

## ENDOSCOPIC POSTERIOR ROTATION FLAP FOR POSTERIOR GLOTTIC INSUFFICIENCY

Kobayashi, Kenji R<sup>1</sup>, Peng You<sup>2</sup>, Danielle Devore<sup>3</sup>, Sarah Hollas<sup>3</sup>, Joseph R Geraghty<sup>4</sup>, Julina Ongkasuwan<sup>5</sup>

<sup>1</sup> Baylor College of Medicine, Department of Surgery, Otolaryngology

<sup>2</sup> Western University, Surgery, Otolaryngology - Head and Neck Surgery

<sup>3</sup> Texas Children's Hospital, Pediatric Otolaryngology, Speech, Language, and Learning

<sup>4</sup> University of Illinois at Chicago, College of Medicine, Medical Scientist Training Program

<sup>5</sup> Texas Children's Hospital, Surgery, Pediatric Otolaryngology

**Keywords:** endoscopic, pediatric, dysphonia, hoarseness, surgery

**Background:** Posterior glottic insufficiency (PGI) is a potential sequela of prolonged intubation wherein pressure from the endotracheal tube causes erosion of the vocal process and tissue loss of the posterior glottis. The resultant deficiency results in air escape during phonation. Patients present with a breathy voice, decreased maximum phonation time, and vocal handicap. We describe a novel technique and outcomes for an endoscopic posterior rotational flap for the treatment of PGI.

**Materials/Methods:** A retrospective review was performed in patients undergoing endoscopic posterior rotation flap for PGI between October 2018 and April 2021. The diagnosis of PGI was established following awake laryngoscopy to confirm vocal fold mobility and adequate closure of the vocal folds and direct laryngoscopy with inspection of the vocal processes. Pre- and postoperative assessments included the Pediatric Voice Related Quality of Life (PVRQOL) questionnaire, the Consensus Auditory Perceptual Evaluation of Voice (CAPE-V) performed by speech language pathologists, as well as acoustic measures.

**Results:** Five patients with PGI underwent the endoscopic posterior rotation flap. In all cases, endoscopic visualization demonstrated significant improvement in PGI. Findings demonstrated significant improvement in CAPE-V overall ( $p=0.0066$ ), CAPE-V breathiness ( $p=0.0126$ ), MPT ( $p=0.0003$ ). PVRQOL trended towards improvement without statistical significance ( $p=0.0945$ ).

**Conclusions:** PGI is a challenging clinical entity to treat. Voice therapy may be appropriate for some patients. In others, sufficient closure of the defect will be required to address the air leak during phonation. Various techniques have been described to address PGI with varying degrees of success. The novel endoscopic posterior rotation flap we describe offers a targeted approach to correct PGI with expeditious recovery without the need for stenting and tracheostomy which are often required in previously described management techniques. The favorable outcomes we have seen thus far demonstrate that this novel technique may be an alternate management strategy for those with PGI related dysphonia.

**Images / Graph / Table**



Pre Op



Post Op



1 month Post Op