Single & Multi-staged Approach to Posterior Cricoid Reduction Post-Pediatric Laryngotracheoplasty

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Introduction

- Nearly 50% of children who undergo airway reconstruction for subglottic stenosis have risk of dysphonia[1]
- EPCR has been documented as an effective surgical intervention[1,2]
- Parental and surgeon concerns limit scope of use in clinical practice

Methods

- Case series of 3 pediatric patients
- Careful counseling of the patients' families
- Plans individualized to proceed with single or multi-staged approach endoscopic posterior cricoid reduction (EPCR)
- EPCR was performed via an endoscopic CO2 laser approach +/- sharp excision
- Outcome: Qualitative assessments of dysphonia & measurements of the airway performed to assess outcomes

Selection Criteria

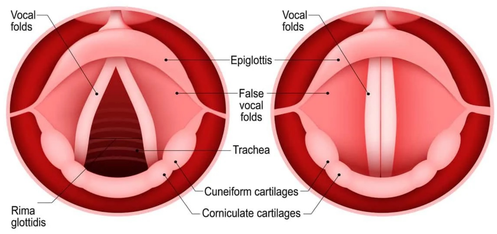
- 3 to 8 years old
- Previous Laryngotracheal Reconstruction w/ costal cartilage graft for ≥ Grade 3 stenosis
- Symptomatic post-op posterior glottic diastasis

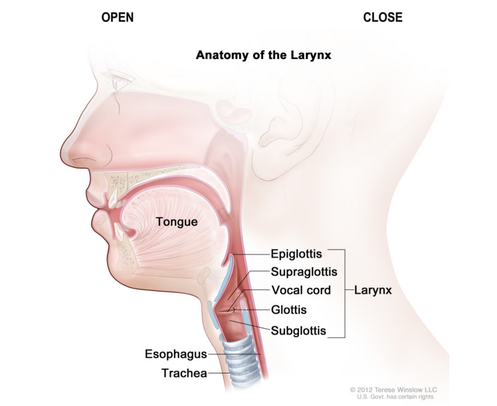
Results

- Post-op measurements showed average reduced distance of 2mm between posterior glottis apertures in all patients (Pre-Op: 4-6mm; Post-Op: 6-7mm)
- At completion of reconstruction, all 3 patients met subjective markers for success:
  1. Glottic opening without stridor
  2. No shortness of breath (SOB)
  3. No airway obstruction
- All patients demonstrated significantly improved and strengthened quality of voice post-operatively

Things to consider…

- Youngest patient underwent second stage procedure after allowing time for growth
  (her post-operative measurement was 4mm)
- Two patients returned to ED after 1st stage due to SOB, one resolved after hour, one required hospitalization
- One patient required return to OR between 1st and 2nd stage for removal of granulation tissue at suture site





Conclusion

Single and Multi-staged Endoscopic Posterior Cricoid Reduction (EPCR) are viable options for safe and effective methods of rehabilitating dysphonia in younger pediatric patients with posterior glottic diastasis. The reduction can be approached in a staged fashion to reduce the possibility of over-reduction of the posterior cricoid graft.

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