

skin share the same cytokeratin pattern which may support the ectodermal rest theory.

doi:10.1017/S0022215116006459

ID: IP149

Novel human stem cell-like cells in middle ear cholesteatoma tissue and auditory canal skin

Presenting Author: **Janine Müller**

Janine Müller¹, Johannes Greiner², Julia Nagel², Jörg Ebmeyer², Holger Sudhoff²

¹Klinikum Bielefeld Mitte, ²Klinikum Bielefeld/
Department of Otolaryngology, Head and Neck
Surgery

Learning Objectives:

Being a potential life-threatening middle ear disease, cholesteatoma is an abnormal expanding cystic lesion leading to extensive tissue destruction in the temporal bone followed by conductive and sensorineural hearing loss and facial nerve palsy. Facilitating further infections beyond those of the middle ear, cholesteatoma may also result in meningitis or intracranial infections. Since surgical removal of cholesteatoma remains as the only therapeutical option, lack of non-advanced medical care results in increased pediatric morbidity, emphasizing the need of developing new treatment strategies.

Here we show for the first time the presence of a novel stem cell-like cell population in cholesteatoma tissue and auditory canal skin. Immunohistochemical analysis of cholesteatoma tissue revealed the presence of Nestin-expressing cells localized subepithelially within the matrix and perimatrix. Nestin-positive cholesteatoma-derived stem-like cells (CSCs) were successfully isolated and cultivated *in vitro* and showed the capability of neurosphere formation and clonal growth. CSCs were further successfully expanded within a human blood-plasma derived three-dimensional matrix. In accordance to the classification of cholesteatoma, proliferative Ki67-positive CSCs also showed a normal euploid DNA content and karyotype. We further observed no changes in proliferative capability and expression profile between CSCs and Nestin-expressing cells isolated from auditory canal skin (auditory skin derived cells, ASCs). In particular, cultivated CSCs and ACCs expressed epithelial and neural crest-specific stemness markers.

Our findings gain new insights in the complex biology of cholesteatoma and may thus broaden the range of treatment strategies for this severe lesion within the middle ear.

doi:10.1017/S0022215116006460

ID: IP150

The role of preoperative gadolinium enhanced magnetic resonance imaging (MRI) in anticipating postoperative middle ear aeration after canal wall up tympanoplasty for cholesteatoma

Presenting Author: **Noriaki Nagai**

Noriaki Nagai, Tetsuya Tono, Keiji Mtsuda, Shinya Hirahara
University of Miyazaki

Learning Objectives:

Objective: This study was designed to anticipate the post-operative middle ear aeration using preoperative gadolinium enhanced magnetic resonance imaging (MRI) after canal wall up tympanoplasty (CWU) for cholesteatoma.

Materials and methods: Retrospective review was performed on 56 patients with mastoid involvement undergoing CWU tympanomastoidectomy without mastoid obliteration at a single institution from 2010 to 2013. In all patients, the cholesteatoma was removed by a combined approach. The communication between the Eustachian tube and the attic was reestablished with a posterior and anterior tympanotomy. The attic bony wall defect was reconstructed using sliced auricular cartilage and fibrin glue (scutum plasty). Patients were classified into two groups according to the status of enhancement around the cholesteatoma sac using pre-operative MRI: Group A (strongly enhanced) and Group B (weakly or no enhanced). In each group, restoration of the middle ear aeration was assessed with high-resolution computed tomography (CT) before and after operation. Status of aeration was classified into 4 grades (no aeration, mesotympanum, epitympanum, mastoid).

Results: Although the middle ear aeration ameliorated in both groups, the range of re-aeration was much better in Group A (strongly enhanced group) than Group B. Re-aeration to the mastoid was achieved in 68% of the cases in Group A, 36% of the cases in Group B.

Discussion and Conclusion: The enhanced MR image was found to be related to postoperative middle ear aeration. These findings might be particularly useful for predicting re-aeration of acquired cholesteatoma.

doi:10.1017/S0022215116006472

ID: IP151

The results of obliteration technique in canal wall up and wall down tympanomastoidectomy in patients with acquired middle ear cholesteatoma

Presenting Author: **Nune Nahapetyan**

Nune Nahapetyan¹, Artur Shukuryan²,
Hayastan Mesropyan³, Alla Hambardzumyan³

¹Yerevan State Medical University,
"Astghik" Medical Center, ²Yerevan State
Medical University, "Erebuni" Medical Center,
³Yerevan State Medical University, "Astghik"
Medical Center

Learning Objectives:

Introduction: The objective in the surgical management of acquired middle ear cholesteatoma is eradication of disease

and the creation of a dry, safe ear. For reducing of incidence of frequent cleaning need after CWD, as well as for control of reretracted tympanic membrane after CWU tympanomastoidectomy, mastoid obliteration is preferable for many otological surgeons.

