Traumatic Tooth Aspiration: Case Report and Review of the Literature

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**ABSTRACT**

In the setting of polytrauma, several foreign bodies could be aspirated, including avulsed teeth. Because a minimally responsive polytrauma patient could be at risk of airway compromise, emergency intubation is performed which can by itself lead to aspirated tooth. A complete dental examination is required to check for any fracture. A CT scan is the most sensitive modality for diagnosis. A rigid or flexible bronchoscopy is indicated for removal of the foreign bodies.

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Introduction
An aspirated tooth is a complication of polytrauma that can lead to airway compromise. Occasionally, the incident of tooth aspiration can follow emergency intubation in a minimally responsive patient. We present a case of a minimally responsive polytrauma patient who required emergent intubation. Multiple aspirated foreign bodies in the pharynx consistent with teeth were subsequently found at neck imaging.

Case Presentation:
A 23-year-old previously healthy man was brought to the emergency department (ED) after jumping from six stories. When he arrived at the ED, he was minimally responsive with a Glasgow Coma Scale score of 9. The patient was emergently intubated for airway protection, and was placed on oropharyngeal airway to aid in maintaining oxygen saturation.

On examination, several abrasions were noted on his face, with closed deformity of his lumbar spine and open fracture of the left tibia/fibula. Abdominal Computed Tomography (CT) scan revealed a severe fracture dislocation of the L2 vertebral body, multiple pelvic fractures, as well as liver and spleen lacerations. CT scan of the neck demonstrated fracture of the right mandibular condyle, fractured incisors, and multiple high attenuation foreign bodies in the pharynx (Figure 1.1). A high-attenuation foreign body was also noted within the distal trachea, just proximal to the carina (Figure 1.2). Patient’s oral cavity could not be examined as he was intubated and on an airway. Patient was started on antibiotics, anticonvulsants, mannitol, analgesics, and an antacid.

Figure 1: Sagittal CT reconstruction of the neck demonstrates multiple high-attenuation foreign bodies with sharp edges (arrows) within the pharynx.
Figure 2: Axial CT image of the upper chest after IV contrast administration showing a high attenuation foreign body at the level of the lower trachea (arrow).

Discussion:
Although tooth aspiration is most commonly found in children, adults are at risk for aspiration in the setting of altered level of consciousness, seizure, intubation, trauma, and following dental procedures. In some cases, the avulsed tooth or prosthesis may be aspirated during an emergency intubation\(^3\). In the setting of trauma, several items have been documented to be aspirated such as dentures, dental devices, chewing gum, and dashboard plastic\(^4\)\(^-\)\(^7\). Tooth aspiration has been reported as well\(^4\)\(^\,\)\(^6\)\(^\,\)\(^8\)\(^\,\)\(^9\)\(^\,\)\(^10\). Apart from trauma, there are other settings where tooth aspiration can occur including intraoral manipulation during general anaesthesia, adenotonsillectomy, and dental extraction\(^11\)\(^-\)\(^13\). Upper incisors contribute to 85% of aspirated teeth\(^14\) which is consistent with this case.

Aspirated teeth frequently lodge in the mainstem, lobar, or segmental bronchi. However, the right main bronchus is the most common site for foreign body lodgment in adults because of its wider diameter and vertical disposition. If the management is not performed rapidly, aspirated teeth can cause recurrent pneumonia or atelectasis. In rare cases, tooth aspiration can lead to more severe complications such as massive hemoptysis or continued respiratory distress\(^7\). In this case report, the patient had a tooth lodging the distal trachea which could have led to airway complications.

In the setting of trauma with respiratory distress, obtaining a careful history might be difficult as in our case. So, a bronchoscopic examination is definitely indicated in all the patients of trauma with continued respiratory
distress to rule out the presence of a tracheobronchial foreign body. Symptoms can last for weeks if the etiology is undiagnosed. A complete dental examination of the patient prior to intubation is important. The number of avulsed teeth must be noted. In our case, the patient arrived to the ED already intubated which made the dental examination extremely difficult. The various possible events following avulsion are expulsion, ingestion, or aspiration of the avulsed tooth.

CT scan is the most sensitive imaging modality for demonstrating foreign body aspiration, including tooth aspiration, which can be missed on plain radiography. Flexible or rigid bronchoscopy are employed for removal of the aspirated tooth. The presence of craniofacial trauma and cervical spine lesions are contraindications to rigid bronchoscopy.

References: