RETRIEVAL OF ASPIRATED UNUSUAL FOREIGN BODIES ASPIRATED BY FLEXIBLE BRONCHOSCOPY

FLEKSİBL BRONKOSKOPLA ÇIKARILAN NADİR YABANCI CİSİM ASPİRASYON OLGULARI

Ayşegül ŞENTÜRK, Emine ARGÜDER, Ayşe NUR SOYTÜRK, Hatice KILIÇ, H.Canan HASANOĞLU

Ankara Atatürk Araştırma ve Eğitim hastanesi, Göğüs Hastalıkları, Ankara, Türkiye

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ÖZET

Yabancı cisim aspirasyonları aspirasyon açısından risk faktörü taşımayan, bilinç bozukluğu bulunmayan erişkinlerde yaygın olmayan bir durumdur. Yabancı cisim aspirasyonları tanı ve tedavisinde genel anestezi altında rijid bronkoskopi uygulaması altın standart yöntem olarak kabul edilmektedir. Erişkinlerde yabancı cisim aspirasyonlarının tedavisinde fleksibl bronkoskopi son yıllarda öncelikle tercih edilmeye başlanan yöntemdir. Burada sunulmakta olan olgu sunumunda, fleksibl bronkoskop ile çıkarılan üç olgu sunulmaktadır. Her üç olguda da işlem sonrası herhangi bir komplikasyon gelişmedi. Bu üç olgudan sırası ile konuşma protezi, limon sapı ve fındık çıkarıldı. Fleksibl bronkoskop ile çıkarılan bu olguların hiçbirinde mental durum bozukluğu yoktu ve aspirasyon açısından risk faktörü taşımıyorlardı. Olgular erişkinlerde nadir görülen yabancı cisim aspirasyon nedenleri oldukları için sunuldu.

SUMMARY

Foreign body aspiration (FBA) is uncommon in adults have non-depressed mental status and no risk factors for aspiration. Rigid bronchoscopy under general anesthesia is the gold standard of diagnosis and management of FBA. However, frequently flexible bronchoscopy has become the preferred way to remove aspirated foreign bodies in adults on the last years. In this report, we present three cases treated by flexible foreign body aspiration in the bronchus. There was not any complication after the procedure. Hence, we removed of voice prosthesis, hazelnut and stalk of lemon under flexible bronchoscopy. These cases have non-depressed mental status and no risk factors for aspiration. We rewiewed to these cases because of they were removed the unusal FBA by flexible bronchoscopy.

BACKGROUND

Foreign body aspiration (FBA) is a rare condition in adults (1). Most of cases of FBA are seen in children who are younger than 4 years and in adults who are older than 60 years. This suggests that older age may be a particularly higher risk (2). Adults may generally tolerate aspiration of little foreign bodies without acute life-threatening conse-

quences for a long time. Adults are usually aware of aspirating any foreign bodies. These should be removed as early as possible. But, this is not always so easy. Delay in the diagnosis may cause recurrent infection and wheezing or coughing. Only history of foreign body aspiration is a strong indication for bronchoscopic evaluation even though physical and radiological findings are normal. Bronchoscopy can be performed with rigid or flexible bronchoscopes. Despite the preference for rigid bronchoscopy, flexible bronchoscopy is becoming increasingly important in the treatment of adult patients (3).

We report three cases in which endobronchial foreign bodies are unusual were removed by flexible bronchoscope. In two patients, the foreign bodies were organic materials which were nut and the stalk of lemon, and in the other patient an inorganic material was removed.

Case details

Case one

A 44 year-old-female patient was admitted with complaints of sudden onset of cough and dyspnea after fish eating 1 week ago. Inhaler treatment initiated with the diagnosis of asthma for patient in another hospital. She had smoked 15 packs of years and had no systemic diseases. Her physical examination was normal. Both chest X-ray and thorax computerized tomography (CT) were not demonstrated any abnormal finding. Bronchoscopic evaluation was performed because of suspected foreign body aspiration. Mucoid secretion was aspirated from the right main bronchus, and foreign body was seen in the orifis of the right lower lobe basal segment (Figure 1a). Foreign body was removed with the alligator forceps by using flexible bronchoscopy (Figure 1b). It was thought to be the stalk of lemon. Bronchial lavage cultures were negative and atypical cells were not observed in the cytological examination. After the procedure, the patient was discharged in good general condition.

