

A MORTALITY CASE OF ACUTE RESPIRATORY DISTRESS SYNDROME AFTER ACUPUNCTURE

Chun-Ju Lee, Wen-Tay Tsai

Abstract

Acupuncture is one of most popular complementary therapies in Asia. Pneumothorax following acupuncture is one of the serious complications, but fatal consequences are rare to date. We report a 61-year-old male who suffered from right-side tension pneumothorax after acupuncture along the paraspinal region on the upper back for his chronic neck and back pain. Bilateral alveolar infiltration progressed subsequent to chest intubation for emergent decompression. Acute respiratory distress syndrome (ARDS) developed, and the patient died due to severe hypoxemia within twenty-four hours after acupuncture.

Key words: Acupuncture, Tension pneumothorax, Acute respiratory distress syndrome

Introduction

Acupuncture has been one of the fundamental Chinese medicines since thousand years ago. As the popularity of this form of complementary therapy has increased, more complications have been reported, even though acupuncturists have advocated that it is safe. Complications include mechanical injury (ex. pneumothorax, nerve injury), infections (HIV, hepatitis, cellulites), delayed diagnosis of underlying disease, and others.¹⁻⁴ But fatal case report attributed to severe adverse effect in lung was rare,⁵ this could be ascribed to use of so fine a needle (26-32 gauge).^{9,10} Herein, we report an old male die with ARDS following acupuncture.

Case Report

A 61-year-old man who had history of (1)

left pleurisy with pneumothorax 5 years previous to this admission, (2) chronic obstructive pulmonary disease, and (3) coronary artery disease and angina episode, was sent to emergency department due to sudden onset of respiratory distress after acupuncture along the paraspinal region for his chronic neck and back pain about 4 hours before. Standard P-A view of chest X-ray was performed before acupuncture to study the pneumothorax history and there was no active lung lesion (Fig. 1). In terms of physical examination, the patient was a thin male with acute ill appearance and shortness of breath. On the upper back, several small pinholes were noted. Breathing sound was absent over the right lung. Regarding vital signs, his blood pressure was 110/55 mmHg, pulse 110 beats/min, respiratory rate 29 breaths/min, and body temperature 36.8°C. Laboratory examination revealed WBC = 8090/mm³, C-reactive protein <0.5 mg/dl, hemoglobin

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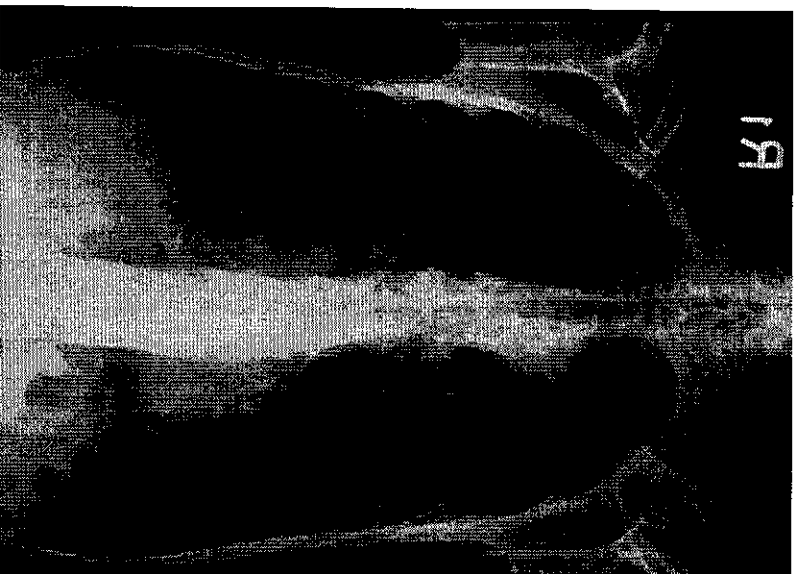


Fig. 1. Before acupuncture: mild fibrotic scarring over the right apex, but no active lung lesion.

