Learning Objectives:

Introduction: Petrous temporal bone cholesteatoma (PTBC) poses a significant management challenge. The location and nature of the disease as well as surgery carry risks to vital anatomical structures with potential impact on quality of life. Traditionally an aggressive surgical approach has been used. We present our series of PTBC; their classification, management, hearing and facial nerve outcomes.

Method: A retrospective case note review was carried out for all petrous cholesteatomas managed by the senior authors from 2008–2016. The study was an analysis of service provision and therefore formal ethical approval was not required.

Results: 15 patients were included in the study (mean age 42y 6 m; 10 males). Using Sanna et al.'s classification there were: 4 supralabyrinthine (Class I), 3 infralabyrinthine (II), 4 labyrinthine-apical (III), 4 massive labyrinthine (IV) and 1 apical (V). Hearing loss was a presenting symptom in 80% of patients, four of which were dead ears and 40% had a degree of facial nerve palsy. Mean follow-up was 1391 days. 5/15 patients underwent otic capsule sparing surgery. Recurrence occurred in 8 patients (53%), who all underwent further surgery and are currently disease free. Post operatively 20% had worse hearing (all requiring a labyrinthectomy or transotic approach). Four patients had new or worse facial weakness post operatively and three of these have had subsequent facial reanimation surgery.

Conclusion: The aim in PTBC management is total exenteration of disease while minimizing complications. Compared to other series in the literature we have a higher residual/recurrence rate due to a more conservative surgical approach in recent years. Advances in diffusion-weighted magnetic resonance imaging enable a less aggressive initial approach and directed second stage surgery in cases with residual disease.

Learning points: Long term outcomes will determine whether a less aggressive initial surgical approach is acceptable (for managing PTBC).

Free Papers (F612)

ID: 612.5

A novel cartilage slicer and its performance tests

Presenting Author: **Onur Ergun**

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Hacettepe University School of Medicine

Learning Objectives:

Objective: This study investigates the performance and benefits of a novel cartilage slicer device, which we refer to as "Hacettepe cartilage slicer" for otological procedures.

Method: 41 conchal and tragal cartilage pieces were harvested using a standard surgical method from 8 fresh frozen human ears and their initial thicknesses were measured using a high accuracy digital micrometer. The harvested cartilages were then randomly sliced in 4 thickness levels using 2 different types of surgical blades. Then the thicknesses of the slices and remaining cartilages were measured. Scanning electron microscopy was utilized to determine the surface smoothness of the slices.

Results: Hacettepe cartilage slicer provided consistent results with each thickness setting and blade type. The results showed a proportional increase with the increasing thickness level with a clustering within a 0.1 milimeter distribution of the median value. The thicknesses of the slices and remaining cartilages provided evidence that our design slices the cartilage without any damage or squashing. Although both blades provided comparable satisfying results, scanning electron microscopy revealed that the slices cut with single bevel "chisel type" blade were superior regarding surface smoothness.

Conclusion: We believe that a reliable, surgical tool to slice autologous cartilage into undamaged, smooth slices at any desired thickness is major advantage for otologists. To our knowledge this study is the first to evaluate the performance of a cartilage slicer device. On the basis of this study, our novel cartilage slicer proved itself as a superior tool that is ready for human trials. A "razor sharp" disposable single bevel blade would offer the best results and slice thickness accuracy, precisely matching the desired thickness with a margin of error less than 0.1 mm.

Free Papers (F612)

ID: 612.6

Incidence, recurrence rate and prognostic factors for cholesteatoma

Presenting Author: **Anders Britze**

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Learning Objectives:

Purpose: The purpose of this study was to calculate long term recurrence rates of cholesteatoma and to identify significant indendepedent prognostic factors for the recurrence.

Materials and Methods: 147 children and adults operated for debuting cholesteatoma, primarily by CWU (canal wall up) mastoidectomy, at Aarhus University Hospital in the period 2001–2005 were included. Five- and ten-year Kaplan-Meier cumulative recurrence rates were calculated and significant prognostic factors were identified by Cox multivariate regression analyses. One year pre to post-operative hearing outcomes were assessed.

Results: Five and ten year recidivism rates (with confidence intervals) were 0.38 (0.31–0.46) and 0.44 (0.37–0.53) respectively. The same estimates from purely CWU with single-stage ossiculoplasties were 0.39 (0.3–0.51) and 0.49 (0.39–0.60) respectively. Independent significant prognostic