LONGITUDINAL SCAR LYSIS AND STEROID INJECTION FOR TREATMENT OF VOCAL FOLD SCAR

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Abstract

Background: Current surgical interventions for vocal fold scar are characterized by unpredictable outcomes and prolonged recovery times. A procedure was developed consisting of mucosal preservation, longitudinal lysis of the underlying scar, and steroid injection.

Methods: Retrospective case series of 13 patients undergoing longitudinal lysis and steroid injection for vocal fold scar.

Results: The physical component of the Voice Handicap Index (VHI) decreased significantly. Total VHI, percent jitter, and phonation threshold pressure (PTP) all improved, but did not reach statistical significance.

Conclusions: Longitudinal lysis of vocal fold scar and steroid injection can improve vocal fold vibration in vocal fold scar. Additional studies are required to confirm the preliminary findings.

Introduction

Normal vibratory function of the vocal fold and mucosal wave depend on its layered structure. This consists of the surface epithelium, the superficial lamina propria, and deeper vocal ligament, with micro-architecture oriented along the longitudinal axis of the vocal fold.

Vocal fold scar is a disruption of the gelatinous superficial lamina propria resulting in an area of limited pliability in the cover, hindering the mucosal wave. Persistent dysphonia from vocal fold scar remains a challenge due to limited options and unpredictable results.

Previous studies on elevating the overlying epithelium and releasing the adhesions of the scarred superficial lamina propria have provided limited results. Others have examined transecting the scar and overlying mucosa in the coronal plane. This study aimed to evaluate the effects of a longitudinal scar lysis and steroid injection, a procedure designed to preserve true vocal fold volume and increase scar pliability.

Methods

IRB-approved retrospective chart and speech-language pathology database review of 13 patients undergoing longitudinal lysis and steroid injection for vocal fold scar. Analysis included patient-reported, acoustic, aerodynamic, and videostroboscopic parameters.

Complete datasets were not available for all patients; sample size is noted with results. Average follow-up was 38.0 ± 26.4 weeks.

All procedures included a direct micro-laryngoscopy in the operating room, microflap longitudinal lysis of vocal fold scar, and injection of dexamethasone 10 mg/ml. All procedures were accompanied by voice therapy.

Results

There was an improvement in all components of the VHI (n=9), though only the physical component was statistically significant. There were no complications recorded.

Improvements were also seen in total VHI (n=12), percent jitter (n=9), and phonation threshold pressure (n=5).

On videostroboscopy after treatment, more patients were identified as having improved glottic closure, mucosal wave, and vibratory amplitude.

Changes in maximum phonation time, dysphonia severity index, or airflow were not apparent.

Results are demonstrated in Table 1.

Discussion

Multiple techniques to treat vocal fold scar including medialization, steroid injection, and injection augmentation of the lamina propria have been reported with unpredictable results. Longitudinal lysis of the underlying scar and steroid injection is direct, straightforward, and requires no implant.

Using a similar undermining technique, Ford and colleagues noted two of three subjects had improved videostroboscopic measures. Unfortunately, data on many subjects were incomplete. Pontes and Behlau demonstrated improvement in 9 of 10 patients using a slicing mucosal technique to interrupt the fibrotic and tension lines.

The statistically significant improvement in physical VHI, a patient self-reported measure accounting for effort and strain, is encouraging as it represents a significant improvement in the patients’ quality of life after longitudinal scar lysis and steroid injection. Other aerodynamic, acoustic, and videostroboscopic measures demonstrated gains as well.

The small study cohort is a limitation, however the changes observed and initial trends are favorable.

Conclusions

Longitudinal lysis of vocal fold scar and steroid injection can improve vocal fold vibration and the subjective physical components of phonation in patients with vocal fold scar.

Additional studies are required to confirm the preliminary findings observed here with a limited sample.