Severe Bilateral Pneumothorax After Acupuncture: A Case Report with Literature Review

Chao-Bin Yeh¹, Ming-Chih Chou², Ming-Yu Tsai¹, Yung-Wei Chu¹, Yi-Fen Lin¹

We report on a 56-year-old male patient with a 15-year history of diabetes mellitus who experienced bilateral pneumothorax after an acupuncture therapy. Acupuncture is a traditional Chinese medical technique of inserting fine needles at particular points in the body for specific effects, such as a continuous generation and flow of energy throughout the body. Acupuncture is an alternative therapy in the treatment of many diseases such as arthritis, neuralgia, chronic bronchitis, asthma, tension headache, stress and other painful chronic conditions. Although acupuncture is an ancient procedure that has been practiced in China for thousands of years, it still has potential risks for the patient. Complications such as infection, trauma, scarring and needle breakage have been reported. There are several reports of cases of pneumothorax, but bilateral pneumothorax, as a life-threatening complication after acupuncture is very rare. Therefore, prevention of this complication is of the utmost importance during acupuncture therapy.

Key words: acupuncture, complications, bilateral pneumothorax

Introduction

Acupuncture is an ancient Asian system of curative medicine and is often used as a complementary therapy to western medicine, especially in Asia countries¹⁴. Although it has been practiced in China for more than 2,500 years, its therapeutic mechanisms, which are based on scientific studies of physiology, anatomy, biochemistry, and nutrition, are still not clear¹⁰. There are reports of adverse events after acupuncture. A ratio of adverse events of about 1/5000 has been reported in the English medical literatures¹¹. Minor adverse events including skin infection, hepatitis, needle pain and mild pneumothorax happen occasionally. Serious adverse events such as HIV infection, spinal cord injury, bilateral tension pneumothorax and delayed cardiac tamponade are not commonly seen. Most cases are not fatal, but some could lead to life-threatening complications³⁶⁻¹⁴. Therefore acupuncture patients should know about potential side effects and first-time acupuncture patients should be informed about the procedures to understand what steps will be done.

Case Report

Our patient was a 56-year-old businessman with a 15-year history of diabetes mellitus. He controlled his diabetes mellitus with oral metformin (500 mg tid). He denied any other lung diseases such as chronic obstructive pulmonary disease. He visited our emergency department and complained of a sudden onset of bilateral anterior chest pain with tightness accompanied by progressive short-
ness of breath over the previous 5-6 hours following acupuncture treatment to the upper thoracic right paraspinal and left subscapular regions of his back. The pain was dull with radiation to the back and was persistent without any relief. Moreover, it was exacerbated by exercise and respiration. The patient had received Chinese style acupuncture therapy twice a week for half a year to control diabetes mel-litus. In this procedure, eight to ten needles about 5 centimeters long are inserted into the upper thoracic right paraspinal and left subscapular regions of the back at a depth of approximately 3 to 4 centimeters (Fig. 1). The needles are left in place for about 30 minutes. Following his last treatment, he felt dull chest pain with radiation to the back 20 minutes after the needles were removed. At first he ignored the symptoms, but his condition worsened over the following 5-6 hours, so his relatives sent him to our emergency department. On examination, the patient was a mildly obese man, was alert and oriented, and had no acute respiratory distress. His body temperature was 35.2°C, heart rate: 113 beats/min, respiratory rate: 18 breaths/min, blood pressure: 152/98 mmHg and pulse oximetry 92% on room air. His breath sounds were clear and equally decreased over the bilateral lung fields. The head and neck were in the normal position, with the trachea in the midline. Radiography showed a 31% right-side pneumothorax and 41% left-side pneumothorax by fine calculation (Fig. 2). He underwent a chest tube thoracostomy to remove the air. A post-procedure chest radiograph showed a small apical pneumothorax (Fig. 3). He was then admitted to the hospital. The left and right chest tubes were removed on the 5th day and 6th day after admission, respectively. He was discharged on the 7th day. A follow-up visit and radiography revealed complete resolution of the bilateral pneumothorax, and he had no subsequent complications.
Fig. 2 Chest radiograph showing bilateral pneumothorax (R’t >30%, L’t >40%)

