Abstracts - MEMRO 2006, Zurich July 27-30, 2006
4th International Symposium on Middle Ear Mechanics in Research and Otology

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Histological assessment of the ossicular autografts used in Tympanoplasty

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Introduction: Many surgeons use different techniques for ossicular reconstruction In tympanoplasty Different types of autografts, homografts, xerografts and artificial prostheses have been tried to restore & correct the sound pressure transformer mechanism of the middle ear. The use of ossicular autografts in cholesteatoma as it is usually associated with bone erosion caused by osteoclast activation.

Purpose: This study was preformed to estimate the benefit and the safty of the use of ossicular remnants after removal of cholesteatoma matrix by subperiosteal skeletonization under the operating microscope.

Material and Methods: Twenty ossicles were obtained from cases of cholesteatomatous chronic supprative otitis media and 4 normal ossicles obtained from normal cadavers were included in this study. Cholesteatoma was removed from the ossicles by subperiosteal skeletonization under the operating microscope .The twenty inflammed ossicles and the 4 normal ossicles were fixed,prepared and divided into 2 equal group for examination by scaning and transmission electronic Microscope

Results:

- Cholesteatoma matrix was limited and restricted to the surface of the bone of the ossicular remnant with no deep invasion
- In most of the ossicle examined inflammatory and bone reactions were observed only at the bone –submucosa contact zones. Only one case showed marked osteoclastic changes reaching the ossicular inner core
- Bone deposition was noticed in some ossicles denoting that bone repair went hand in hand with bone erosion

Conclusion: The subperiosteal skeletonization of the ossicular remnants under the operating microscope proved to be a meticulous method for complete cleaning of the Cholesteatoma matrix, rendering them safe autografts for hearing reconstruction during surgery provided that the Cholesteatoma matrix and all osteotic bone are eradicated totally from the middle ear cleft.