

from 2010 to 2013 by a single surgeon with 2.5 years follow-up. Patient demographics, intraoperative disease induced changes and postoperative outcomes were analyzed.

**Results:** Of the 216 patients, 119 had primary and 73 had secondary cholesteatoma. 24 patients were referred for residual/recurrent disease and 48 presented with one or more complications. Erosion of sinus plate was seen in 9 and dural plate in 16 cases. Sinodural angle was involved in 28, sinus tympani in 40 and facial recess in 45 cases. Facial nerve was dehiscence in 53 cases. All patients underwent canal wall down mastoidectomy as a rule. Mastoid obliteration was done in 40 cases. Hearing mechanism was reconstructed by tympanoplasty – type 3 (116), type 4 (38) and type 2 using autologous incus (32). 26 patients underwent staged procedure and 4 required cul-de-sac closure. Dry cavity was achieved by an average of 1.75 months. Recurrence was seen in 1 patient.

**Conclusion:** Complete eradication of disease by adequate exposure, proper saucerisation of mastoid cavity, adequate lowering of the facial ridge and wide meatoplasty are four main principles for a dry cavity. Obliteration in select cases is required to create an optimum sized cavity. Hearing improvement, though secondary, is vital and should be attempted if eustachian tube function allows. A good follow-up is always essential.

doi:10.1017/S0022215116005260

#### ID: IP030

### Successful early loading of a BAHA (Bone Anchored Hearing Aid) in a patient with learning difficulties

Presenting Author: **Nicholas Dawe**

Nicholas Dawe<sup>1</sup>, Ian Johnson<sup>2</sup>

<sup>1</sup>Freeman Hospital, Newcastle upon Tyne,

<sup>2</sup>Department of ENT, Freeman Hospital, Newcastle upon Tyne

**Learning Objectives:** Early loading of the BAHA abutment is feasible, safe and provides evidence for a change of clinical practice to ever shorter loading times.

**Introduction:** BAHA placement is routinely undertaken as a single stage process. Loading is performed at an interval period – usually six days – to allow for osseointegration. We report the successful early loading of a BAHA, at four hours post-operatively, undertaken as a result of hearing loss on a background of learning difficulties in a paediatric patient with Down's syndrome and autism. Satisfactory short and long-term outcomes are reported.

**Methods:** Case Report.

**Results:** A 16-year-old male with Down's syndrome and autism underwent a left BAHA placement. A conventional hearing aid had not been tolerated by the patient. Since the age of 9, a soft-band device had been trialled and had been well tolerated.

The procedure involved single-stage placement of a 4 mm implant with 10 mm abutment, performed via the FAST technique, using a curvilinear incision.

Post-operatively the patient was agitated and it was elected to load the abutment early, at four hours, to overcome difficulties in communication.

The initial intra-operative resonance frequency analysis (RFA) stability measurement was 49 (implant stability quotient (ISQ) 65 units after correction for abutment length). Medium and long-term follow-up at 12 months confirmed maintenance of implant stability by maintained ISQ values. No local complications occurred.

**Conclusions:** A successful outcome following early loading of the BAHA abutment was achieved, and is considered the earliest recorded BAHA loading described in the literature. The procedure is predicated upon the use of real time RFA measurement.

doi:10.1017/S0022215116005272

#### ID: IP031

### Pediatric cholesteatoma surgery : results of cartilage block ossiculoplasty

Presenting Author: **Francoise Denoyelle**

Francoise Denoyelle<sup>1</sup>, Jérôme Nevoux<sup>2</sup>, Pierre Chauvin<sup>3</sup>, Noël Garabédian<sup>4</sup>

<sup>1</sup>Necker Children's Hospital, APHP and Paris Descartes University, Paris France,

<sup>2</sup>Otolaryngology and Head and Neck Surgery Department, Bicêtre Hospital and Paris XI University, <sup>3</sup>Department of Public Health, Saint Antoine Hospital, Paris VI University,

<sup>4</sup>Pediatric Otolaryngology and Head and Neck Surgery Department, Necker Children's Hospital, APHP and Paris Descartes University, Paris France

**Learning Objectives:** To assess the efficacy and long-term stability of partial ossicular chain reconstruction using autologous cartilage.

**Objective:** To assess the efficacy of partial ossicular chain reconstruction using autologous cartilage.

**Design and setting:** Retrospective study, Tertiary academic children's hospital.

**Patients:** Two hundred forty-eight children (268 ears) underwent partial ossicular chain reconstruction using a shaped block of tragal cartilage interposed between the head of the stapes and an underlay tympanic membrane reconstruction along with tragal cartilage and its perichondrium.

**Main Outcome Measures:** Anatomical and audiologic results were evaluated according to the American Academy of Otolaryngology–Head and Neck Surgery guidelines. X2 Tests and multivariate analysis were used for statistical evaluation.

