

Reconstruction of Vocal Fold Using a Fat Block Implant Following Cordectomy Through a Minithyrotomy Approach In a Rabbit Model

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Objectives

Minithyrotomy is a novel approach that provides direct access to the lamina propria and vocalis muscle without requiring incision of the vocal fold mucosa. The aim of this study was to demonstrate the efficacy of minithyrotomy vocal fold reconstruction in a rabbit model by comparing the vocal fold total square amount and the density of scars between the minithyrotomy vocal fold reconstruction using a fat block group (MT group) and a cordectomy group (CT group).

Study design : Animal study.

Methods

Twenty adult female conditioned laboratory rabbits were used for this study. Minithyrotomy vocal fold reconstruction was performed using a single fat block implant 3 months after cordectomy. To compare total square amount and density of vocal folds between the minithyrotomy and cordectomy group, hematoxylin

and eosin, Masson's trichrome, and alcian blue staining was used.

Results

Histological examinations showed minithyrotomy vocal fold reconstruction postoperatively restored vocal fold bulkiness and maintained volume for up to 6 months, compared with the cordectomy group ($p < 0.05$). In light of the surgical manipulation, the procedure also did not aggravate scarring of the cordectomized vocal fold.

Conclusions

Minithyrotomy vocal fold reconstruction using an autologous fat block may soon be feasible in humans undergoing rehabilitation for post-cordectomy dysphonia without causing additional damage to the vocal folds.

Key words : Vocal cords · Dysphonia · Reconstructive procedure.