significantly higher in clinical lesions. CA was also significantly higher in clinical lesions. Importantly, a direct connection between named vessels and the otosclerotic vasculature was significantly more frequent in clinical lesions.

Conclusion: Computer-assisted quantification of angiogenesis revealed significantly greater measures of angiogenesis in clinical otosclerosis. Direct connection to anatomically constant vessels may be an important mechanism for supporting angiogenesis. Angiogenesis as a determinant of clinical versus histologic disease is consistent with the theory of otosclerosis as resumption of arrested endochondral ossification.

Significance: Angiogenesis may be an important determinant of clinical disease and may help explain why there are sites of predilection. Anti-angiogenic strategies may offer another form of treatment for otosclerosis.

R515

Hearing Loss with Stapedotomy and Treated Otitis Media

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Problem: Stapedotomy performed in the presence of Pseudomonas aeruginosa (PA) otitis media (OM), and fenestration of the labyrinth with a remote exposure to PA exotoxin A are associated with an increased risk of sensorineural hearing loss (SNHL). However, the risk of SNHL with stapes surgery in ears with a remote history of PA OM, is unknown. The goal of this study was to determine if treated PA OM increases the risk of SNHL with stapedotomy.

Methods: PA was injected bilaterally into the middle ears of guinea pigs (n = 28). Half of the PA injected animals underwent unilateral stapedotomy 2 days post injection (i.e., untreated). The remaining infected animals were treated with antibiotics followed by 2 weeks of observation prior to undergoing unilateral stapedotomy. A control group (n = 14) underwent bilateral injection of phosphate buffered saline and unilateral stapedotomy 1 week after injection. Auditory thresholds were evaluated by electrocochleography at baseline, before and 1 week after stapedotomy.

Results: OM was confirmed in all ears injected with PA. Stapedotomy performed in treated PA OM resulted in significantly less hearing loss relative to untreated PA OM ($p=0.0268$). No significant difference in hearing loss was noted with stapedotomy performed in treated OM as compared to controls ($p=0.9370$). Stapedotomy in untreated OM resulted in significant damage to cochlear outer hair cells (OHCs), while organization of the OHCs was preserved in treated PA OM and controls.

Conclusion: Ears with previously treated PA OM are not at an increased risk of SNHL with stapedotomy.

Significance: Stapedotomy may be performed with caution in the setting of inactive, chronic OM."

R516

Laser-Activated Crimping of Nickel and Titanium Alloy Piston Stapes

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Problem: To determine the safety and effectiveness of the nickel and titanium alloy wire-piston stapes prosthesis crimped using the laser activation technique.

Methods: A retrospective analysis of all stapes procedures performed by the senior author over a 3-year period was reviewed with special attention directed at those cases performed using the laser activated crimping technique. All patients were followed for at least 6 months. The surgical outcome including audiologic data and complications are noted. Stapes surgery was performed on an ambulatory basis by way of a transcanal approach under general anesthesia. The implant made from a nickel and titanium alloy was inserted into the middle ear in the "open" position. After proper positioning, a laser was directed at the alloy causing the implant to close to a predetermined shape, thereby attaching itself firmly to the incus bone in the middle ear.

Results: There was no significant difference in the air-bone gap closure or complication rate between the laser assisted crimping technique and the standard technique.

Conclusion: Stapes surgery using the nickel and titanium alloy wire piston prosthesis crimped with a laser activation technique is safe and effective.

Significance: This study describes a technique that may allow surgeons to perform stapes surgery more rapidly and easily.

R517

Patient Satisfaction with Bone-Anchored Hearing Aids: The Merseyside Experience

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Problem: The Merseyside bone-anchored hearing aid (BAHA) program began in 1991, and by 2004, a total of 152 patients had been fitted with such aids. The aim of this retrospective questionnaire is to ascertain the usefulness of BAHA as a hearing rehabilitation device and to assess patient satisfaction.

Methods: The Entific medical systems (Nobel biocare) questionnaire was sent by post to 152 patients to evaluate day to day use of BAHA, quality of life, and speech understanding.

Results: 116 patients responded to the questionnaire (76% response rate). 82% of respondents use their BAHA everyday and 78% more than 8 hours a day. 71% stated their quality of life has improved. 61% mentioned that BAHA rating when talking to one person was moderate to excellent, while 45%