



UNEXPECTED AIRWAY CHALLENGE: BRONCHOSCOPY RETRIEVAL OF ACCIDENTALLY ASPIRATED DENTAL INSTRUMENT IN A PATIENT WITH HAEMORRHAGIC CVA

Pulmonology

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ABSTRACT

Accidental aspiration of a dental object is an unfortunate and a dreaded complication that can occur during dental procedure. The foreign body ingestion is universal health problem in dentistry. Unexpected aspiration of a dental object is uncommon. Aspiration of foreign bodies resulting in airway obstruction can be life threatening and require prompt recognition and immediate emergency management. The affected patient may exhibit different symptoms depending on location, type, shape and size of the foreign body swallowed.

KEYWORDS

Aspiration of Foreign Bodies, Respiratory Failure, Cerebrovascular Accidents (CVAs), Ct Chest Scan, Aspiration, Bronchoscopy,

INTRODUCTION

Webb et al. reported that 92.5% of the swallowed foreign bodies enters the GI tract and 7.5% of these instances in the tracheobronchial tree. (1)

Various studies have stated that in all cases reported, only 10–20% cases necessitate nonsurgical intervention, and 1% or less requires surgical retrieval. (2,3)

Since in cases of accidental aspiration or ingestion the risk of morbidity, expenses of specialty care, and the potential liability for negligence and malpractice are too high to be ignored, early recognition and diagnosis are the key to prevent serious consequences. (4)

Any delay in the proper management and timely intervention of such accidents may cause severe sequelae and can be lethal. (5)

Accidents are also a source of emotional distress to patients and their families and can also dampen the reputation as well as the morale of a dentist. (6)

In dental operatory, the ingested foreign body may include teeth, restorations, restorative materials, instruments, rubber dam clamps, gauze packs, and so forth. (7)

Schneider commented that some dental patients might be predisposed to foreign body ingestion/aspiration; these patients included the very young, the elderly, and those with muscular dystrophy, multiple sclerosis, epilepsy, or other medical conditions that might compromise the gag reflex. (8)

Tiwana et al found a relatively infrequent occurrence of adverse outcomes in special care, physically handicapped, and paediatric populations, which she attributed to those patients receiving fewer cast restorations and implants. (9)

Background

Aspiration of foreign bodies into the airway is a potentially life-threatening event that requires prompt intervention to prevent complications such as airway obstruction, pneumonia, and respiratory failure (10,11).

While foreign body aspiration commonly occurs in children, it can also occur in adults, particularly in situations such as dental procedures where small objects may inadvertently enter the airway (12)

Patients with a history of neurological conditions or previous cerebrovascular accidents (CVAs) may be at higher risk for

complications due to impaired airway protective reflexes and comorbidities (13)

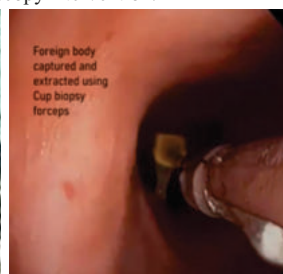
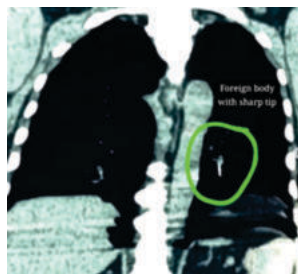
Case Presentation:

Patient Information:

A 55-year-old patient with a history of a haemorrhagic CVA and seizures managed with medication presented following the accidental aspiration of a dental instrument during a routine root canal procedure. The patient was stable with no immediate respiratory distress but required urgent intervention to remove the foreign body.

RESULTS

CT chest scan revealed a sharp opacity measuring 2cm in the left lower lobe bronchus, confirming the presence and location of the foreign body. Stable vitals and healthy oxygen saturation levels provided a suitable foundation for the bronchoscopy intervention.



Management

Given the patient's medical history, consultations with an anaesthetist and a neurologist were sought for pre-procedural optimization (14,15)

The procedure commenced in the Emergency Room with a bronchoscopy under sedation and local anaesthesia. Pre-procedural

nebulisations and intra-procedural topical instillations were administered to ensure patient comfort and safety. The Emergency Department was on standby as a precautionary measure.

Bronchoscopic Intervention

During the bronchoscopy, a Dental k file was visualized lodged in the anterior segmental bronchus of the left lower lobe. Careful manoeuvres with cup biopsy forceps were employed to capture and remove the sharp end of the foreign body without causing damage to the airway mucosa or surrounding structures (16,17)

Post-procedural Assessment

Following the successful removal of the foreign body, a thorough check bronch and chest X-ray were performed to confirm an uneventful outcome and ensure no residual fragments were left behind (18)

DISCUSSION

This case underscores the importance of meticulous planning and interdisciplinary collaboration in managing unexpected medical challenges arising from routine dental procedures. Prompt identification and removal of the aspirated foreign body through bronchoscopy prevented potential complications such as airway obstruction and respiratory compromise. Pre-procedural optimization and careful intra-procedural techniques were essential to ensure the safety and well-being of the patient, particularly given their underlying medical history.

The success of the bronchoscopic intervention highlights the significance of specialized procedures in addressing airway foreign bodies. Advanced techniques, such as bronchoscopy, enable precise localization and safe removal of foreign bodies, minimizing the risk of complications and optimizing patient outcomes (19)

Summary

Aspiration of foreign body is serious and life –threatening complication of routine dental treatment. Foreign body aspiration can be fatal condition if aspirated object is large and causes complete obstruction of airway. Dental providers should be extremely careful performing all dental procedures or handling small instruments during any intervention. The risk of aspiration is significantly increased when patient is under general anaesthesia in supine position. Elderly, sedated patients, patients with neurological disabilities are main risk factors for foreign body aspiration in adults. Diagnosis of foreign body aspiration and its recovery should be done immediately to prevent patient morbidity and mortality

Conclusion

The study highlights the potential dangers of dental procedures and the importance of recognizing and managing aspiration incidents, as well as the need for preventive measures. The research points out that dental appliances, when aspirated, can lead to airway obstruction and subsequent asphyxiation. This research reinforces the importance of being aware of the potential for aspiration during dental procedures and taking preventative measures to avoid such incidents. It also stresses the need for immediate diagnosis and treatment if aspiration does occur.

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