Case Report

A rare case of tracheobronchial foreign body aspiration in an adult patient admitted to the ICU: A case report and review of the literature

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Received 13 January 2016; revised 23 March 2016; accepted 25 March 2016; Available online 6 May 2016

Abstract

We report an exceedingly rare case of a foreign body (FB) discovered in the tracheobronchial tree of an adult male admitted to the intensive care unit (ICU). The patient was admitted in a state of deep coma after sustaining injuries in a road traffic accident. The head, neck and chest CT scans revealed a foreign body lodged within his tracheobronchial tree. Emergency fibre optic bronchoscopy was performed using a size 8 endotracheal tube. Multiple pieces of glass were then removed by fibre optic bronchoscope using a stone retrieval basket. This case report highlights the importance of thorough clinical and radiological evaluation of polytrauma patients. A rigid bronchoscope is the recommended treatment modality for tracheobronchial foreign body removal, followed by a flexible fibre optic scope.

Keywords: Aspiration; Foreign body; Tracheobronchial tract

Introduction

Foreign body aspiration is an important and often unrecognized complication in trauma patients. Tracheobronchial foreign body aspiration is more common in children, but cases are occasionally seen among adults.

Case report

In this study, we report a case rarely seen in medical literature involving aspiration of a foreign body (FB) found in the tracheobronchial tract of a young male adult. The patient was admitted to the intensive care unit of Aseer Central Hospital in a state of deep coma following a road traffic accident in which his car was crashed. He accidentally aspirated pieces of broken frontal glass which lodged in his tracheobronchial tree. Because the patient was in a deep coma and under ventilator support, the glass was...
incidentally discovered during our brain, cervical and chest CT scans performed as part of routine trauma imaging (Figure 1).

An emergency fibre-optic bronchoscopy was performed after informed and written consent was obtained. Sedation was achieved with fentanyl and midazolam. A 1-cm fragment of glass was removed from the right main stem bronchus (Figure 2), and multiple fragments were retrieved from scattered locations within the right lower lobe segments (Figure 3). A stone retrieval basket (dormia stone extractor, 2.5 fr, 0.8 mm) was used to assist retrieval during the fibre-optic bronchoscopy.

**Discussion**

Tracheobronchial foreign body aspiration is more common in children, but cases involving adults are occasionally encountered. Although tracheobronchial foreign body (TFB) aspiration is rare in adults, the incidence is known to increase with advancing age. Tracheobronchial foreign bodies (FB) may be associated with significant morbidity and mortality, especially when undiscovered.

The position of foreign body depends upon its relative size. Cough, choking and dyspnoea were the most common presenting symptoms among children. However, foreign body aspiration can also be asymptomatic in its presentation. In our case, the patient was deeply comatose with full ventilator support, sedation and analgesia in order to help reduce intracranial pressure. Accordingly, our patient could not exhibit any clinical symptoms, and diagnosis of foreign body aspiration was entirely incidental during our interpretation of the CT scan.

Aspirated foreign bodies generally lodge in the right bronchial tree. This typically involves the bronchus intermedius in adults, although in children, a more central location predominates. It follows that centrally located foreign bodies, such as those lodged in the trachea, are more likely to be symptomatic than those located in more peripheral airways.

Appropriate history and clinical examination are important for diagnosis. The most common radiological investigations performed are chest and/or lateral neck X-rays. The diagnostic contribution of chest radiography depends on imaging conditions (inspiratory and expiratory films) and the quality of interpretation.

The combination of history, signs and radiological abnormalities is more useful than any of these items taken separately. Furthermore, a high index of clinical suspicion is essential to achieve correct diagnosis.

The use of CT scanning is not typically considered helpful for tracheobronchial foreign body diagnosis. However, it was very helpful for rapid diagnosis in our case.

The choice of using a flexible or a rigid bronchoscope is controversial, although the rigid variety is in wider use and may be favoured for tracheobronchial foreign body removal.

The definitive treatment for airway foreign body aspiration is airway control, followed by prompt foreign body removal with either flexible or rigid bronchoscopy. During the past few decades, flexible bronchoscopy has been advocated as the primary diagnostic and therapeutic modality for management of tracheobronchial foreign body aspiration, with reported success rates exceeding 90%. It has also been recommended as the preferred method for adults with cervicofacial trauma, mechanically ventilated patients or those with distally located foreign bodies.
Additionally, the presence of craniofacial trauma and cervical spine lesions has been mentioned as contraindications to rigid bronchoscopy. As this patient had facial trauma, flexible bronchoscopic extraction was attempted initially. Even though the flexible bronchoscope is the instrument utilized most often for adult airway foreign body removal, rigid bronchoscopy may be advantageous in the presence of respiratory failure. The use of both tools has been reported in the literature related to foreign body aspiration secondary to trauma.9–11

Conclusion

In this study, we concluded that thorough evaluation of polytrauma victims should include very careful clinical and radiological assessment in order to discover previously missed injuries and potentially lethal foreign body aspiration. Rigid bronchoscopy is the most common method for removing tracheobronchial foreign bodies, especially large and sharp ones, although flexible fibre optic scopes are sometimes used.

Conflict of interest

The author has no conflict of interest to declare.

Authors’ contributions

AAB is the sole contributor of the article. He conceived and designed the study, conducted research and organized data. He drafted the article, finalized it and is responsible for the content and similarity index of the manuscript.

References