Fig. 3 Radiograph after bilateral chest tube insertions in the ER
Discussion

Acupuncture is one of the most popular alternative therapies used for chronic pain syndromes, asthma and smoking cessation. Its use in weight reduction and anesthesia has become more common. However, the use of acupuncture to control diabetes mellitus is generally rare. As the numbers of patients receiving acupuncture treatment have increased, the numbers of adverse events have increased. Common adverse events include fainting during treatment, nausea, local skin irritation and needle breakage. Furthermore, the incidence of pneumothorax has also increased. Rare complications such as spinal cord injury, and bilateral tension pneumothorax are also being reported more frequently. One factor that influences adverse events is the acupuncture style. Different styles of acupuncture have different complications. Chinese style acupuncturists tend to insert needles deeply into the muscles while Japanese style acupuncturists insert needles into the subcutaneous tissue. We suggest that patients be informed of the potential complications of the different styles of acupuncture.

The aforementioned case study was chosen for several reasons. First, the patient believed that acupuncture would be beneficial to his diabetes mellitus, which is an unusual indication for acupuncture. Second, the development of bilateral pneumothorax (>30-40%) was a serious complication resulting from acupuncture. The lack of a mediastinal shift was due to an almost equal collapse of both lungs. Although the bilateral breath sounds were decreased, they were clear without any other adventitious sounds. Severe bilateral pneumothorax might mimic cardiovascular problems, resulting in a delay in chest radiography. This could lead to bilateral tension pneumothorax with acute respiratory distress and possibly death. Due to the lack of typical symptoms and signs of acute respiratory distress, traumatic chest injuries must be kept in mind.

To evaluate therapeutic risks in relation to the benefits of treatment, acupuncturists should demonstrate how to successfully minimize risks. All acupuncture practitioners should have proper training in traditional Chinese schools of medicine in acupuncture techniques. Qualification, re-education and general standards for acupuncturists must be established to reduce risks and increase the safety of patients.

Conclusion

Theoretically, acupuncture is safe and it has been used for thousands of years in China. It is seen as a less invasive treatment, but adverse events may occur. Acupuncture patients must be aware of the risks and complications, which may occur as a result of this procedure. We suggest that all acupuncture practitioners have proper training in registered medical schools. Raising educational and professional standards will maximize safety and minimize adverse events. A standard system of qualifications and examinations for all acupuncturists should be set up in order to eliminate unqualified practitioners. These policies should be implemented to reduce risks and to protect patients during acupuncture. We hope to ensure that all patients receive the most benefits and obtain safe treatment from acupuncture.

References

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針灸後嚴重雙側性氣胸：個案報告及文獻回顧

葉兆斌¹ 周明智² 蔡銘祐¹ 邱永偉¹ 林怡芬¹

一位罹患糖尿病年達15年的56歲男性患者，於接受針灸治療後發生雙側性氣胸的個案在此報導。針灸是一項傳統的中醫技術，係利用細針插入特定部位，並藉以使人體產生緩延不絕的能量流動。針灸是一種被用來治療許多疾病的另類療法，諸如關節炎及神經痛、慢性支氣管炎、氣喘、神經緊繃、壓力性頭痛、壓力以及其他慢性疼痛症狀。雖然，針灸是一項中國已經廣泛使用了幾千年的古老技術，但仍免不了對患者具有風險性，可導致之併發症包含感染、外傷、留疤，斷針留置人體等，均在過去曾被提出過。雖然，國內偶見單純性氣胸的個案報告，但針灸後造成威脅生命之嚴重併發症的雙側性氣胸個案卻罕見，因此預防其併發症為進行針灸治療的首要目標之一。

關鍵詞：針灸，併發症，雙側性氣胸