

A Complicated Case of Tracheobronchial Foreign Body

KOMPLİKE BİR TRAKEOBRONŞİAL YABANCI CİSİM VAKASI

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Summary

Introduction: Foreign body aspiration, which is especially seen in children, is a life threatening emergency condition.

Case: A fifteen year-old male patient who had been delayed for diagnosis of foreign body aspiraton was presented. In this case, long term complications of foreign body aspiraton, such as bronchiectasis, bronchopleural fistula and empyema were seen.

Discussion: In the acute period, clinical findings of tracheobronchial foreign bodies can vary from simple cough to sudden death. Atelectasis, pneumonia, bronchiectasis, lung abscess and bronchopleural fistulas are common and serious complications of the chronic period. When symptoms and radiological findings are indistinct, exact diagnosis can not be made and life threatening complications may be seen.

Key Words: Foreign body, Tracheobronchial system, Children, Bronchopleural fistula

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Özet

Giriş: Yabancı cisim aspirasyonu, özellikle çocuklarda görülen ve hayatı tehdit eden bir acil durumdur.

Olgu: Yabancı cisim aspirasyonu tanısında gecikilmiş, 15 yaşındaki erkek olgu sunuldu. Olguda yabancı cisim aspirasyonunun, bronşektazi, bronkoplevral fistül ve ampiyem gibi uzun dönem komplikasyonları görüldü.

Tartışma: Akut dönemde, yabancı cisim aspirasyonuna bağlı klinik bulgular öksürükten ani ölüme kadar değişebilir. Atektazi, pnömoni, bronşektazi, akciğer apsesi ve bronkoplevral fistül kronik periodun sık görülen ve ciddi komplikasyonlarıdır. Semptomlar ve radyolojik bulgular silik olduğunda tanı gecikilebilir ve hayatı tehdit eden komplikasyonlar görülebilir.

Anahtar Kelimeler: Yabancı cisim, Trakeobronşial sistem, Çocuklar, Bronkoplevral fistül

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Foreign body aspiration, which is especially seen in children, is a life threatening pediatric emergency. Aspiration of foreign body is usually accompanied by paroxysmal cough and respiratory distress. The chronic complications occur due to obstruction and infection. Atelectasis, pneumonia, bronchiectasis, lung abscess and bronchopleural fistulas are common and serious complications of the chronic period (1-3).

In this case, we presented a delayed foreign body aspiration case in which majority of long-term complications had been occurred.

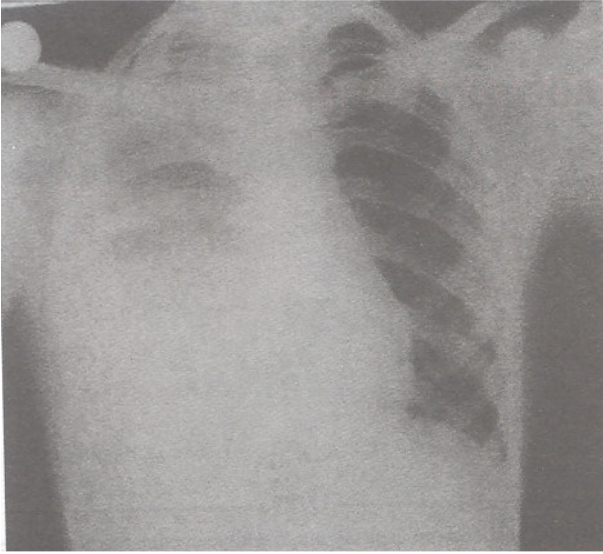
Case

A 15 year-old boy was admitted to Thoracic Surgery Department of Ankara University Faculty of Medicine, with complaints of cough, fever and weakness. He was hospitalized elsewhere and was treated medically for three weeks with diagnosis of acute empyema. On examination, his body temperature was 39°C, and heart rate was 160

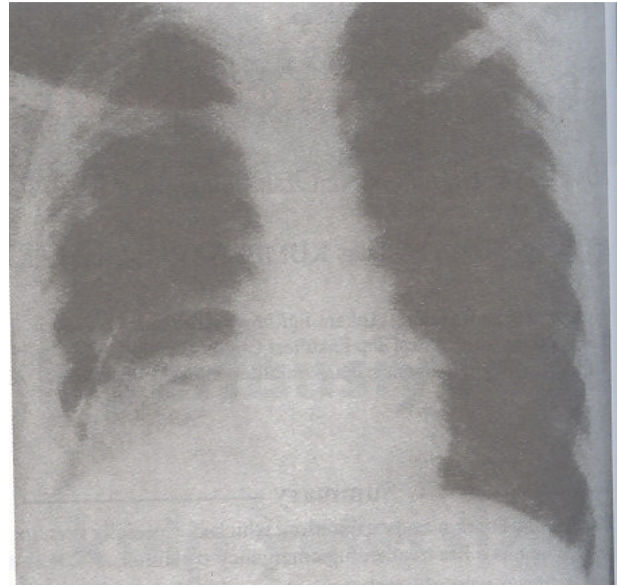
pulse/min. Breath sounds were absent over the right lung. Chest roentgenogram and tomography showed right-sided massive pleural effusion and bronchiecthasis (Picture 1).

Diagnostic thoracentesis was performed through the right 7th intercostal space and purulent material was aspirated. A 32 F chest tube was introduced into the right pleural space and connected to water seal drainage system. 2000 cc. purulent material was drained. Intravenous antibiotic treatment was administered after the cultures were obtained. The gram stain and cultures were reported negative. One day later air leak was observed. Chest X ray graphy showed collaps of the lung (Picture 2). Irrigation with isotonic saline (0.09% NaCl) was performed through the chest tube.

