

Abstracts – MEMRO 2006, Zurich July 27–30, 2006

4th International Symposium on Middle Ear Mechanics in Research and Otology

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Incusinterposition: surgical highlights and audiological results

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Objective: To describe the technique used for incus interposition with the autologous and a Titanium incus and evaluate the 1-year postoperative functional results.

Study design: Retrospective study.

Setting: Tertiary referral center.

Patients: Sixty consecutive patients who underwent incus interposition between October 2001 and January 2004 were enrolled. The surgeries were either primary interventions, revision surgeries or planned staged ossiculoplasties in closed or open cavities.

Surgery: In patients with an intact malleus handle and stapes suprastructure an incus interposition was performed using either the patient's own ossicle or a Titanium prosthesis.

Main Outcome measures: Pre- and postoperative air and bone-conduction thresholds and air-bone gaps for pure-tone averages of three and four frequencies and for single frequencies were analyzed.

Results: Ossiculoplasties were performed using autologous ossicles (34 patients) and Titanium prosthesis (26 patients). Mean postoperative air-bone-gap improved from 26dB to 15dB for the frequencies of 0.5kHz to 2kHz and from 25dB to 17dB for the frequencies of 0.5kHz to 4kHz. The largest improvement could be reached in the lower and middle frequencies, whereas smallest improvements were achieved at 4kHz. A favourable postoperative air-bone-gap of 20dB or less was achieved in 91% of patients using autologous ossicle and in 65% of patients using titanium prosthesis. There were no statistically significant differences between open or closed cavities, nor in cases after removal of the malleus head.

Conclusions: Sculpted autologous incus interposition provided the maximum hearing success, however the audiological results of the new Titanium prosthesis did not differ significantly ($p = 0.11$). Further studies may verify why the closure of the air-bone-gap at 4kHz was less successful than in lower frequencies.