Material and Methods: 50 patients (16 to 65 y.o.) with cholesteatoma have been observed in this work. 34 ears have extensive cholesteatoma with erosion of posterior bony wall of ear canal. In 12 patients cholesteatoma involves only epitympanum, in 4-hole tympanic cavity. Posterior canal wall erosion due to cholesteatoma was indentified as the primary indication for radical mastoidectomy. Most patients mentioned periodic, only 7 of them- persistent otorrhea. All patients had conductive to mixed hearing loss with ABG more than 25 dB. 34 patients were undergone CWD, 16 CWU tympanomastoidectomy with mastoid obliteration using of bone pate' from the cortical layer of mastoid. Temporalis fascia has been used for tympanic membrane grafting and for covering of mastoid cavity filling with bone pate'. Tragal cartilage has been used in 27 patients for placement between the head of the stapes and fascia. In cases of cholesteatoma in the oval window area, ossiculoplasty is postponed for second look surgery.

Results: Among the 50 patients 42(84%) grafts healed. In 5(10%) patients cholesteatoma developed during 3 years after the surgery. In 3(6%) patients reperforation occurred without cholesteatoma.

Conclusion: The mastoidectomy with tympanic membrane grafting and mastoid obliteration provides eradication of disease, prevents reretracted of tympanic membrane in patients with middle ear cholesteatoma. The results of surgery are good basis for the second stage- ossiculoplasty with hearing improvement.

doi:10.1017/S0022215116006484

ID: IP152

Quality of life in patients with mastoid cavities dependent on aural care using COMQ12 - a disease specific PROM

Presenting Author: **Codruta Neumann**

Codruta Neumann¹, Alison Liu², Toby Vishom³

¹East Kent Hospitals NHS Foundation Trust,

²Kings College London Medical School,

³William Harvey Hospital, Ashford

Learning Objectives: To ascertain the impact of having a mastoid cavity requiring regular aural care in a nurse led clinic on quality of life. This study highlights the need for using PROM in assessing QOL in this population in order to inform decision making when offering revision surgery.

Introduction: Patients with mastoid cavities dependent on aural care experience a significant disruption of their life. We aimed to assess patient reported health and quality of life (QOL) following surgery for Chronic Otitis Media

(COM) using a disease specific patient related outcome measure questionnaire along with a generic QOL instrument.

Methods: Patients post surgical treatment of chronic otitis media for mucosal disease or cholesteatoma were recruited from nurse led clinics. All patients had mastoid cavities and no procedure to reduce or obliterate the cavity was undertaken at the time of primary or revision surgery. COMQ12 (chronic ear disease disease specific QOL) and Short Form 36 (SF36) questionnaires were administered.

Results: COMQ12 mean score was 14, median 13 (LQ6, UQ21), and range 2–31. SF36 scores were calculated for 8 domains, scored out of 100. Physical Functioning mean = 71 (median = 90, LQ = 35, UQ = 100); Physical role limitation mean = 63 (median = 100, LQ = 25, UQ = 100); Emotional role limitation mean = 79 (median = 100, LQ = 67, UQ = 100); Energy mean = 57 (median = 55, LQ = 50, UQ = 70); Emotional wellbeing mean = 75 (median = 80, LQ = 68, UQ = 92); Social function mean = 80 (median = 100, LQ = 63, UQ = 100); Pain mean = 74 (median = 90, LQ = 33, UQ = 100); General health mean = 51 (median = 62.5, LQ = 33, UQ = 62.5).

Conclusions: On COMQ12 the most troublesome ear specific symptoms were difficulty in hearing in background noise and the TV, discharge and tinnitus. The frequency of symptoms impacted mainly on time of work and need for medication. On SF36 energy showed least variation, with most patients affected to some degree. Patients generally had good emotional wellbeing, social function, and had little pain. Physical functioning and role limitation scored high, with more variability.

doi:10.1017/S0022215116006496

ID: IP153

Petrous Bone Cholesteatoma: The Manchester Experience

Presenting Author: **Hannah North**

Hannah North¹, Simon Freeman², Scott Rutherford², Andrew King², Charlotte Hammerbeck-Ward², Simon Lloyd²

¹Salford Royal Foundation Trust and Central Manchester Foundation Trust, ²Salford Royal Foundation Trust

Learning Objectives: To discuss the surgical management of petrous bone (skull base) cholesteatoma To discuss the difficulty in recurrence in balance with preservation of anatomical structures To discuss the rates of hearing and facial nerve preservation in this disease.

Introduction: Petrous bone cholesteatoma medial to the otic capsule is very rare. Classification has been described by Moffat and Smith. Surgical management of the disease is extremely challenging and is a balance between total clearance of disease and preservation of critical anatomical