**Results:** Mean age at surgery was 10.9 years. Single stage surgery was performed in 124 ears (46.3%) (62.9% for cholesteatomas and 32.3% for retraction pockets). Second-look patients (53.7%) included 93.8% of staged surgery. Audiometric results were available for 222 ears at 1 year and for 78 ears at 5 years. Closure of the average air-bone gap (ABG) to within 20 dB was achieved in 62.2% of ears at 1 year. The mean (SD) preoperative and 1-year postoperative ABGs were 25 (11.8) dB and 18.9 (10.3) dB, respectively. Anatomical results were satisfactory in 87.3%. No cases of extrusion, resorption, or displacement of the cartilage were encountered. No statistically significant difference was found between audiometric results at 1 and 5 years. Multivariate analysis showed a significant negative correlation between preoperative and postoperative ABGs and between postoperative otitis media with effusion and postoperative ABG ( $P_{.05}$ ).

**Conclusions:** Cartilage block ossiculoplasty is a reliable technique for partial ossicular replacement. Long-term hearing outcomes remain stable and satisfactory. Preoperative ABG and postoperative otitis media are the predictive factors of the hearing outcome.

doi:10.1017/S0022215116005284

#### ID: IP032

### Congenital Cholesteatoma Associated With Congenital Ossicular Anomalies

Presenting Author: **Qiang Du**

Qiang Du<sup>1</sup>, Yasheng Yuan<sup>2</sup>, Fanglu Chi<sup>2</sup>

<sup>1</sup>Eye, Ear, Nose and Throat Hospital, Fudan University, Shanghai, China, <sup>2</sup>Department of Otolaryngology and Skull Base Surgery, Eye & ENT hospital of Fudan University

**Objective:** The purpose of this study is to describe and analyse the clinical features of congenital cholesteatomas associated with congenital ossicular anomalies.

**Method:** The clinical data of eight non-syndromic patients who were diagnosed congenital cholesteatomas associated with congenital ossicular anomalies were reviewed retrospectively. The clinical data included sex, age, symptoms, signs, audiological results, temporal bone computed tomography scan, intraoperative findings, management, pathological findings and follow-up results.

**Results:** In three cases, external ear anomalies were accompanied. In one case, an atretic plate replaced a normal tympanic membrane. In seven cases, the cholesteatoma was in the postero-superior tympanum. Only in one case, the cholesteatoma was in the anterior-superior tympanum. The ossicular anomalies were mainly incus and/or stapes anomalies. In seven cases, the ossicular chain was reconstructed after removal of the cholesteatoma. In the other case, reconstruction of the ossicular chain had been given up because of the absence of the oval window. In three cases, the hearing ability had improved. In two cases, hearing ability did not

change. All these five cases had no evidence of recurrent or residual cholesteatoma. The other three cases had been lost contact.

**Conclusion:** Congenital cholesteatomas associated with congenital ossicular anomalies is rare. The cause seems to be developmental abnormalities of the first and the second branchial arches.

doi:10.1017/S0022215116005296

#### ID: IP033

### Transcanal Endoscopic Approach for Holotympanic Cholesteatoma

Presenting Author: **Manuela Fina**

Manuela Fina

Assistant Professor, University of Minnesota

**Learning Objectives:** This narrated eight minutes video lecture demonstrates the surgical anatomy and the surgical steps involved in eradication of a holotympanic cholesteatoma through an exclusive transcanal endoscopic approach with preservation of the middle ear space and mastoid antrum and avoidance of a radical mastoidectomy.

**Objective:** This narrated surgical video illustrates the transcanal endoscopic approach to a holotympanic cholesteatoma with extension in the sinus tympani and Eustachian tube. This video demonstrates the advantages of the endoscopic approach to visualize and gain access to disease in anatomical subsites that traditionally would have required a posterior tympanotomy and a radical mastoidectomy.

**Methods:** A pre-operative endoscopic exam and a CT scan of the temporal bone were obtained for surgical planning and assessing extension of the cholesteatoma. The surgery was performed under general anesthesia. Rigid 0 and 30 degree endoscopes, 3 mm in diameter and 14 cm in length were used and connected to a three chip video camera and high definition monitor. The surgical procedure was performed working from the images on the monitor.

**Results:** The holotympanic cholesteatoma was removed utilizing a transcanal endoscopic approach by direct visualization and removal of the disease from the retrotympanum, epitympanum, periantral mastoid cells and protympanum. Reconstruction of the tympanic membrane and attic defect was performed with a composite tragal cartilage graft. The mastoid antrum was not involved and was preserved intact.

**Conclusions:** Endoscopic ear surgery is a valuable surgical technique and offers wide field visualization of the retrotympanic space, attic, periantral mastoid space and protympanum. In this video a transcanal endoscopic approach is utilized to access and remove cholesteatoma involving the sinus tympani and the Eustachian tube with mastoid preservation and avoidance of a radical mastoid cavity.