Results

Three females and one male were examined (table 1). They ranged in age from 2 to 4.25 years (range 3–7 years), with a median age of 2 years (range 3–7 years) for the operated patients. Of the four patients who underwent arytenoid adduction and reinnervation of the affected recurrent laryngeal nerve (RLN) may be warranted. Reinnervation of the affected RLN with the ansa cervicalis was initially described as early as the 1930s. Although it has been well studied in adults, the procedure in the pediatric population has not reached as much attention. Recent studies have shown that an anastomosis of the RLN to the anastomosis to RLN in an effective treatment for UVFI in the pediatric population. Investigation of outcomes of ansa cervicalis to RLN anastomosis has traditionally relied upon both subjective and objective data. In the current literature, there is a lack of long-term data in adults and even more so in the pediatric population. In this study we aimed to interpret long-term follow-up data after this procedure, and to determine which measures of voice are the most clinically useful to demonstrate the effectiveness of the reinnervation in the pediatric population and what, if any, changes happen over time.

Methods

Four patients who presented to the Pediatric Otolaryngology service at a tertiary care academic medical center were retrospectively studied. Each patient presented with a chief complaint of dysphonia and underwent exploration of the ansa cervicalis to RLN neurotomy after diagnosis of UVFI and glottal incompetence was confirmed. Patients presented for serial post-operative follow-up visits for a minimum of 3 years. Patients and/or their parents were asked to complete the Pediatric Voice Related Quality of Life Survey (PVRQoL), a validated questionnaire. Additionally, patients underwent acoustic and aerodynamic testing post-operatively.

Results

Case Age / Sex Past Medical History Prior Treatments PVRQoL 1. 12F/ PO injection Vocal fold paralysis Fat injection 100 2. 10M/ PO injection, autism Nasal injection 96 3. 2F/ PO injection Nausea injection 74 4. 4F/ Sydrome resection Nausea injection 100

Table 1. Patient demographics, interventions, and results.

Discussion

Reinnervation can lead to symptom improvement, but the effects are not seen immediately after surgery. Post-operative data, as well as the results of this study, have combined the techniques with additional procedures at the time of reinnervation, including injection laryngoplasty and/or arytenoid adduction. The latter has not been shown to significantly improve voice outcomes when compared to ansa RLN reinnervation alone. However, we have seen improvement in the quality of voice in children younger than 5 years as long as the surgery is performed in the correct patient. Reinnervation can lead to symptom improvement, but the effects are not seen immediately after surgery. Post-operative data, as well as the results of this study, have combined the techniques with additional procedures at the time of reinnervation, including injection laryngoplasty and/or arytenoid adduction. The latter has not been shown to significantly improve voice outcomes when compared to ansa RLN reinnervation alone. However, we have seen improvement in the quality of voice in children younger than 5 years as long as the surgery is performed in the correct patient.

Reinnervation for Vocal Fold Paralysis: Results in Children

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We propose that one possible explanation for this difference is that objective voice measures typically require a high level of patient cooperation to obtain. Two of our patients had autism, which we felt affected their ability to perform the tasks needed to obtain objective measures. Children with autism are typically not compliant with procedures. In our study, we obtained parental consent to administer the PVRQoL questionnaire to all patients who present with dysphonia. Additionally, we continue to collect objective voice measures on all patients who can successfully complete the required tasks.

Discussion (cont.)

•Treating the child with UVFI requires careful decision making
•Many may never need any intervention, if there is a contralateral vocal fold compensation
•There are a variety of surgical options whose effects range from temporary to permanent
•Co-morbidities may limit options and must be carefully considered
•Children should be evaluated with subjective and objective measures
•There may be many indications for intervention following the two

If the goal is improved quality of life, then PVRQoL must be obtained

•Ansa-RLN anastomosis can be effective in the correctly chosen patient

References