

Efficacy of PDL Glottoplasty in Patients with Dysphonia after Radiotherapy for Early Glottic Cancer : A Preliminary Study

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Objectives

Poor quality of voice is one of the pitfalls after radiotherapy in early glottic cancer. Radiotherapy induces fibroses and abundant microvasculature of vocal cord. We focus on this scarring. There were several attempts to remove scar of vocal cord using pulsed dye laser (PDL). But to date, there has been no trial with PDL on scarred vocal cord after radiotherapy. This study aimed to evaluate the voice quality before and after treating scar tissue with PDL.

Material and Methods

We performed retrospective study of 5 male patients with mean age of 56.6years suffering from poor voice quality treated with single PDL glottoplasty after curative RT for early glottic squamous cell carcinoma (T1a,T1b) at the Gangnam Severance Hospital Otorhinolaryngology Department between July 2007 and December 2013. During procedure, each vocal fold was administered 24 to 197 pulses (average 75.5 pulses) with fixed energy at 0.75 J/pulse. The PDL laser was delivered from PDL unit through the fiber and hand piece

under general anesthesia. The subjects were evaluated pre- and postoperatively using the VHI (Voice handicap index), aerodynamic, stroboscopic, and acoustic voice analyses.

Results

The study has resulted significant improvements in video-stroboscopic findings; the presence of capillary ectasias, degree of mucosal wave, vocal cord stiffness, and glottis closure. But in objective assessment, there was no statistically significant improvement in aerodynamic, perceptual ratings, and acoustic ratings.

Conclusion

The PDL glottoplasty improves visible outcomes of scarred vocal cords in stroboscopy with safety. We consume more long term postoperative follow up with larger number of patients should be sufficient to obtain desirable data in objective evaluation. We suggest the PDL glottoplasty as a therapeutic intervention for restoring voice quality after radiotherapy. Further studies are needed to confirm this preliminary study.