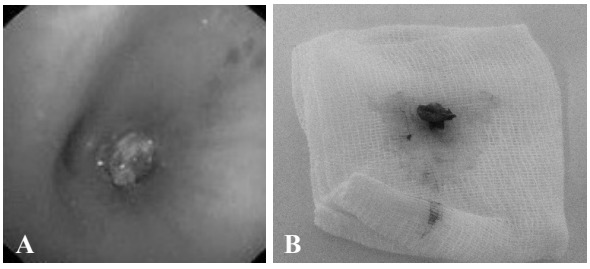

Figure 1. a The stalk of lemon was seen in the orifis of the right lower lobe basal segment. **b** Foreign body was removed with the alligator forceps.

Case two

A 82-year-old male patient was admitted to the emergency room with a complaint of inability to breathe after eating dinner. Patient with a known diagnosis of COPD had rhonchi in both lungs, and his oxygen saturation was 93%. He had smoked 50 packs of years and complaint of cough and sputum for a long time. His chest X-ray revealad chronic bronchitic changes and elevation of the left hemi-diaphragm. But there was no difference between new chest X-rays and the chest X-rays taken before. Flexible bronchoscopy was performed to patient because of a history of previous suspected aspiration. The entrance of the right intermedius bronchus was totally occluded by the foreign body. It was considered to be hazelnut (Figure 2a). Foreign body was removed by using a basket forceps with flexible bronchoscopy (Figure 2b).

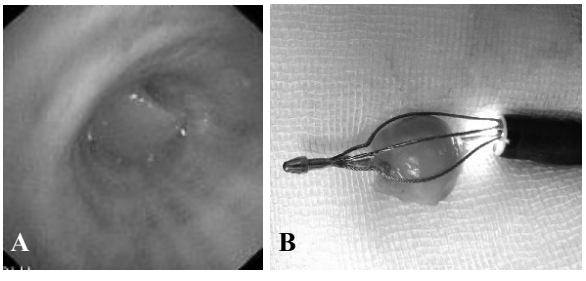

Figure 2. a The right intermedius bronchus was totally occluded by hazelnut. **b** Foreign body was removed by using a basket forceps with flexible bronchoscopy.

Case three

A 66-year-old-male patient was diagnosed as larynx carcinoma four months ago. Permanent tracheostomia was opened and while voice prosthesis had been applying he aspirated it. His chest X-ray was normal. Flexible bronchoscopy was performed to the patient and it was removed from the orifis of intermediate bronchus by using alligator forceps with flexible bronchoscopy (Figure 3).

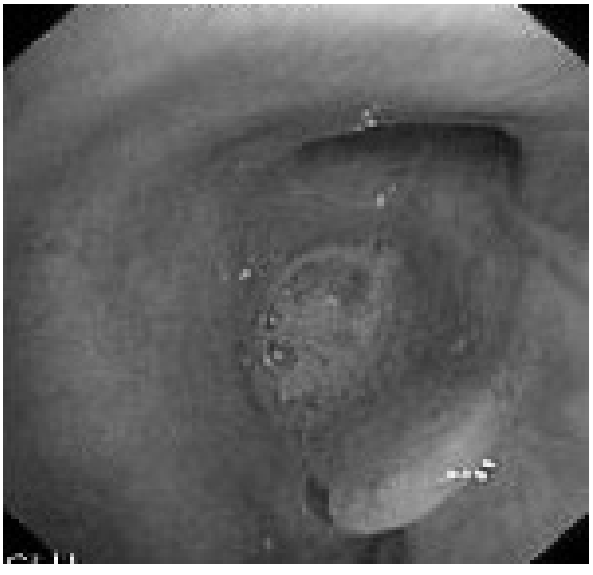

Figure 3. Voice prosthesis was removed from the orifis of intermediate bronchus by using alligator forceps.

DISCUSSION

Aspirated foreign bodies can be classified into two categories as organic and inorganic. The most commonly aspirated material in adults is organic particles (67%). The second predominant group of aspirated objects is consisted of bones, teeth or dental equipment. It has been reported that pin aspiration is often in Turkey because the patients held the pins between their teeth and aspirated them while laughing or talking (4-7). Risk factors for foreign body aspiration in adults are senility, convulsion, mental retardation and impairment of swallowing reflex (7). However in our two cases, FBAs were occurred in the absence of identifiable risk factors. FBA may cause various symptoms such as coughing, wheezing, dyspnea, hemoptysis and choking which depends on the location and nature of the foreign body. The acute clinical presentation of the classic triad (coughing, wheezing, and diminished breath sounds) is unusual (8) In adults, many other medical conditions mimic breathing abnormalities similar to those associated with FBA. However, the caliber of the airway allows ventilation even in the presence of foreign body; therefore subclinical presentation and normal physical examination are common in adults. Patient history is important; FBA should be detected in adults with corrupted oropharyngeal reflexes, neurological disorders and advanced age although there was no suspicion (2).

