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**Petrous Cholesteatoma (R631)****ID: 631.3****Diagnosis, classification and surgical management of Petrous Bone Cholesteatomas: Gruppo Otologico experience of 200 consecutive patients**Presenting Author: **Mario Sanna**

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*Gruppo Otologico*

Diagnosis, classification and surgical management of Petrous Bone Cholesteatomas: Gruppo Otologico experience of 200 consecutive patients.

*Objective:* To review the classification and management of Petrous Bone Cholesteatomas (PBCs) at our center and the outcomes of facial nerve (FN) management in these lesions.

*Study Design:* Retrospective study.

*Setting:* A quaternary referral center in Italy for Skull Base pathology.

*Patients:* 200 patients with 201 PBCs were included in the study.

*Interventions:* All patients diagnosed radiologically to have PBCs were classified according to the Sanna Classification. All patients were surgically treated and followed up with radiology.

*Main Outcome Measures:* Classification of PBCs, surgical approach used, disease control and FN outcomes were analysed.

*Results:* Supralabyrinthine PBCs were the most common type with 92 (45.8%) cases followed by the Massive PBCs with 72 (35.8%) cases. Preservation of pre-operative facial nerve function was highest in the Infralabyrinthine (72.2%) and Infralabyrinthine-apical (73.3%) types. The Transotic Approach was used in 66 (32.8%) cases in this series. The MTCA – Type A was applied in 55 (27.3%) of the cases. An active management of the nerve (re-routing, anastomosis or grafting) was required in 53 (26.4%) cases. Post-operatively, of the 116 cases with FN HB Grade I and II, 107 (92.2%) cases retained the same grade or improved. Recurrence was seen in seven (3.5%) cases.

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**Free Papers (F632)****ID: 632.1****Mastoid obliteration with cryopreserved homologous bone graft**Presenting Author: **Anna Carolina Fonseca**

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*Learning Objectives:* Demonstrate that homologous bone graft from a bone bank can be a nonexpensive and easy-to-use filler material for mastoid obliteration.

*Introduction:* Mastoid obliteration was introduced to eliminate canal wall down (CWD) mastoidectomy-related problems, and is currently the treatment of choice for chronic discharging mastoid cavities. The aim of this study was to assess the control of suppuration after revision surgery with mastoid obliteration for chronic otitis media (COM) using cryopreserved homologous particulated bone graft (CHPBG), a low-cost filler material obtained from a tissue bank.

*Methods:* Prospective interventional case series in a tertiary referral hospital. The study population (10 adults) was selected from among patients who had undergone CWD or canal wall up (CWU) mastoidectomy for COM with or without cholesteatoma, and had an indication for revision surgery. Revision mastoidectomy with obliteration of the open cavity was performed with CHPBG. Our main outcome measure was the control of suppuration. Secondary outcome measures included CHPBG integration in the mastoid cavity, hearing outcomes, presence of recurrent or residual cholesteatoma, and postoperative complications.

*Results:* Mean age at surgery was 35.2 years. Mean follow-up was 28 months. Seven patients achieved a dry ear at a mean of 8 weeks postoperatively. Three patients developed bone graft exposure followed by infection and extrusion through the ear canal. Mean bone density was 755.35 Hounsfield units measured at the obliteration site at a mean of 31 months postoperatively. Percentage of mastoid volume obliterated was between 75% and 100% in 6 cases and between 50% and 75% in 1 case. In all 7 patients, there was an increase in bone density postoperatively.

*Conclusions:* This study demonstrated that CHPBG may be used to achieve a dry mastoid cavity with satisfactory bone graft osteointegration and density maintenance.

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**Free Papers (F632)****ID: 632.2****Canal Wall Down Mastoidectomy With And Without Autologous Bone Obliteration: a Comparison of Results in Adults**Presenting Author: **Francesco Mancini**

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*Learning Objectives:* Safety and efficacy of mastoid obliteration with autologous bone.

