Abstract:

Objective: The aim of this study was to evaluate changes in bone conduction thresholds before, during and after total stapedectomy. Study Design: Prospective clinical study. Methods: In 27 ears of 26 patients undergoing stapedectomy under local anesthesia, bone conduction was measured before surgery, during surgery under open oval window conditions, and after the insertion of a steel wire connective tissue prosthesis. Statistical data analysis was performed on the audiometric results. Results: Under open oval window conditions, bone conduction hearing was found to be improved between 500 and 2000 Hz, but not at 4000 Hz. After insertion of the prosthesis, an additional improvement was evident at 500 and 1000 Hz, but a loss was seen at 2000 and 4000 Hz. Conclusion: This is the first investigation reported in which audiometry was performed under open oval window conditions during stapes surgery. Our results demonstrate that at least part of the preoperative bone conduction hearing loss in otosclerosis must be of mechanical, but not of sensorineural origin, as already suspected by Carhart. The fixed footplate suppresses cochlear micromechanics mainly at frequencies between 500 to 2000 Hz. Furthermore, the loss in bone conduction hearing at 2000 and 4000 Hz after insertion of the prosthesis indicates that rather than the surgical procedure of total removal of the footplate, other factors such as the handling of the prosthesis or its mechanical properties after
insertion cause high-frequency hearing loss after stapes surgery.

Stichworte:
Bone conduction; Otosclerosis; Carhart notch; Basilar membrane displacement

Zeitschriftentitel:
Audiology and Neurotology

Jahr:
2011

Band:
16

Heft / Issue:
1

Seiten:
23--28

Volltext / DOI:
http://doi.org/10.1159/000308302

Verlag / Institution:
S. Karger AG

Verlagsort:
Basel, Switzerland

Print-ISSN:
1421-9700

E-ISSN:
1421-9700

Hinweise:
Dieser Beitrag ist mit Zustimmung des Rechteinhabers aufgrund einer (DFG-geförderten) Allianz-bzw. Nationallizenz frei zugänglich. This publication is with permission of the rights owner freely accessible due to an Alliance licence and a national licence (funded by the DFG, German Research Foundation) respectively.

Occurences:
- Kollektionen > Open Access Publikationen > 2011
- Kollektionen > Open Access Publikationen > Verlage > Karger

entries: