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A case of empyema and bronchocutaneous fistula following oat head aspiration

İrfan KARACA, Haluk CEYLAN, Aydın ŞENCAN, Cüneyt GÜNŞAR, Erol MİR

Dr. Behçet Uz Children's Hospital, Department of Pediatric Surgery, İzmir, Turkey

Özet

Pisi arpası aspirasyonu sonrasında gelişen ampiyem ve bronkokutanöz fistül olgusu

Pisi arpasının (Hordeum murium) solunum yollarına aspirasyonu nadir olarak rastlanan ve farklı belirtilerle kendini gösteren bir durumdur. Bu otun aspirasyonu, pnömoni, bronşiektazi, akciğer absesi, pnömotoraks, ampiyem, kosta osteomyeliti, bronkokutanöz fistül gibi ciddi komplikasyonlara neden olabilir. Bu yazıda pisi arpasının aspirasyonu sonrasında toraks sol yanda ampiyem ve bronkokutanöz fistül gelişen bir olgu sunulmuştur.

Anahtar kelimeler: *Yabancı cisim aspirasyonu, ampiyem, bronkokutanöz fistül*

Summary

Inhalation of oat head (Hordeum murium) is a rare condition which leads to different kinds of symptoms. The aspiration of oat head can cause severe complications such as pneumonia, bronchiectasis, lung abscess, pneumothorax, empyema, rib osteomyelitis and bronchocutaneous fistula. In this report a case of left thoracic empyema and bronchocutaneous fistula caused by oat head aspiration is presented.

Key words: *Foreign body aspiration, empyema, bronchocutaneous fistula*

Introduction

Aspiration of oat head (Hordeum murium) into the tracheobronchial tree is a very rare condition in childhood. A clear history of a foreign body aspiration can not always be obtained from the patients.

They may have nonspecific symptoms such as coughing, choking, abdominal pain and hemoptysis. Radiographs can't demonstrate nor localize the oat head [2,5,6,7,8].

These different kinds of symptoms and signs caused by the oat head aspiration lead to misdiagnosis or delay in the diagnosis [4,6,7]. The aspiration of oat head may result in pneumonia, bronchiectasis, lung abscess, pneumothorax, empyema, rib osteomyelitis and bronchocutaneous fistula [6,7,9] by causing obstruction in the bronchus or by unidirectional migration to the periphery of the lung [6].

Address: Dr. İrfan Karaca, Dr. Behçet Uz Çocuk Hastanesi Çocuk Cerrahisi Kliniği, Alsancak, İzmir-Turkey

In this report we present a case of oat head aspiration, presenting with a rare complication of bronchocutaneous fistula.

Case Report

A two-year-old boy was admitted to our clinic with a history of cough and fever for a period of two weeks. He had been treated with antimicrobial agents for pneumonia for one week, before being admitted to our clinic and there was no significant improvement in the clinical course. He had dyspnea associated with fever up to 39° C and physical findings of diminished breath sounds on the left hemithorax and dullness to percussion over the posterior left lung. There was an immature abscess formation with a diameter of 4 cm on the lateral side of the left hemithorax. Upright chest radiograph demonstrated a left sided pleural effusion and lung parencyhma was not seen.

Left sided tube thoracostomy was performed and about 100 ml of empyema fluid was drained. No

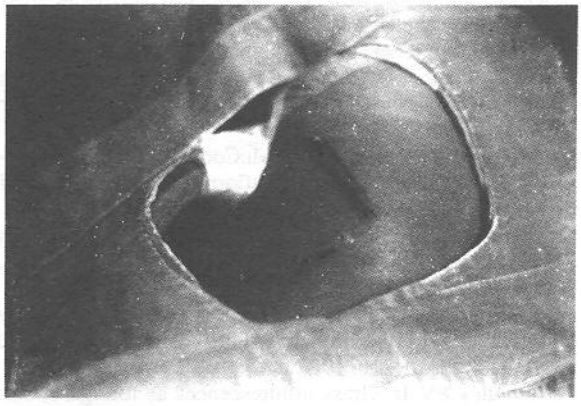

Figure 1. Extracted oat head and cutaneous fistula just below the thoracostomy tube.

microorganism was isolated in the pleural fluid culture. The immature abscess formation became mature on the second day of admission. When it was drained, an oat head was extracted from the abcess and a bronchocutaneous fistula developed (Figure 1). After the oat head was extracted more detailed questions about the history of foreign body aspiration were asked to the patient's parents. His mother described a choking episode while playing on the grass two weeks ago, and he presented to our clinic with the symptom of persistent coughing. The bronchocutaneous fistula closed spontaneously in two weeks. The chest tube was removed in 4 weeks. The patient responded to tube thoracostomy and was discharged from the hospital with complete recovery.

Discussion

The aspiration of oat head into the tracheobronchial tree is a rare problem [7]. Although many of the reported cases are relevant to infants and young children, older children and adult cases have been reported in the literature [6,7]. Generally, these patients with no clear history of aspiration have no specific symptoms, signs and radiographic findings attributable to oat head aspiration. Therefore, the diagnosis is difficult for physicians [1,13].

Jackson described two distinct types of cases; **1.** the "lodging" type in which the oat head remains in the respiratory tract, and **2.** the "extrusive" type in which the oat head migrates to the periphery of lung, penetrates the lung parenchyma, pleural layers, intercostal muscles, and finally protrudes through the chest wall, as seen in our case [6].

Clery summarized 65 cases in which 31 had extrusion through the chest wall or loin as a subscutaneous abscess perforation [7]. If there is a suspicion of foreign body aspiration, bronchoscopy must be performed. Because the aspirated oat heads are always located stem downward with their barbules pointing upward, bronchoscopic removal is not always successful and multiple bronchoscopies may fail to remove the foreign body [2].

As a result, bronchotomy, lobectomy and decortication may become necessary for the treatment of the patients [1,4,7]. As seen in this reported case, empyema can occur before the extrusion of the oat head. Cases of oat head protruding from the chest wall without causing empyema were reported in the literature [1,3]. Carter and Welch observed no specific microorganism in the empyema fluid caused by oat head aspiration [2]. In this presented case, no microorganism was isolated from the pleural fluid. This may be due to the previous antibiotic therapy.

The history of oat head aspiration is usually missed [2-9]. In our case, after the extraction of the oat head from the abscess, his mother was directed to some further questions to learn the exact time of aspiration. She told that the choking episode had occurred two weeks ago, while he had been playing on the grass. In this presented case the time between the aspiration and the extrusion throught the chest wall was two weeks.

The reported shortest time between the aspiration of the foreign body and its appearance under the skin was eight days and the longest was one year [8]. It was pointed out that the inhalation of oat head was a seasonal disease. While the patient in this case aspirated in the middle of May, the aspiration was reported in spring or at the beginning of the summer in the previous cases [6].

Conclusion

As a oat head aspiration is a serious problem leading to severe complications with no exact history, any patient coming from the rural area in the flowering

season with nonspecific symptoms such as coughing and persistent fever must always be questioned for the history of oat head aspiration. Correct diagnosis and treatment will prevent the possible complications described above.

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