*Introduction:* Canal wall down (CWD) mastoidectomy is credited to low cholesteatoma recidivism, however drainage and infection of the mastoid bowl is sometimes a complication of surgery. Obliteration with autologous bone of the mastoid cortex can avoid the disadvantages of the CWD approach by combining the benefits of a smaller cavity less prone to infections. The aim of the study was to compare anatomical and functional results of “non-obliterated CWD mastoidectomy” (NO) and “obliterated CWD mastoidectomy” (O).

*Methods:* Consecutive CWD mastoidectomy from 1994 to 2014 have been reevaluated to analyze incidence of post-operative synechiae and recurrent infections of the mastoid bowl, retraction pocket and perforation of the neotympanum, recurrence of cholesteatoma, and hearing threshold change (more than 10 dB in average 0.5–3 kHz).

*Results:* The study group included 317 adult patients (149 males and 168 females). Mastoid obliteration was performed in 88 patients (28%). There were 217 primary surgeries and 100 treatments for a recurrence (33% NO and 27% O) ( $P = 0.3$ ). The cholesteatoma involved the middle ear in 71 patients, 246 had also a mastoid extension (76% in NO and 81% in O) ( $P = 0.4$ ).

Dry synechiae developed in 11% (25/229) of NO and 16% (14/88) of O ( $P = 0.2$ ). Recurrent discharge were observed in 8% (18/229) of NO and 3% (3/88) of O ( $P = 0.1$ ). Dry retractions developed in 14% (32/229) of NO and 11% (10/88) of O ( $P = 0.7$ ). Perforations were observed in 2.5% (6/229) of NO and 3% (3/88) of O ( $P = 0.7$ ). Cholesteatoma recurred in 2% (4/229) of the NO and in none of O ( $P = 0.6$ ). Hearing threshold improvement was observed in 28% (59/214) of NO and in 61% (38/62) of O ( $P = 0.001$ ), impairment was observed in 12% (26/214) of NO vs. 13% (8/62) of O ( $P = 0.9$ ).

*Conclusions:* Postoperative complication and anatomical results were comparable between NO and O, while functional results were superior in O.

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## Free Papers (F632)

### ID: 632.3

#### Life table analysis of results of staged intact canal cholesteatoma surgery using bone pate to reconstruct the lateral attic wall

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*Introduction:* An insidious problem hampering treatment of cholesteatoma is the propensity of the disease to recur; this is considered to be a particular problem after intact canal surgery.

We continue to perform intact canal surgery for cholesteatoma, because this allows preservation of the ossicular chain, which has been shown to provide the best hearing after cholesteatoma surgery.

We review a technique developed in our institution thirty years ago to minimise recurrence of cholesteatoma after intact canal cholesteatoma surgery.

*Method:* Inclusion criteria: ears with attic cholesteatoma that underwent reconstruction of the lateral attic wall at primary surgery using bone pate.

Patients underwent second look procedures to exclude residual disease. This afforded an opportunity to further strengthen the lateral attic wall, if needed.

Patients were reviewed annually until five years after their original surgery.

The primary outcome was the need for further surgery for recurrent cholesteatoma.

Life table analysis was used to take account of patients lost to follow up before five years.

*Results:* 150 ears were included.

Ninety six per cent of the ears survived to five years without need for further surgery due to recurrent cholesteatoma.

*Conclusion:* Reconstruction of the lateral attic wall in staged intact canal cholesteatoma surgery with bone pate reduced the risk of recurrent cholesteatoma to levels similar to those seen in the best alternative techniques.

*Learning Point:* Surgery aimed at maintaining the best hearing after cholesteatoma surgery need not be associated with high rates of recurrent cholesteatoma.

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## Free Papers (F632)

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#### The use of S53P4 bioactive glass for mastoid obliteration in cholesteatoma surgery

Presenting Author: **Jasper Quak**

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*Learning Objectives:* To inform about the results of the use of S53P4 bioactive glass for obliteration of the mastoid cavity in cholesteatoma surgery. To demonstrate the advantages and limitations of the technique.

*Introduction:* Mastoid obliteration has been reported to reduce the number of recurrences and improve the quality of life in both canal wall up (CWU) and canal wall down (CWD) procedures, in the treatment of cholestatoma. Confronted with a rather high recurrence rate after CWU surgery without obliteration, we implemented the use of S53P4 bioactive glass (BonAlive). Our choice was made