Endoscopic Management of Posterior Graft Migration After One and a Half Stage Laryngotracheal Reconstruction

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ABSTRACT

Background: Posterior cartilage graft prolapse and migration are known complications of laryngotracheal reconstruction with posterior cricoid split and costal cartilage grafting. Graft displacement can result in airway obstruction, failure to decannulate, and a need for revision open surgical procedures.

Objective: To describe a case in which posterior costal cartilage graft migration and prolapse after posterior cricoid split were managed endoscopically.

Setting: Tertiary care specialty hospital.

Methods: A 5 year old girl with an anterior glottic web and Grade 3 subglottic stenosis underwent a one and a half stage laryngotracheal reconstruction with anterior and posterior cricoid splits and costal cartilage grafts. One week after surgery she was noted to have posterior graft migration and prolapse; two weeks later further prolapse resulted in near-complete airway obstruction. This was managed endoscopically using a carbon dioxide laser to debulk the prolapsed graft.

Results: On three-week follow-up the remainder of the posterior graft remained viable. On two-month follow-up the patient had successful restoration of the airway and was decannulated.

Conclusion: The is the first case-report in the literature of endoscopic management of posterior graft migration and prolapse after laryngotracheal reconstruction. This technique restored airway patency in a minimally invasive fashion, obviating the need for open revision surgery.

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INTRODUCTION

Laryngotracheal stenosis, or narrowing of the glottis, subglottis, and/or trachea, can be a life-threatening condition. Stenosis can be acquired or congenital. Anterior laryngofissure with posterior cricoidotomy and placement of anterior and posterior grafts can expand the airway to accommodate an age-appropriate endotracheal tube. Sutureless placement of a flanged costal cartilage graft has been previously described and may be associated with fewer postoperative complications than posterior grafts sutured into position. Posterior graft migration, while rare, can result in a failure to restore airway patency and the need for open revision procedures. We present a case in which posterior graft migration after one and a half stage laryngotracheal reconstruction (LTR) with anterior and posterior grafts was addressed successfully through an endoscopic approach.

METHODS & MATERIALS

A 5 year old girl with a history of congenital anterior glottic webbing and grade 3 subglottic stenosis, resulting in tracheotomy dependence since 2 months of age, presented to discuss options for decannulation. She underwent an uncomplicated one and a half stage LTR with carbon dioxide (CO2) laser division of the anterior commissure and glottic web, and placement of anterior and sutureless posterior costal cartilage grafts.

RESULTS

Repeat bronchoscopy was performed 3 weeks after laser debridement. A small posterior subglottic granuloma was removed, revealing a patient subglottis and viable remaining posterior graft.

REFERENCES