Computerized tomography revealed right lower lobe basal segmental volume loss with consolidation, bronchiectatic changes, pleural thickening and effusion with pneumothorax (Picture 3).



Picture 1. Preoperative X ray graphy of the case.



Picture 2. X ray graphy of the case, after bronchopleural fistula.

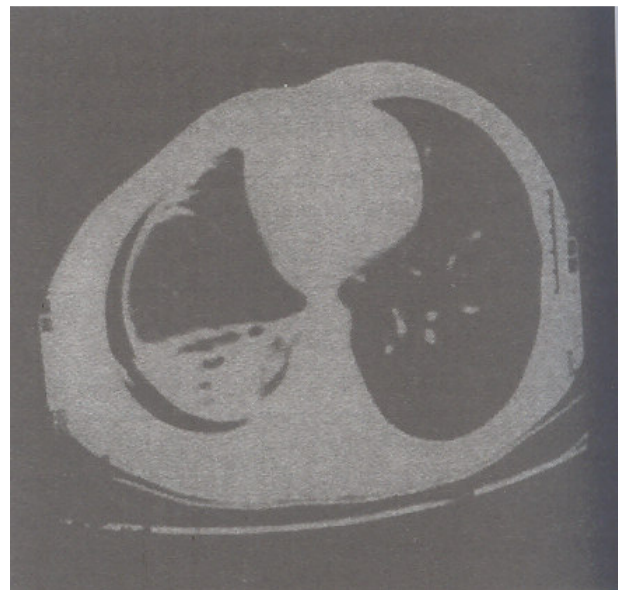
When the prolonged air leak (more than 7 days) was seen, we decided to perform bronchoscopy and thoracotomy. At fiberoptic bronchoscopy, foreign body was seen in the right lower lobe bronchi but it couldn't be engaged by the forceps. Therefore right posterolaterally thoracotomy was performed through the 6th intercostal space. In exploration consolidated and retracted right lower lobe was seen. A bronchopleural fistula on the diaphragmatic face of right lower lobe was also seen. Right lower lobectomy and decortication were performed. Bronchotomy was performed on the specimen and a foreign body (Pencil cover) was found at the bifurcation of the basal segment branches.

After the operation, as right upper and middle lobes were not expanded, mechanical ventilation was performed. Reexpansion was seen after 7 days of ventilatory support.

In the pathologic examination revealed; bronchiectasis, foreign body reaction in lobectomy material, and nonspecific chronic pleuritis in the decortication material were reported.

Discussion

Aspiration of foreign body into tracheobronchial system is seen more in children, than adults (3). In acute period, clinical findings of tracheobronchial foreign bodies can vary from simple cough to sudden death (1-3). Many authors agree with aspiration of foreign body into the respiratory tract is one of the most important reason of death. It is especially seen in children who have narrow air way tracts and deficiency in their defense mechanism (3-12). When the child is alone, aspiration occur moreover. Aspiration of foreign body into the respiratory tract is an urgent event and it is very difficult to manage in cases with total obstruction. In United States, approximately 500



Picture 3. Computerized tomography of the case, after bronchopleural fistula.

children per year, die from aspiration of foreign body (6).

Right main bronchi and its segments are more included for aspiration of foreign body rather than left one. In our case, foreign body was aspirated into the lower lobe bronchi of the right system. The main reasons of this event are; right lung is bigger and taken air is more than left and so air flow is stronger in right lung; the diameter of right main bronchi is greater and the carinal angle formed by the trachea is larger, so foreign body can be aspired easily into the right system (7,11,12).

Aspiration of foreign body can lead to cough, stridor, wheezing and dispnea (5,13,14). In acute period, when the symptoms are weak and the family is uncaredful, the irritating coughing of foreign body disappears. In addition, non-radiopaque foreign bodies can not be seen easily in X ray graphs, and the event goes to chronic complications. Those cases may be tried to be treated with antibiotic and corticosteroid therapy for misdiagnosis of chronic infections of lung and asthma (15,16). In our cases antibiotic and bronchodilatator therapy had been performed for 2 years.

When symptoms are indistinct, complications and their results may be serious. The common complications are; pneumonia, atelectasis, bronchiectasis, and bronchopleural fistula (4,17,18). According to a study about bronchiectasis; 8 cases in 500 bronchiectasis cases in Africa (1.6%), 8 cases in 1038 cases in United Kingdom (0.7%) and 14 in 487 cases in Turkey(2.8%); bronchiectasis were seen due to foreign body aspiration (19).

In our case radiologic examinations such as chest X-ray and tomographic studies could not reveal foreign body which is non-radioopaque. Although radioopaque foreign bodies can be seen in direct chest X-ray graphies, non-radioopaque foreign bodies can not be diagnosed easily in radiologic exams. But sometimes, despite of modern techniques like computerized tomography and magnetic resonance imaging, radioopaque foreign bodies can not be diagnosed clearly (5,16,20,21).

Especially in non-radioopaque foreign bodies, when the patient or his/her family gives foreign body history, the most appreciated method is the bronchoscopic examination. In different series, 15-26% negative bronchoscopic results were issued (6,22). But it is the most important and accurative method.

Rigid bronchoscopy is usually preferred rather than fiberoptic flexible bronchoscopy for its therapeutic superiority. However, peripherally localized foreign bodies can more easily be interfered with flexible bronchoscopy.

The cover pin is the most frequently seen foreign body in our country (23). The diagnosis is not very hard because of its radioopaque characteristics and frequently seen in children 12-15 age range. And there are cases, whose diagnosis can be made lately, in this group (16).

In this case, atypical symptoms, nonopacity of the foreign body, and secreting of the case from his parents were delayed the diagnosis. All of the chronic complications of foreign body had been occurred and leded to thoracotomy and tissue loss.

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