P199

BASIC AND TRANSLATIONAL RESEARCH

Is Cartilage more effective in treatment of type I tympanoplasty ?

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Introduction

Middle ear pathology, including various entities, is the leading cause of hearing loss. Tympanic membrane perforation, whether traumatic or infectious in origin, is one of these. Type I tympanoplasty, or myringoplasty, is a surgical procedure aimed at treating perforation of the tympanic membrane without manipulating the ossicular chain.

Since the introduction of tympanoplasty by Wullstein in 1952 and Zöllner in 1955, a wide variety of graft materials have been used to repair tympanic membrane perforations. Each material has its own advantages and disadvantages well known to otologists.

Aims

The aim of this study is to compare the anatomical and audiometric functional outcomes after using cartilage or fascia in type I tympanoplasties.

Methods and Materials

A prospective, comparative study was conducted focusing on patients with non-marginal central tympanic membrane perforation. Two patient groups were identified: the first group, "Fascia Group," underwent tympanoplasty using temporalis fascia as the graft material. The second group, "Cartilage Group," received cartilage as the graft material. The results were evaluated six months after the surgical intervention.

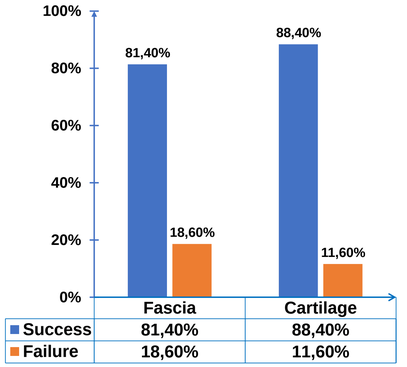
Results

Eighty-six patients underwent surgery, 43 received type I tympanoplasty using temporalis fascia as the graft material and 43 received cartilage. The study population consisted of 34 (39.5%) male patients and 52 (60.5%) female patients with sex ratio of 0.65. The mean age of the operated patients was 36.72 years ± 14.80 years, with a range from 10 to 71 years and a median age of 38 years. The success rate of tympanoplasties after six months of postoperative evolution was better in patients operated on with cartilage as the tympanic membrane reconstruction graft compared to those with fascia; however, the difference was not statistically significant (p = 0.39).

The postoperative air-bone gap (ABG) at six months was slightly better for fascia (13.23 ± 4.04) compared to cartilage (13.91 ± 4.28), but this difference was statistically non-significant (p = 0.71).

	Fascia (%)	*Cartilage (%)*	*P*
Postoperative ABG	13.59 ± 4.48	14.07 ± 4.21	0,688
Hearing gain	11.37 ± 6.34	10.19 ± 5.36	0.277
ABG closure of < 20dB	81.4%	74.4%	0.4513

« Functional and anatomic results at 6 months»



The hearing gain was better for fascia (11.71 ± 5.99 dB) compared to cartilage (10.26 ± 5.43), without a statistically significant difference (p = 0.53). The percentage of patients achieving a Postoperative ABG ≤ 20 dB was 83.7% for fascia and 76.7% for cartilage, showing slightly better results for fascia with a statistically non-significant difference (p = 0.59). Regarding tympanoplasty success rates recorded in the literature for adults, success rates vary between 70% and 97%. **The closure success rates for tympanic membrane perforations in the literature range from 71% to 100% when cartilage is used and from 64% to 93% when fascia is employed. In the literature and in most series, functional outcomes based on the graft tend to favor either cartilage or fascia, but without statistically significant differences.**

Conclusion

The primary objective of myringoplasty is to close the perforation while improving hearing. In our study, cartilage performed slightly better compared to fascia in the reconstruction of tympanic membrane perforations, although the difference was not significant. However, the auditory changes were similar in both groups, with a slight favor for fascia.

Références

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