Our first case presented with persistent cough and she was incorrectly followed as asthma due to obstruction in pulmonary function test. But, her symptoms were not resolved with bronchodilator treatment. Many researchers have reported asthma-like symptoms in children; however, obstructive pulmonary dysfunction with FBA has been reported only in a few reports in adults (9-11). We reported this case to emphasize her signs and symptoms impersonating asthma. She was initially misdiagnosed as exacerbation of bronchial asthma. Careful clinical history and physical examination would raise the clinical suspicion of FBA.

The radiologic evaluation should be performed in cases with suspected FBA. When the foreign body is radiolucent, it cannot be seen and nonspecific radiological findings may be seen such as atelectasis, pneumonia, pulmonary hyperinflation and pneumomediastinum on chest X-ray (2,3). Silvia et al. reported that sensitivity and specifity of radiological imaging methods for FBA are 73% and 45% respectively (12). Rodrigues et al. reported rates of negative radiological finding as 25% (13) Even if the radiological findings are normal, bronchoscopy should be performed in a clinical history of FBA. In our all patients, the

chest X-ray findings were normal, despite a clinical history of FBA.

The nature of the FB is highly variable, and FBA in adults is closely related to certain habits and professional activities (14,15). Zubairi et al. reported regional differences exist in the type of FBA. For example betel nut aspiration is common in South East Asia (16). Nutrient aspiration occurs more often in Western countries (17). In another study from Turkey, hazelnut aspiration was responsible for 26% of all FBAs (18). Longstanding of foreign bodies may cause several complications such as pneumonia, hemoptysis, bronchiectasis, infection and abscess. Organic origin of foreign bodies is more dangerous than other ones, because the organic origin of antigenic protein material can cause mechanical obstruction, chemical irritation and allergic reaction in a few hours. When the diagnosis is delayed, foreign body can result in inflammatory response and granulation tissue formation which cause to difficult removal of foreign body (3,19). Our both cases the foreign body was organic materials such as nut and the stalk of lemon. Second patient had moderate granulation tissue formation.

The most common of localization area is the right main and distal bronchus in adults, because the right lower lobe bronchus is wider than the left bronchus and makes a wider angle to the trachea. Rafanan et al. reported that 40-70% of FBAs occurs in the right bronchial system (7). Foreign bodies were found in the right bronchial system in our patients. In first case, the foreign body was visualized in the right lower lobe basal segment bronchus, in both of the others the foreign bodies were visualized in the entrance of right intermedius bronchus.

Rigid bronchoscopy is the standard procedure for the removal of foreign body and has many advantages over a flexible bronchoscopy. Rigid bronchoscopes are larger in diameter than flexible bronchoscopes, for example it allows to aspirate blood and thick secretion, gets good visualization and control of airway safety; however, it is an invasive procedure which requires general anesthesia and can cause some complications (3,20). The development of the flexible bronchoscope has reduced the need of use a rigid bronchoscopy. Recently, diagnostic flexible bronchoscopy can be performed under conscious sedation and has better screening of distal airways and upper lobes. Some authors have shown foreign body can be removed effectively and safely with a percentage higher than 90% with flexible bronchoscope (21,22). Although most of the foreign bodies in adults can be removed with flexible bronchoscopy, rare cases with a foreign body may need to undergo rigid bronchoscopic extraction due to some reasons such as development of granulation tissue. If flexible bronchoscopy is attempted, it is imperative that the bronchoscopist is familiar with rigid bronchoscopy and has the equipment to interfere the patient immediately when it is necessary. Here, we report three cases successfully treated with flexible bronchoscopy.

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Yazışma Adresi:

Dr. Hatice Kılıç
Ankara Atatürk Araştırma ve Eğitim hastanesi,
Göğüs Hastalıkları, Ankara, Türkiye
drhaticeb@yahoo.com