

Open surgical approach for a tooth aspirated during dental extraction: A case report

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Abstract

Foreign body aspiration is a common problem in children necessitating prompt recognition and early treatment to minimize the potentially serious and sometimes even fatal consequences. Most foreign bodies can usually be extracted by skilful application of endoscopic techniques. Nevertheless, spherical foreign bodies, such as pen caps and some teeth remain difficult to manage. In this case report clinical presentation and treatment options in the treatment of a patient who had a tooth lodged in the right lung are discussed. The complications of foreign body ingestion or aspiration associated with dental treatment is emphasized.

Key words: Tooth, foreign body, bronchotomy.

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INTRODUCTION

Foreign body aspiration can be a life-threatening emergency requiring immediate intervention. However, symptoms can also go unnoticed for years without serious consequent sequelae.¹ Sometimes the clinical picture varies from trivial or chronic non-specific symptoms, mimicking other lung diseases such as bronchial asthma or severe obstructive pneumonitis with abscess formation. Aspiration of a tooth is uncommon. The aspiration of a tooth represents a serious medical situation because the edges of the tooth may traumatize the lining mucosa, in addition to causing airway obstruction. The purpose of this case report is to present a case of open surgical removal of a tracheobronchial foreign body (a tooth) and to emphasize the importance of careful oral examination and oral procedure for the risk of foreign body aspiration.

CASE REPORT

An 8 year old male diagnosed with tooth aspiration was admitted to the emergency department at Dicle University. The mother reported that the patient had aspirated a tooth after extraction in a dental surgery about one week earlier. The dentist had thought the child ingested the tooth, but three days later, the patient was having difficulty breathing, was wheezing, and had a low grade fever. He was taken to a local emergency department and was found to be febrile with a temperature of 39°C, tachypneic, tachycardic and using accessory muscles to breathe. Oxygen saturation on breathing room air was 85 per cent. The chest radiograph showed minimal consolidation of the right lung with a radiopaque tooth in the distal portion of the bronchus intermedius (Fig 1). Electrolytes, haemoglobin, haematocrit and platelet counts were all normal although the white blood cell count was elevated. The patient was taken to the operating theatre, where under gaseous halothane N₂O+O₂ anaesthesia, rigid bronchoscopy was performed. The tooth was visualized with a Hopkin's rod telescope in the bronchus intermedius. It was grasped with forceps and gentle traction was applied. At that stage, no movement of the tooth was achieved. Three more attempts were made using traction, but they also met with failure. Because the foreign body did not cause



Fig 1. Chest radiograph demonstrating minimal consolidation of the right lung with radiopaque of a tooth in the bronchus intermedius.

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complete obstruction and the condition of the patient was stable open surgery was not performed as a second attempt with bronchoscopic extraction was planned. This was attempted two days later but the tooth could not be extracted with any kind of forceps. Therefore, the patient underwent an open surgical procedure (right lateral thoracotomy) at the time of the second bronchoscopy. The tooth was extracted by bronchotomy from the bronchus intermedius. There was purulent material in the bronchus intermedius. After the operation, the patient was given second generation sefalosporin. The patient recovered without further incident, and was discharged from hospital seven days post-operatively.

DISCUSSION

Tooth aspiration is relatively uncommon with an incidence of about 0.4 per cent.² It is less common in adults than in children. Most tooth aspirations are a result of dental trauma. Sometimes aspiration can occur in children while under general anaesthesia during dental extractions. In this case, tooth aspiration took place under local anaesthesia during a dental extraction. Sometimes, foreign body aspiration can go unnoticed for years and can be a major cause of morbidity in young children. Although teeth and dental foreign objects do not cause pulmonary atelectasis or pneumonia as easily as other types of bronchial foreign objects, undiagnosed foreign body retention can cause local mechanical effects and chemical reactions, which may present as chronic pulmonary infection, bronchiectasis, apparent asthma, lung collapse, or lung abscess.^{3,4}

Chest radiography is diagnostic for aspirated radiopaque objects. There is no problem identifying a tooth in plain and lateral radiography.^{5,6} In some cases, chest radiography can display secondary effects of aspiration on the lungs, including mediastinal shift, obstructive emphysema, atelectasis and pneumonia. In this case the tooth was visible during plain radiography.

It is thought that foreign bodies are lodged preferentially in the right bronchial tree because of its more vertical disposition.⁵⁻⁷ Previous clinical data showed that foreign bodies were localized on the right side. Localization was the same in the present case.

Rigid bronchoscopy is safe, affords good control of the airway, provides good visualization and allows manipulation of foreign bodies with a wide variety of forceps.⁵⁻⁷ In our experience, some foreign bodies can be extracted at the second bronchoscopy due to mobility of the foreign body in the tracheobronchial tree. Sometimes foreign bodies can be buried entirely in

bronchial mucosa and cannot be removed using rigid bronchoscopy. If there is a possibility of bronchial tree rupture with the use of rigid bronchoscopy, then open surgery is unavoidable.

Dentists play an important role in preventing tooth aspiration in patients. Therefore, before any intra-oral manipulation is carried-out, an attempt should be made to account for any broken or missing teeth by careful suction and examination of the oral cavity and pharynx.^{8,9}

When a tooth cannot be found at the time of extraction, a chest radiograph is recommended to confirm whether it was swallowed or inhaled. If taking a chest radiograph is unavailable or impossible, the family should be instructed to carefully monitor the patient, particularly when coughing, breathing difficulty or fever develops. The clinician must be aware of the complications involving accidental inhalation or ingestion of foreign bodies during dental treatment. The patient should always be examined for any loose teeth.

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