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Rare Cause of Hemoptysis: An Intrapulmonary Acupuncture Needle

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A 15-year-old boy with severe encephalopathy and vegetative status was found coughing fresh blood from a tracheostomy 1 day after the tracheostomy tube had been changed. A chest X ray revealed a fractured wire retained over the peripheral right lower thorax region. Computed tomography revealed the retained metal wire with an abscess formed over the right lower lobe of the lung. Flexible bronchoscopy was performed but no foreign body or intrabronchial lesions were detected, although fresh blood from the bronchus of the right lower lobe was found. An exploratory thoracotomy was performed with lobectomy of the right lower lobe of the lung and an acupuncture needle was found within the bronchus. Hemoptysis subsided and the infection resolved gradually after the surgical removal of the needle.

Key words: hemoptysis, intrapulmonary acupuncture needle, rare cause

INTRODUCTION

Hemoptysis is a common complaint involving the emergence of blood, and can usually be traced with bronchoscopy to a lesion or segmental bronchus[1]. The causes of hemoptysis include lung cancer, lung abscess, cavitary aspergillosis, tuberculosis, bronchiectasis, Swan–Ganz catheterization, cystic fibrosis, broncholithiasis, foreign body, and transbronchial lung biopsy[2]. Here, we present a case of aspiration of an acupuncture needle via a tracheostomy, causing massive hemoptysis. Previously reported complications of acupuncture include pneumothorax, injury to the nervous system, and infection[3]. However, there has been no report of aspiration of the acupuncture needle causing a lung abscess with hemoptysis, as was found in our patient. Close attention must be paid when unconscious patients receive acupuncture. A previous medical history should also be taken carefully, including any use of traditional medicine, when a patient presents with hemoptysis.

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CASE REPORT

The patient was a 15-year-old boy who suffered severe hypoxic encephalopathy with vegetative status caused by an episode of epilepsy, who had been bedridden for more than four years. He had pulmonary tuberculosis with empyema over the right hemithorax. The patient had received a tube thoracotomy and exploratory thoracotomy drainage together with decortication treatment five months earlier. A tracheostomy was also performed. The tracheostomy set was made of iron at that time. He had recently received acupuncture treatment over the chin region for his severe encephalopathy. He coughed 500 mL of blood clots from the tracheostomy 1 day after the tracheostomy tube had been changed. He was sent to our emergency department with persistent hemoptysis. His heart rate was 110 beats per minute and his blood pressure was 96/56 mmHg. Pale conjunctivae were also noted. A râle breathing sound was heard over the right lower lung field. Blood analysis revealed a hemoglobin concentration of 9.1 g/dL, a hematocrit of 27.5%, and a platelet count of 69,000/ μ L. His prothrombin and partial thromboplastin times were normal (international normalized ratio=1.06). A chest X ray showed a fractured wire retained within the right lower thorax (Fig. 1). We performed flexible bronchoscopy to determine whether the foreign body was intrabronchial, suspecting that an acupuncture needle had been aspirated. However, no retained foreign body or intrabronchial lesion was detected, although fresh blood from the bronchus of the

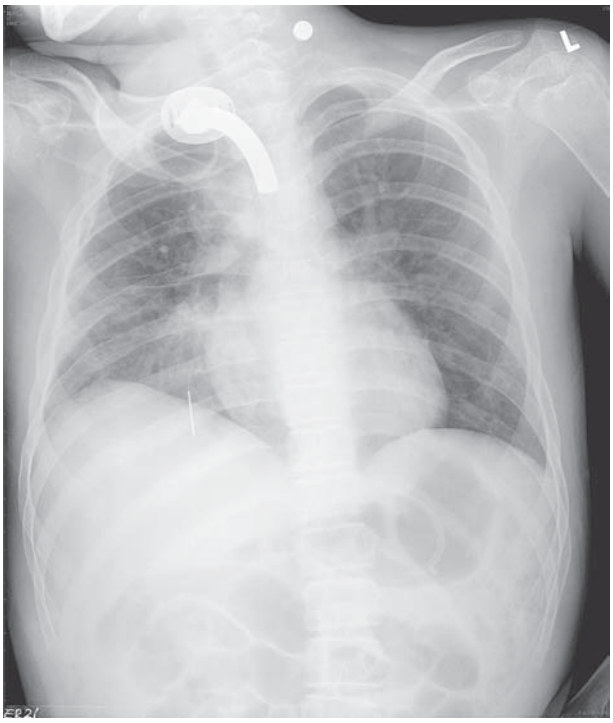

Fig. 1 Chest X-ray revealed a fractured wire retained in the right lower thorax.

right lower lobe was found. Computed tomography (CT) revealed a retained metal wire, with abscesses formed over the right lower lobe of the lung (Fig. 2). An exploratory thoracotomy was performed for hemoptysis with large volumes of blood and unstable vital signs. Severe adhesion of the right hemithorax, resulting from previous infections and surgical procedures, was noted during the operation. Lung abscesses had formed over the right lower lobe, and the entire lobe was resected. When we explored the specimen, an acupuncture needle about 7 cm long was found within the bronchus, with the tip pointing upwards (Fig. 3). A bacterial culture of the abscess revealed *Pseudomonas aeruginosa* infection. Hemoptysis improved after the operation.

