5 (6.3%, 5/79) ears of type I, 11(14%, 11/79) ears of type II, 47(59.5%, 47/79) ears of type III, 16(20.3%, 16/79) ears of type IV. 0.5 cases of type I were implanted with Piston. 11 cases of type II were implanted with Piston, including Kurz(3), Spiggle(5), Xomed(3). For type III, 23 cases were implanted with partial ossicular replacement prosthesis (PORP), including Kurz(6), TTP(5), Xomed(12); 2 cases were implanted with autologous incus; 20 cases were implanted with total ossicular replacement prosthesis (TORP), including TTP(7), Spiggle(2), Xomed(10), autologous incus(1); and 2 cases were performed with incudostapedial joint release. 10 cases of type IV had done oval window drill-out ossicular reconstruction, including 8 cases with Piston, 2 cases with TORP. The average air-bone gap was 21.5 dB in two weeks post-surgery.

Conclusion: Ossicular chain reconstruction with selection of different types of artificial ossicular is an effective method to improve hearing and decrease air-bone gap.