ABSTRACT

Objectives: 1) Describe the clinical and radiologic presentation of supraglottic cyst 2) Discuss the management of this condition. 3) Review the existing literature.

Methods: Illustrative case report and literature review

Results: This is a report of a 23-year-old male with a history of juvenile rheumatoid arthritis who presented with a large mass overlying his supraglottic larynx causing airway encroachment. Computed Tomography (CT) revealed a 2.1cm mass in the left supraglottic region causing greater than 90% obstruction of the airway. The patient was initially taken to the operating room for direct laryngoscopy with planned excision. However due to the patient’s unstable cervical spine and trismus from rheumatoid arthritis involving the temporomandibular joints, this was not technically possible. Since exposure was not possible via an intraoral approach, a suprahyoid pharyngotomy was performed to facilitate complete excision.

Discussion: Congenital cysts of the larynx are relatively uncommon. Although many of these may be asymptomatic, cysts in the supraglottis can cause stridor, dyspnea, and dysphagia. The standard treatment of symptomatic cysts consists of transoral excision using a microscope, endoscope, or direct visualization. This was a unique situation where transoral exposure was not possible and a suprahyoid pharyngotomy was necessary to excise the cyst.

Conclusions: To date, there has been nothing in our literature to describe a suprahyoid pharyngotomy for excision of a supraglottic cyst. This technique may be useful for lesions in this area that are incompletely visualized by direct laryngoscopy.

INTRODUCTION

Congenital laryngeal cysts are relatively uncommon entities that may present in the pediatric or adult population with various symptoms. Depending upon the age of the patient and the location of the cyst, patients may present with hoarseness, dysphagia, obstructive sleep apnea, stridor, and shortness of breath. The mainstay of treatment consists of transoral excision with or without the use of endoscopes and lasers. We describe a unique case where exposure could not be gained transorally and a suprahyoid pharyngotomy was performed for exposure and excision.

CASE REPORT

This is a report of a 23-year-old male with severe developmental delay secondary to juvenile rheumatoid arthritis who was referred to our Otolaryngology clinic for evaluation of a large laryngeal cyst. He had been on chronic steroids for approximately 20 years for his arthritic condition. He reported a 3 month history of noisy breathing without respiratory distress, globus sensations, and dysphagia. He denied any significant voice changes.

Physical examination revealed a 4 foot tall, 44lb wheelchair bound male with evidence of severely stunted growth. His voice was hoarse, but he was nonstridorous. He had 2 cm trismus secondary to arthritis of the temporomandibular joints bilaterally. Strobvideolaryngoscopy was performed and revealed a large cyst that appeared to emanate from the left aryepiglottic fold and impacted the laryngeal introitus (Figure 1). Although the vocal cords could not be assessed due to the size of the mass, the patient did not have any stridor and was breathing comfortably. A CT was ordered and showed a 2.1 x 1.2 cm low-density mass in the left supraglottic region causing greater than 90% obstruction of the airway (Figure 2). Surgery was discussed but it was recommended that the patient obtain an orthopedic evaluation of his cervical spine clearance preoperatively. His cervical spine was deemed unstable and recommendations were made for fiberoptic intubation, maintenance of his head in a neutral position, and continuous neuromonitoring throughout the case.

The patient was then taken to the operating room where he was transnasally fiber optically intubated. Neuromonitoring was initiated and somatosensory evoked potentials (SSEPs) were assessed during the entire procedure. After ensuring that his head was in a neutral position without any flexion or extension, direct laryngoscopy was attempted. However, due to the patient’s trismus as well as his inability to flex and extend his head, the laryngeal lesion could not be exposed.

CASE REPORT cont’d

Transnasal bronchoscopy was performed to visualize the lesion and to facilitate an attempt to decompress the cystic mass using biting forceps. Multiple biopsy specimens were taken, yet the mass did not decompress. It was noted at this point that the patient had moderate laryngeal edema and a tracheotomy was performed for airway protection. The patient returned to the operating room the following day for open neck exploration and excision of the supraglottic mass via a suprahyoid pharyngotomy (Figure 3). Using this approach the submucosal lesion was exposed and completely excised. Preservation of the mucosa of the posterior cricoid and pharynx allowed closure of the mucosal defect in a watertight fashion. Pathology of the laryngeal lesion revealed xanthogranulomatous inflammation.

Postoperatively, the patient experienced dysphagia and barium swallow showed evidence of transient penetration of thin liquids. A Dobhoff feeding tube was placed and tube feeds were implemented. Dysphagia and airway edema resolved and both the feeding tube and tracheotomy were removed while the patient was still in the hospital. The patient was discharged home 1 week after his initial surgery. There is no evidence of cyst recurrence at the patient’s last visit approximately 6 months postoperatively (Figure 4).

DISCUSSION

Abercrombie reported the first case of a laryngeal cyst in 1881.1 The annual incidence of congenital laryngeal cysts is 1.82 per 100,000 live births. If large enough, these lesions will typically present early in life; however, smaller cysts may be asymptomatic and remain unrecognized until adulthood.2 Numerous classification schemes have been developed, differentiating between saccular or ductal types,3 location within the laryngeal region,4 or extension and embryologic tissue of origin.5

Laryngeal cysts may be completely asymptomatic or can present with severe upper airway obstruction. Intubation can be quite difficult if the patient is experiencing respiratory distress from obstruction of the laryngeal inlet by the cyst. Laryngeal mask airway, orotracheal intubation, fiberoptic nasal intubation, and tracheotomy have all been used to secure the airway.4

Patients with upper airway obstruction may be treated by a variety of surgical procedures. Cysts may be excised or marsupialized transorally, using lasers or forcep instruments, with the assistance of a microscope or an endoscope.7 In a review of 9 patients with congenital laryngeal cysts, all were successfully treated via endoscopic de-roofing and excision. Thus the authors recommend that endoscopic de-roofing be the treatment of choice.2

However, if adequate exposure cannot be achieved endoscopically, a transcervical approach may be warranted. A suprahyoid pharyngotomy has been described for pediatric patients with recurrent vallecular pseudocysts,7 but to our knowledge, there have been no reports utilizing this approach for a supraglottic cyst in an adult. Our patient was quite unique in his physical stature and cervical spine disease as a result of juvenile rheumatoid arthritis. We were unable to manipulate his head or obtain adequate oral opening to expose the cyst transorally thus a different method to access the supraglottic area was required. Suprahyoid pharyngotomy has been used successfully to manage benign and malignant tumors of the base of the tongue and posterior oropharynx. When performed properly, this approach has minimal morbidity and excellent cosmesis.8 Our patient experienced no adverse sequelae and had an excellent functional and cosmetic result.

In conclusion, the suprahyoid pharyngotomy is a safe and effective approach for a supraglottic cyst. It may be utilized when a transoral approach is either contraindicated or is unable to provide adequate exposure.

REFERENCES