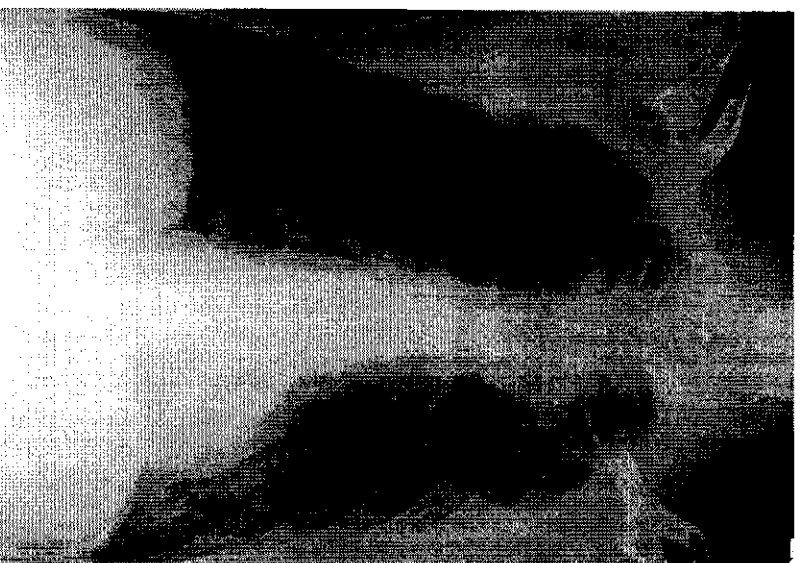


Fig. 2. After acupuncture: tension pneumothorax with total collapse of the right lung and mediastinum shift to left and left-side alveolar infiltration.

= 10.9 g/dl, hematocrit = 31.9% and platelet count 157,000/mm³, sodium = 137mmol/L, potassium = 4.0 mmol/L. Initial arterial blood gas revealed PH = 7.34, PCO₂ = 35 mmHg PO₂ = 59 mmHg, O₂ saturation = 91%. Chest X-ray revealed right-side tension pneumothorax and left-side alveolar infiltration (Fig. 2). Electrocardiography disclosed sinus tachycardia. After promptly arranged chest intubation, the patient was sent to intensive care unit. Sputum routine, culture and blood culture were checked (include *Legionella* urinary antigen), but no specific finding was noted in later report. Unfortunately, poor gas exchange persisted and consequent metabolic acidosis developed, so an endotracheal tube was inserted for the purpose of mechanical ventilator support. Prophylactic antibiotics including Unasyn and macrolide were used. Severe hypoxemia (PaO₂ = 59 mmHg, FiO₂ = 100%) was ongoing,

and central venous pressure was 8 mmHg. CXR showed gradual re-expansion of the right lung and progressive alveolar infiltration over both lungs (Fig. 3). Even though the strategy of high PEEP and low tidal volume was adopted, the patient died 20 hours later because of prolonged hypoxia and cardiopulmonary collapse. The clinical presentation corresponded to more severe form of acute lung injury-ARDS, including bilateral radiographic new infiltrates, PaO₂/FiO₂ ratio < 200, and there was no clinical evidence for an elevated central venous pressure.

Discussion

Acupuncture has played an important role in Chinese conventional medicine since the 5th century. A variety of indications for acupuncture include chronic pain of back, neck, shoulder,

