CASE REPORTS

Foreign body extraction through the rigid bronchoscopy

Uklanjanje stranog tela uz pomoć rigidne bronhoskopije


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Abstract

Introduction. Foreign body aspiration into tracheobronchial tree represents an urgent condition at high level of risk. Etiology is different, and this condition is typical for all ages with highest incidence in pediatric population. Case report. A successful foreign body removal (partial denture) in a 34-year old man was presented. Radiography and computerized tomography of the chest showed a foreign body localized at the level of the right bronchus including the right middle lobe bronchus. By the use of rigid bronchoscopy, a foreign body was visualized and mobilized from the segmental bronchus in the first act, and then completely extracted. Conclusion. Efficient diagnostics and extraction are imperative for the aspired foreign body preventing life-threatening complications.

Key words: foreign bodies; bronchi; diagnosis; therapeutics; bronchoscopy.

Introduction

Foreign body (FB) aspiration into the tracheobronchial tree is an urgent condition at high level of risk. It is typical for all ages, and most common in pediatric population. In 2006 in USA, there were 4,100 mortal outcomes, because of the incidental ingestion or inhalation of food and objects that resulted in obstruction of airways. Efficient diagnostics and FB extraction are imperative in the treatment providing less mortality and morbidity. In this paper we presented successful FB removal by the rigid bronchoscopy use in a 34-year old male.

Case report

A 34-year old male was hospitalized because of injuries in a fight. Physical examination verified an expiratory stridor over the right hemithorax, right periorbital hematoma and lip cuts. Auscultation over the right lung showed lower breathing sound, and the presence of wheezing over the right down lung field.

Chest radiography (Figure 1) showed a nontransparent shadow of metal intensity of the size about 40 × 10 mm. Radiography showed that it corresponded to FB (partial denture) in the right major bronchus and included in the segmental bronchus. Computerized tomography (CT) (Figure 2) of the chest visualized less transparency of the lung parenchyma at the level of the middle lobe. At the window for mediastinum, at the level of the right bronchus and towards the bronchus for the middle lobe, the presence of a metal FB was confirmed corresponding to the partial denture by its shape. In the remaining parts of the thorax the findings were clear.

Other clinical and laboratory findings were within the referral limits.

No complications were observed in a postsurgery period and after 2 days the patient was discharged in a good condition.

Discussion

Aspirated FB can have organic and anorganic derivation. Regardless the age, organic FB have been more common. In children, the most often are fruits and leguminous plants (nuts, hazelnuts, beans, peas, cereals); in adults, food and bone pieces. The most common aspirated FB of anorganic derivation in pediatric population have been beads, coins, toy parts and school tackles, and in adults they are tablets and teeth parts.

FB aspiration is an accidental event among children with high incident rate of morbidity and mortality. About 75–85% of cases are under 15 years of age, and most often under 3 years of age, which is explained by fast psychomotor development, inadequate dentition and undeveloped act of swallowing. FB aspiration appears rarely in adults, most often during dental interventions, with mentally disordered people, people with neurological disorders or due to drug and alcohol abuse. The right bronchus is usually involved in adults due to the anatomical configuration.

Medical examination shows atypical findings, and it depends on nature, size, localization and the time FB spends in tracheobronchial tree. When they are larger, they can cause sudden death, while smaller usually remain in lower parts of the tracheobronchial tree, giving the poorer or richer clinical picture. The most often described symptoms are coughing, wheezing, expiratory stridor and weakened breathing sound. Complete diagnostics and removal of FB should be done in the shortest possible time, which sometimes could be complicated after the first spontaneous shocking asphyxia attack has gone, and appearance of a latent stadium when the symptoms reveal another respiratory disease.

FB extraction could be made harder by localization and kind of FB, lack of adequate instruments, as well as inexperience of the doctors. Special problem is extraction of organic FB that has been performed a couple of times, due to forceps destruction. Incomplete and or untimely extraction, granulation tissue formation or postobstructive infection followed by recurrent bronchopneumonia, lung abscess, hemoptysis or empyema. Removal of the left parts of FB is even harder due to bad visualization caused by bleeding and increased saliva excretion.

Thoracotomy has been indicated at patients with increased risk. Interventional radiological methods, such as Fogarty balloon catheter, were used rarely, due to high level of risk for rupture of the bronchus wall or lowering of the FB into lower tree parts.

The application of rigid bronchoscopy with different dimension forceps is, in general, the therapeutical standard for safe removal of aspirated FB anesthesia, which significantly decreases appearance of post-instrumental edema.

Dimensions of a bronchoscope used for extraction are determined in accordance with a patient’s age, while dimen-
sions of the forceps depend on the size of FB. In cases of hardened intubation, the primary method used is direct laryngoscopy, and if a patient is willing to cooperate, local application of anesthetics is possible in the area of upper laryngeal nerves and over the mucous membrane of the bronchial tree.

In our case, due to the size and kind of FB, the safest method applied was rigid bronchoscopy under the general intravenous anesthesia with ventilation through a rigid bronchoscope. This method enabled adequate access of telescopic system and forceps, as well as simple extraction of the den- 

ture. Apart from that, rigid bronchoscopy was selected because of the origin of FB and efficient suction in case of massive bleeding during intervention.

**Conclusion**

Imperative in aspirated FB removal is the efficient diagnostics and extraction thus preventing life-threatening complications. In the case when FB is big and of irregular shape, a reliable and safe method is rigid bronchoscopy under general anesthesia.

**REFERENCES**


Received on January 26, 2010.
Accepted on February 25, 2010.