TYPE 1 LARYNGEAL CLEFT REPAIR THROUGH NOVEL TRANSORAL, NON-ENDOSCOPIC APPROACH

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Introduction

Laryngeal clefts are a rare congenital malformation caused by failure of the posterior cricoid lamina and tracheoesophageal septum to fuse. They present with a variety of upper aerodigestive symptoms such as cough, respiratory distress, stridor, and aspiration. Diagnosis is dependent upon careful endoscopic evaluation. Endoscopic and robot-assisted repair of type 1 and type 2 laryngeal clefts have been described.

Methods

Case Report and review of the literature.

Case Report

At presentation, the patient was an 18 month-old male, ex-25 week premature infant, with nasal congestion, snoring and observed apneas, and reactive airway disease. He had had several hospitalizations for respiratory distress. He was followed by the Pulmonology service and required nighttime oxygen at 0.25 L/min via nasal cannula. He was followed by our feeding clinic and on an oral diet of puree and thickened liquids, as modified barium swallow showed penetration with thin liquids. Physical exam was notable for 1+ tonsils, some stridor and coughing while agitated, but quiet breathing at rest.

Due to the severity of symptoms and suspicion for type 1 laryngeal cleft, the decision was made to proceed with direct laryngoscopy and bronchoscopy under anesthesia, with possible interventions as indicated. He was found to have 75% obstructing adenoids, and a type 1 laryngeal cleft was confirmed (Figure 1). The patient was intubated with an oral RAE endotracheal tube for adenoidectomy. Upon inserting the McIvor mouth gag, it was noted that the arytenoids were well exposed. After adenoidectomy, the larynx was re-exposed using a size 3 Parsons laryngoscope in preparation for repair of the laryngeal cleft using insufflation technique ventilation. However, the patient had inadequate pulmonary reserve to tolerate ventilation in this manner. The decision was made to reintubate with the oral RAE tube, expose the arytenoids with the McIvor mouth gag, and attempt repair with this exposure. The mucosal edges were freshened with Bovie cautery (Figure 2), and 4-0 Vicryl sutures were placed in a simple interrupted manner (Figure 3, 4). Knots were easily instrument tied due to the wide transoral exposure afforded by the McIvor mouth gag.

The patient was successfully extubated after the procedure, admitted for overnight observation, and discharged the following day.

Discussion

A transoral approach with McIvor mouth gag is a feasible alternative method of repairing type 1 laryngeal clefts for patients with favorable anatomy (i.e. arytenoids can be adequately visualized). This is an option to consider in patients with poor pulmonary reserve who may not tolerate a procedure under insufflation technique ventilation, and require intubation. Exposure with the McIvor mouth gag allows for increased working room in a small, intubated patient compared to direct laryngoscopy. Although not all patients will have favorable anatomy for this approach, it is worth considering in those patients that require intubation to perform the procedure.

Conclusions

Repair of a type one laryngeal cleft is feasible via a transoral, non-endoscopic approach with a McIvor retractor in patients with favorable anatomy. This is an alternative to an endoscopic or robot-assisted approach and may prove to be of benefit in select patients.

References


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