

CLINICAL CASE

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Bronchial Foreign Body – a Rare Cause of Empyema

Ciało obce w oskrzeli – rzadka przyczyna ropniaka

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Abstract

A 36-year-old man with organizing right pleural empyema was treated by decortication, however the lung failed to expand. Intraoperative bronchoscopy disclosed foreign body (chicken bone) obstructing the right main bronchus. Extraction of the foreign body was followed by immediate expansion of the lung and uneventful recovery. Pleural empyema may be caused by a foreign body obstructing bronchus. Such possibility should be considered in patients with empyema of undetermined etiology (*Adv Clin Exp Med* 2005, 14, 4, 839–841).

Key words: empyema, foreign body, pleura.

Streszczenie

36-letni mężczyzna z ropniakiem prawej opłucnej został poddany dekortykacji płuc, ale płuco nie rozprężyło się. Śródoperacyjna bronchoskopia wykazała ciało obce (kość kury) znajdujące się w oskrzeli prawym głównym. Po usunięciu ciała obcego płuco natychmiast się rozprężyło, a pacjent wrócił do zdrowia bez powikłań. Przyczyną ropniaka opłucnej może być ciało obce znajdujące się w oskrzeli. Taką możliwość należy rozważyć u pacjentów z ropniakami o nieustalonej przyczynie (*Adv Clin Exp Med* 2005, 14, 4, 839–841).

Słowa kluczowe: ropniak, ciało obce, opłucna.

Classification of empyema by etiology recognizes three major groups: parapneumonic effusions (40–60%), post-thoracotomy (20%) and post-traumatic (4–10%) [1]. In nearly all series there remain a number of individuals who do not fall into one of these categories. These cases are usually classified as “idiopathic,” “miscellaneous,” or “other”, and their proportion in the major series varies between 5% [2], 9% [3], and 14% to 19% (9% idiopathic and 5–10% others) [1].

Retained foreign body in the bronchus is not usually mentioned as an etiologic factor; in Medline we failed to find a single case. In this report we describe a patient with organized pleural empyema caused by an impacted chicken bone in the right main bronchus.

Case report

A 36-year-old man was admitted to the hospital because of fever 39°C, pain in the right hemithorax, and productive cough of 4 weeks

duration. Prior to his admission the patient did not seek medical attention, and treated himself with analgesics only. Basic workup on admission, including chest roentgenograms disclosed right-sided pleural empyema, probably secondary to lobar pneumonia. Pus aspirated from the pleural cavity yielded a mixture of microorganisms, with predominance of *Pseudomonas aeruginosa* and *Klebsiella pneumoniae*. Pleural drain was inserted and 650 ml of pus was drained. The drain was attached to underwater seal without suction, and treatment with clindamycin and gentamicin was started. Although the fever subsided within 24 hours, the lung did not expand, and the pus continued to accumulate. Repeat roentgenogram showed a compressed right lung encased in a thick layer of fibrous tissue (Fig. 1). Computerized tomographic scan confirmed the findings. At direct pleuroscopy all pus was aspirated, and the pleural cavity was flushed with warm saline. However, the lung, encased in the fibrous armor, did not expand, despite the anesthesiologist's

efforts to inflate it. Decortication remained the only option, and was carried out immediately, through a subaxillary muscle-sparing thoracotomy [4]. However, immediate renewed attempts of the anesthesiologist to inflate the lung remained unsuccessful. In order to rule out bronchial obstruction, flexible bronchoscope was inserted through the tracheal tube, and bronchoscopy was performed. It disclosed a foreign object obstructing the right main bronchus. The tracheal tube was removed, a rigid ventilating bronchoscope was inserted, and the foreign body (chicken bone) was pulled out, using a grasping forceps (Fig. 2). Following reintubation of the trachea, the lung was inflated. This time it expanded within seconds. Pleural drain was inserted and the chest was closed. During the entire procedure, including the period of extubation and bronchoscopy, no difficulties with anesthesia were encountered. The postoperative chest roentgenogram showed full expansion of the lung. The postoperative recovery was uneventful and the lung remained expanded (Fig. 3).

Discussion

Pleural empyema occurs usually as an extension of an infectious process, most commonly originating in the lung [5]. The infectious process may be initiated in many ways, including bronchial obstruction causing retention of secretions and prompting the development of pneumonia [6]. Thoracoscopy, either direct or video-assisted, is an excellent aid in determining the stage of empyema and, in the fibrinopurulent stage, in the evacuation of pleural contents. At thoracoscopy all fibrinopurulent material can be broken into pieces and removed, resulting in complete expansion of the lung. Once organizing stage has been reached and fibrosis has set in, decortication is mandatory. It has been repeatedly stressed as the ultimate curative treatment [1, 7]. Early decortication is usually recommended, and excellent results have been reported [5, 8]. This procedure can be performed either at video-assisted thoracoscopy or at open thoracotomy. The choice of open muscle-sparing minithoracotomy enables the use of surgeon's own fingers to peel off gently the fibrous armor, thus minimizing the trauma of decortication. I favor this technique over the video-assisted approach.

A salient point of this report is the omission of considering foreign body obstructing bronchus as the cause of empyema in our patient. Bronchial foreign body, although uncommon as an etiologic factor, should not be surprising. In a patient with



Fig. 1. The chest roentgenogram shows the right lung encased in a thick layer of fibrous tissue and a markedly thickened parietal pleura

Ryc. 1. Na zdjęciu rentgenowskim widać prawe płuco uwiecznione w grubej warstwie tkanki włóknistej oraz znacznie zgrubioną opłucną ścienną



Fig. 2. Chicken bone extracted from the right bronchus

Ryc. 2. Kość kury usunięta z prawego oskrzela



Fig. 3. Three months after the operation the lung remains expanded

Ryc. 3. Trzy miesiące po operacji płuco pozostaje rozprężone

empyema due to undetermined cause, such a possibility should be taken into account. In our patient, this inevitably would have led to bronchoscopy and extraction of the foreign body before the decortication, rather than following it.

In retrospect one can speculate that at this late stage decortication would be necessary in any case, but the reverse course of events would have been more appropriate.

References

- [1] **de Hoyos A, Sundaresan S:** Thoracic empyema. *Surg Clin N Am* 2002, 82, 643–671.
- [2] **Ali I, Unruh H:** Management of empyema thoracis. *Ann Thorac Surg* 1990, 50, 355–359.
- [3] **Alfageme I, Muñoz F, Peña N, Umbria S:** Empyema of the thorax in adults. Etiology, microbiologic findings, and management. *Chest* 1993, 103, 839–843.
- [4] **Weissberg D, Kaufman M:** Two muscle-sparing thoracotomies – techniques and indications. *S Afr J Surg* 1990, 28, 17–19.
- [5] **Weissberg D, Refaely Y:** Pleural empyema: 24-year experience. *Ann Thorac Surg* 1996, 62, 1026–1029.
- [6] **Pothula V, Krellenstein DJ:** Early aggressive surgical management of parapneumonic empyemas. *Chest* 1994, 105, 832–836.
- [7] **Mandal AK, Thadepalli H, Mandal AK, Chettipally U:** Outcome of primary empyema thoracis: therapeutic and microbiologic aspects. *Ann Thorac Surg* 1998, 66, 1782–1786.
- [8] **Young D, Simon J, Pomerantz M:** Current indications for and status of decortication for “trapped lung”. *Ann Thorac Surg* 1972, 14, 631–634.

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