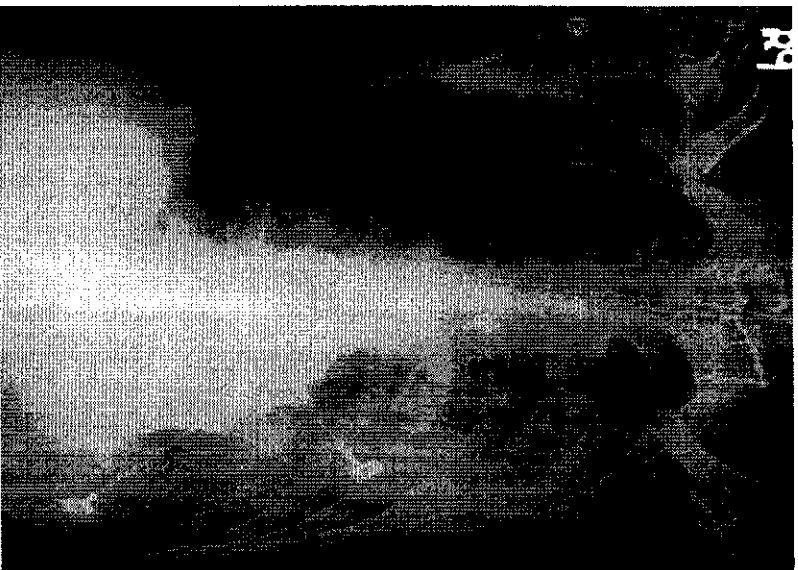


Fig. 3. Progressive alveolar infiltration over both lungs with air-bronchogram.

arthritis, asthma, cough and neuralgia, although it's true mechanism is still unclear.⁶ Adverse effects of acupuncture have been reported from mild, such as needle pain, to serious, such as infection and pneumothorax.⁷

The incidence of pneumothorax following acupuncture is controversial, from only twice in nearly a quarter of million treatments to it being the most common complications of this procedure, according to a report by 1135 randomly selected doctors and 197 acupuncturists.^{7,8} But the rarity of mortality case reports may be due to the needles used being so fine that the symptoms are subclinical. Why did our patient die so quickly? First, there are several case reports of acupuncture-induced pneumothorax.^{5,7,9,10} The symptoms such as dyspnea, chest pain and the puncture site such as the upper back, paraspinal area were the same with this patient. In the present case, however, lacking of autopsy, we speculate that acute lung

injury which could result from the mechanical injury by acupuncture needles itself or re-expansion pulmonary edema (RPE) after thoracostomy exacerbated poor gas exchange. RPE may be attributed to inflammatory response and high permeability of lung capillary after the remission of collapsed lung. The hypothesis of both lungs being vulnerable to inflammatory injury is that mediators (Pro-inflammatory cytokines such as tumor necrosis factor, IL-1, IL-6, and IL-8) are released into the bloodstream, and the lungs receive the entire cardiac output.^{11,12} There is a positive correlation between the size, the rapid expansion of a pneumothorax, and RPE.¹² Although RPE is usually on the ipsilateral side after decompression, contralateral or bilateral pulmonary edema may be more destructive.¹² Even with mechanical ventilator support for this patient, acute lung injury and its more severe form, ARDS, developed subsequently. Second, our elderly, debilitated male with underlying cardiopulmonary disease had poor physiology reserve, so the abrupt change of hemodynamic status was a rigorous challenge. The benefit of pain remission by acupuncture should be weighed against the risk of potentially lethal complication secondary to this conventional therapy.

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針灸後併發急性呼吸窘迫症候群導致死亡病例報告

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摘要

針灸是亞洲地區最常見的傳統療法之一，氣胸是最嚴重的併發症之一，發生率依不同報告而異。但是因針灸引發氣胸而導致死亡的例子並不多見，一般認為的理由是針灸用針很細，不足以導致嚴重氣胸。在此報告一死亡病例，患者是六十一歲男性，因為長期頸、背部酸痛，所以接受上背部針灸治療。針灸後四小時因胸痛、呼吸困難，至本院求診。X光攝影顯示右側張力性氣胸合併左肺浸潤，經緊急放置胸管後，仍發生急性呼吸窘迫症候群。患者於針灸後二十四小時死亡。

關鍵詞：針灸，氣胸，急性呼吸窘迫症候群

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