DISCUSSION

Hemoptysis is a serious symptom of pulmonary disease, although no cause is found in up to 50% of cases[4,5]. Massive hemoptysis is defined as blood loss from the lungs of more than 500-600 mL within 24 hours[6]. The causes of hemoptysis include malignancy, infectious diseases, the inflammatory process, iatrogenic causes, and foreign bodies. An intrapulmonary foreign body may be transported via the following routes: transcutaneous, transbronchial,

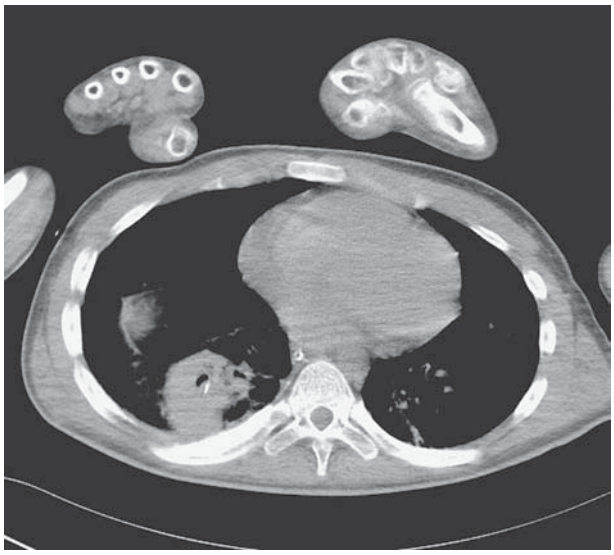

Fig.2 CT of chest revealed a retained metal wire with abscesses formed over the right lower lobe of the lung.

transesophageal, or hematogenous[7]. Many kinds of material have been reported as intrapulmonary foreign bodies. However, no acupuncture needle has previously been reported.

Acupuncture is part of traditional Chinese medicine and is predicated on the basis that diseases can be treated by stimulating specific acupuncture points. Common complications associated with acupuncture include pneumothorax, nervous system injury, infection, seizure, and drowsiness[3]. The risk of a serious adverse event with acupuncture is estimated to be 0.05 per 10,000 treatments and 0.55 per 10,000 individual patients[8]. Therefore, acupuncture performed by a trained practitioner using clean needles is usually a safe procedure[8]. We believe that, in this case, the acupuncture needle was aspirated via the tracheostomy and migrated to a peripheral region under gravity, together with respiration, and was pushed further by suction tubes during sputum suction. The acupuncture needle within the bronchus, with the tip pointing upwards, supports this mechanism.

Hemoptysis can be treated in conservative ways, such as bronchoscopic topical epinephrine injection, iced saline lavage, observation, cough suppression, and definitive surgical resection. An alternative treatment is bronchial artery embolization by interventional radiology, which is indicated for patients with hemoptysis when the bleeding site cannot be localized[2]. However, the rebleeding rate after embolization is about 50%[2]. A detailed history and physical examination are helpful in any diagnosis of the cause of hemoptysis.

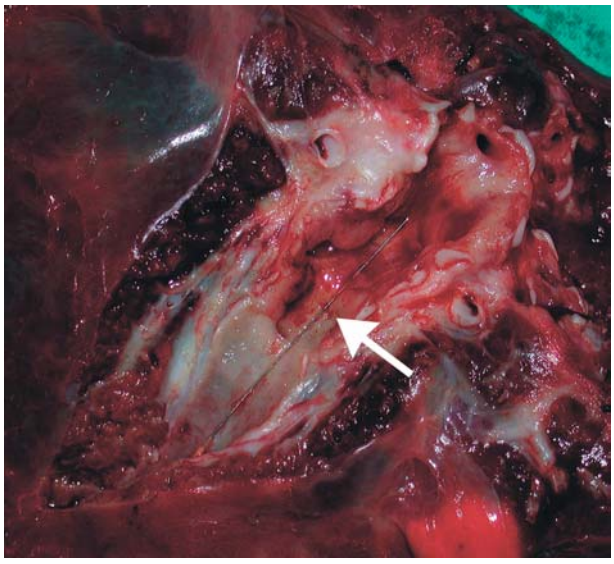

Fig. 3 The explored specimen. An acupuncture needle within the bronchus (arrow) with the tip pointing upwards was detected.

Rigid bronchoscopes are the instruments of choice for foreign body extraction[9]. The major disadvantages of flexible bronchoscopes are that they cannot control the foreign object and provide inadequate airway control[9]. In our patient, the foreign body was located so peripherally that a flexible bronchoscope was considered useful. However, the foreign body could not be seen because it was located very peripherally and was obscured by many blood clots. Therefore, a CT scan was performed to determine its position.

An aberrant intrathoracic needle should be removed surgically as soon as possible. It is possible that it will migrate into the vessels, with complications of lung abscesses or pyothorax, which may develop within a few days to several years. Some cases of successful thoracoscopic surgery to remove an aberrant needle causing a pneumothorax have been reported[10]. However, it was impossible to perform thoracoscopic surgery on our patient because of the severe adhesion of the right hemithorax caused by previous infections and surgical procedures. Therefore, an exploratory thoracotomy was performed. Partial resection of the lung is recommended and lobectomy is necessary only when a lung abscess occurs[7]. Therefore, we performed lobectomy of the right lower lobe and removed the intrabronchial acupuncture needle causing the massive hemoptysis. Close attention must be paid when a patient presents with hemoptysis. A previous medical history, including use of any traditional medicine, must be taken. Acupuncture should also be performed carefully, especially on unconscious patients. The number of needles used should be counted assiduously after therapy.

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