

The Use of Steroids in the Management of Chronic Airway Foreign Bodies: A Case Report

Stephanie E. Teng, MD; Sonya Marcus, MD; Scott M. Rickert, MD
Department of Otolaryngology-Head and Neck Surgery. New York University Langone Medical Center.

Abstract

Introduction

Chronic airway foreign bodies are retrieved using techniques ranging from bronchoscopy to partial pneumonectomy. Inflammation and granulation tissue contribute to the difficulty in extracting chronic airway foreign bodies yet there is no literature regarding the efficacy of steroids in the management of these patients. We present a patient in which administration of steroids enabled successful removal of multiple previously irretrievable chronic airway foreign bodies.

Study Design: Case report with review of the literature

Methods/Case Description:

We report the case of a tracheo-dependent 12 year-old boy with recurrent pneumonias secondary to retained foreign bodies. He aspirated two teeth during an apneic event three years prior; their presence was confirmed on computerized tomography (CT) scan.

During his most recent hospital admission flexible bronchoscopy revealed two teeth surrounded by granulation tissue causing 80-90% bronchial obstruction. Because the teeth could not be removed, he was started on antibiotics and solumedrol. A subsequent flexible bronchoscopy days later was again unsuccessful but showed improvement in the granulation tissue. Thus, steroids were continued for 7 more days. At that time, rigid bronchoscopy was performed and showed minimal granulation tissue remaining. The teeth were easily removed with optical forceps.

Results:

Chronic airway foreign bodies can be difficult to extract given the local inflammation and granulation tissue that can develop. In this case, steroids were instrumental in the removal of previously irretrievable chronic airway foreign bodies.

Conclusion:

Steroids may be an essential adjunct treatment in the management of chronic airway foreign bodies and may prevent more invasive procedures.

Contact

Stephanie Teng, MD
NYU Langone Medical Center
Email: Stephanie.Teng@nyumc.org

Introduction

Airway foreign bodies are most commonly seen in the pediatric population. Twenty percent (20%) of these patients are between the ages of 0 and 3. Organic foreign bodies, nuts in particular, are the most commonly documented foreign body. Complications from these aspirations included pulmonary issues such pneumonia, bronchiectasis, atelectasis, and pulmonary edema, as well as laryngeal edema, tracheal laceration, and other infections. [1]

These foreign bodies are retrieved using a range of techniques ranging from flexible or rigid bronchoscopy to partial pneumonectomy. In some cases, tracheotomy was performed in order to retrieve larger foreign bodies. [2]

Inflammation and granulation tissue contribute to the difficulty in extracting chronic airway foreign bodies yet there is no literature regarding the efficacy of steroids in the management of these patients.

We present a patient in which administration of steroids enabled successful removal of multiple previously irretrievable chronic airway foreign bodies.

Case Report

History:

12-year-old male with a history of cerebral palsy, seizure and movement disorder who was tracheotomy and PEG dependent was transferred to our institution from an OSH for recurrent pneumonias, tracheitis, and increasing ventilation requirements in the setting of known chronic airway foreign bodies.

The patient aspirated 2 teeth during an apneic event 3 years prior to presentation. Following the event, an otolaryngologist attempted to remove the teeth unsuccessfully. Since that point, they were monitored clinically.

Their continued presence was confirmed on a CT Chest 1 year after aspiration.

Prior to presentation the patient had frequent PICU admissions for pneumonia and tracheitis that were treated with antibiotics. He was transferred from his long term facility to an outside hospital, and then to our institution when he became febrile and lethargic.

Flexible bronchoscopy from the outside hospital showed:

- Teeth with purulence and granulation tissue adherent to the airway walls in the lingual (1 tooth) and left lower subsegmental bronchus (1 tooth) with 80-90% obstruction.

Hospital Course

CT Chest (Figure 1):

- Aspirated teeth within left mainstem bronchus at the junction of the upper lobe and lingular bronchi and left lower lobe bronchus.

Pt was given 10 day course Solumedrol.

Flexible Bronchoscopy 4 days after treatment initiation (Figure 2):

- Tooth lodged in the upper lobe bronchus imbedded in moderate amount of granulation tissue. Unable to be dislodged when 4.5 Fogarty catheter was introduced behind the foreign body.

Rigid Bronchoscopy after completion of steroid course (Figure 3):

- Both teeth removed easily with optical forceps. Very little granulation was visualized at the sites of the foreign bodies.

Chest X-Ray following foreign body removal:

- Previously visualized teeth within left bronchi no longer visualized.

