

Application of Tragus Cartilage Ring-Perichondrium in Tympanoplasty and Analysis of Related Factors Affecting its Long-Term Outcomes

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Abstract

Objective To report repair of large tympanic membrane perforation using tragus cartilage ring-perichondrium grafts and factors that can affect the long-term outcomes. **Methods** From January 2004 to December 2013, tragus Cartilage ring perichondrium grafts were used during myringoplasty in 325 patients (375 ears). Their clinical data, including age, duration of dry ear, preoperative air conduction hearing threshold, postoperative bone conduction hearing threshold, tympanic mucosa condition, tympanosclerosis lesions, ossicular chain lesion, Eustachian tube function, intraoperative blood oozing and follow-up data (more than 3 years), were analyzed using the SPSS 16.2 software. χ^2 test and multiple linear regression analysis were employed with $P < 0.05$ being statistically significant. **Results** The mean age of our patients was 36 ± 8.32 (11-62) years and the average disease duration was 21 ± 7.62 (1-36) years. The rate of tympanic membrane healing was 94.8% at 1 year and 91.6% at 3 years. Multivariate analysis of factors influencing operation results indicated correlation to the following: tympanosclerotic plaque lesions, preoperative air conduction hearing threshold, preoperative bone conduction hearing threshold, duration of disease, eustachian tube function and intraoperative blood oozing. **Conclusion** Tympanosclerotic plaque lesions, preoperative air conduction hearing threshold, duration of disease, eustachian tube function and intraoperative blood oozing appear to affect the efficacy of tympanoplasty using tragus cartilage ring-perichondrium grafts. **Key point** 1. Tympanic membrane grafts in tympanoplasty are usually tragus perichondrium or temporomandibular fascia. 2. Some experts use cartilage-perichondrium as a graft, but it increases the quality of tympanic membrane, which will also have a certain impact on hearing recovery. 3. An expert group was convened to study how to remove the cartilage with a diameter of 5mm in the center, keep the cartilage ring with a width of 1.5mm in the periphery, and repair it into a cartilage ring-perichondrium complex, so as to reduce the influence of excessive thickness of the whole cartilage on postoperative hearing. 4. After more than 3 years' follow-up, Multiple linear regression was used for analysis, and the factors influencing the operation effect were observed. 5. This study confirmed that in tympanoplasty, tragus cartilage ring-perichondrium is used as a graft, which is especially suitable for patients with tympanic membrane perforation.

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