ABSTRACT

INTRODUCTION

There are many reports in the literature regarding the management of airway foreign bodies, roughly 20% derived from the adult population. Foreign body aspiration in tracheostomized patients has also been reported on numerous occasions, as the tracheostomy site provides exceptionally easy access to the airway. When this type of patient presents with an airway foreign body the stage is set for a precarious retrieval, requiring anticipation of the many complications which have been shown to arise after general anesthesia in this population.

Our case describes the use of unsedated tracheobronchoscopy in the management of an airway foreign body in a morbidly obese tracheostomy tube-dependent patient. We emphasize the risks that can be avoided by foregoing general anesthesia or sedation. The unsedated office-based removal approach is especially pertinent to patients with repetitive foreign body aspiration who would necessitate numerous procedures and, thus, greater cumulative risks. In patients with well-established, easily accessible tracheostomy tracts, office-based removal can be a safe and effective treatment option.

CASE REPORT

A 33 year old morbidly obese female (BMI= 76) with a history of obstructive sleep apnea, HIV, and depression presented to the Indiana University Clinic for Voice, Swallowing, and Airway Disorders on June 16, 2010 for a tracheostomy tube change from an extra long cuffed Bivona tracheostomy to an extra long non-cuffed tube. She had undergone tracheostomy for respiratory failure with pneumonia six months earlier, and at the time of her tracheostomy an aggressive submental lipectomy was performed, making her well-established tract readily accessible for tracheostomy tube change.

Prior to undertaking the tube replacement, the patient’s airway was inspected by passing a flexible endoscope through the existing tracheostomy tube. This inspection unexpectedly revealed the sharp wooden end of an object within the distal trachea (Figure 1). With further investigation, the object was recognized as a Q-tip. Its proximal end appeared to be split down the middle leaving two very sharp wooden ends pointing cranially just proximal to the carina, while its distal aspect protruded down the left mainstem bronchus. The patient had no recollection of inserting the Q-tip. She had not experienced concerning symptoms or signs of airway obstruction. Informed consent was attained for office-based foreign body removal. 1% topical lidocaine was applied to the tracheostomy site along with 0.5ml applied through the existing tracheostomy tube, and a flexible laryngoscope with a working channel was introduced through the tracheostomy tube. The object was again seen extending distally into the left mainstem bronchus. Using cup forceps the Q-tip was positioned, grasped, (Figure 2) and removed concurrently with the existing tracheostomy tube as a single unit to prevent accidental disruption of hold on the object. At this point, it was acknowledged that what had been alleged as the splintered end of a single Q-tip had in fact been the ends of two separate objects. Upon reexamination of the airway, presence of an additional Q-tip was confirmed and it was removed with the cup forceps. Follow-up bronchoscopy revealed a small area of mild irritation in the proximal left mainstem bronchus with no residual foreign bodies. The new uncuffed tracheostomy tube was then inserted as planned and correct positioning was confirmed.

DISCUSSION

This is a rare case of repetitive self-inflicted foreign airway body through a tracheostomy. Upon review of the literature, most reports of airway foreign body removal in adults describe the gold standard practice of removal via flexible bronchoscopy under sedation or rigid bronchoscopy under general anesthesia, with a success rate of greater than 90%. Reports of self-inflicted foreign body aspiration in tracheostomized patients are exceptionally rare. A case reported by Barnes and Lomas in 1993 describes a twenty-two year old woman who became tracheostomy dependent due to generalized dystonia. Workup of a persistent right-sided pneumonia revealed the presence of a 1cm long pipe cleaner which was removed from her right upper lobe bronchus along with two other alleged pipe cleaner fragments in the smaller airways. Like our patient she did not admit to the repetitive insertion of the foreign bodies.

The current case, involving a patient with morbid obesity and obstructive sleep apnea, exemplifies a situation in which general anesthetic administration raises concern. Obese patients demonstrate reduced lung volumes, atelectasis, hypoxemia, and multiple other respiratory derangements due to altered airway resistance and compliance. Known challenges to general anesthesia presented by this population include frequent oxygen desaturation and a propensity for hypoxia and postoperative atelectasis. There are various methods of compensation for these factors, such as intraoperative and postoperative positive airway pressure, yet these naturally add complexity to anesthetic administration and monitoring. In patients with tracheostomy tracts that are well established, such that tracheotomy changes can be done safely in clinic, unsedated removal of a foreign body via the tracheostoma is a safe and reasonable option.

CONCLUSIONS

Unsedated office based tracheobronchoscopy is an important option to consider in managing a morbidly obese tracheostomy tube dependent patient with an airway foreign body, as the approach obviates the serious risks of sedation and general anesthesia in this patient population. Our case illustrates the advantages conferred through management of this patient population in an office setting using unsedated tracheobronchoscopy.

REFERENCES