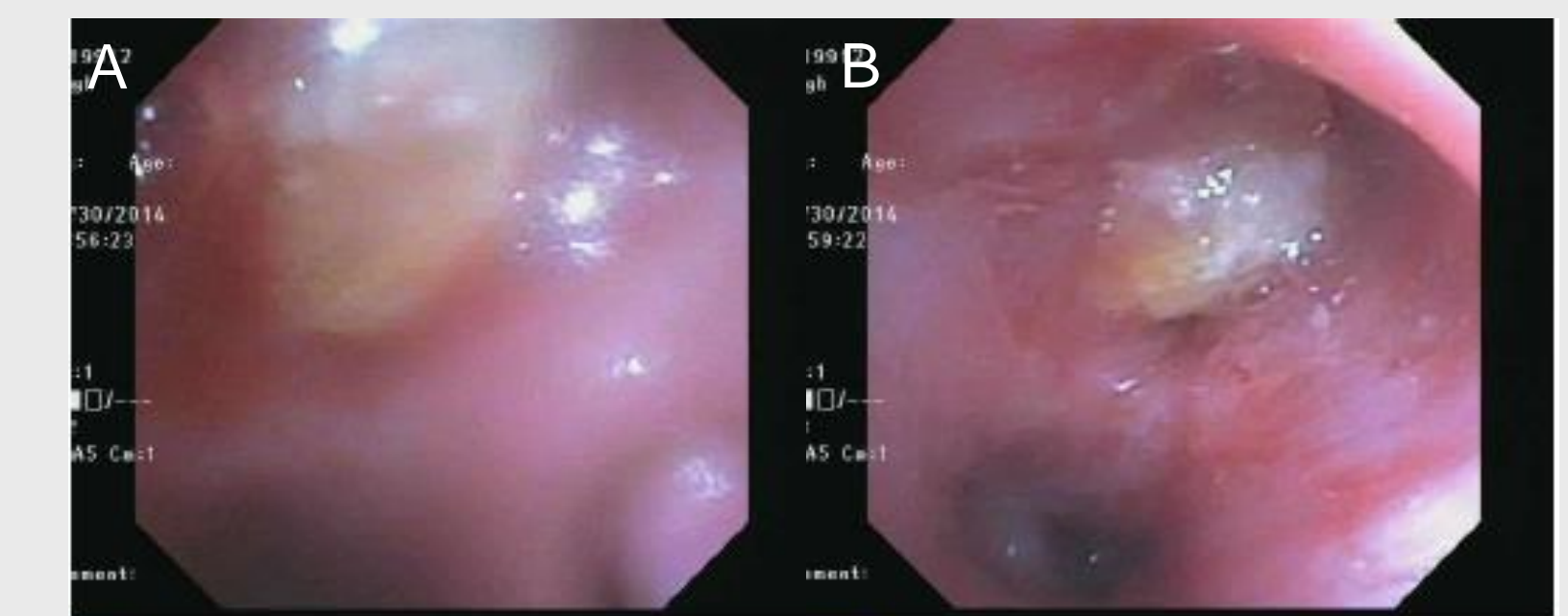
Remainder of hospital course was uncomplicated. The patient was discharged back to his long term nursing care facility at baseline vent settings.

Imaging

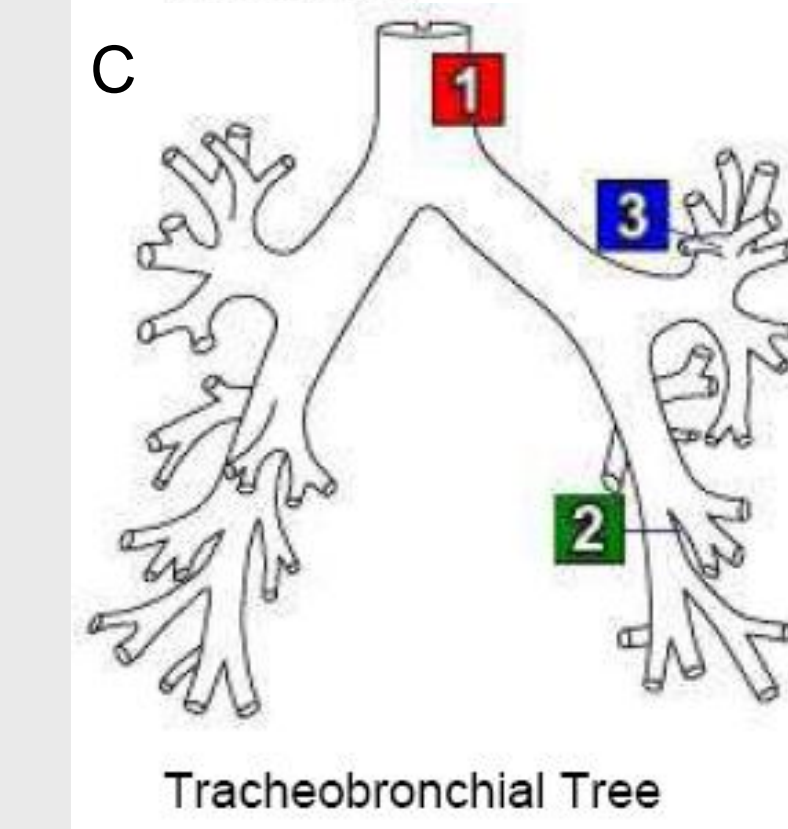


Figure 1. CT Chest before removal of foreign bodies.

Bronchoscopy Images



2 The tooth lodged in left lower lobe. 3 The tooth lodged in left upper lobe.



Tracheobronchial Tree

Figure 2. Images from flexible bronchoscopy 4 days after initiation of steroids. A. Tooth lodged in left lower lobe. B. Tooth lodged in left upper lobe. C. Diagram of location of foreign body



Figure 3. Bronchoscopy image following removal of foreign bodies showing only small amounts of granulation tissue remaining.

Conclusions

It is extremely uncommon to see airway foreign bodies that have been in place for greater than 1 year. Incidences of 0.9 to 2.6% have been reported. [3,4]

Steroids may be an essential adjunct treatment in the management of these chronic airway foreign bodies and may prevent more invasive open procedures.

References

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