Case Report

Case report of tension pneumothorax related to acupuncture

Elmar Peuker

Summary

Although recent prospective studies came to the conclusion that the incidence of adverse events following acupuncture can be classified as minimal, many cases of acupuncture-related pneumothorax have been published over the years, among them some cases of tension pneumothorax. In this case, a slender woman received acupuncture from a fully trained medical acupuncturist including needling of the points LU1 in the subacromial region and BL13, which is a paravertebral point at the level of the spinous process of the third thoracic vertebra. During the final treatment, she experienced difficulties in breathing and pain in the left chest. On x-ray examination a tension pneumothorax was diagnosed. Even though pneumothorax is the most frequently reported serious complication related to acupuncture, it is not an inevitable complication of acupuncture, and in most cases involves negligence from inadequate consideration of basic anatomy.

Keywords

Complication, acupuncture, pneumothorax, negligence.

Introduction

The following report describes a case of tension pneumothorax associated with acupuncture. The author was asked by court to give an advisory opinion concerning the question of whether the pneumothorax was caused by acupuncture and whether a patient should be informed about the risk of pneumothorax due to acupuncture before treatment. The author is a fully trained (more than 350 hours with a diploma of the medical council) and qualified acupuncturist from Germany. He works as a lecturer for several acupuncture societies both nationally and internationally.

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A slender 38 year old woman (BMI: 19 kg/m²) sought the help of a medical acupuncturist for 'breathing problems'. She had been examined by a lung specialist a few weeks previously (including spirometry and chest x-ray film), and there were no pathological findings. Her medical history was unremarkable. She suffered from psychological stress as a result of caring for her two young children alone whilst her husband was on an extended work-related absence from home. The medical acupuncturist she attended was fully trained (more than 350 hours with a diploma of the medical council), and worked as a lecturer for one of the larger German acupuncture societies (not the author of this paper). The Chinese diagnosis made was ‘obstruction of lung qi’, and she was treated with acupuncture at the points LU1, LU7, ST36, HT7, BL13, KI6, PC6, GB20 and GB34. The treatment consisted of five sessions within five weeks. During the last session the patient experienced a sharp pain in the left side of her chest and increasing difficulty breathing. The medical acupuncturist assumed that the problems occurred due to ‘tension in the meridians’, and advised the patient to relax. As the complaints got worse over the following 30 minutes, he decided to auscultate the lung and expressed the suspicion that there might be ‘a bubble in the lung’. He handed the patient a paper with the address of a radiologist and called a taxi, which drove the patient to the radiologist without further medical attendance. The chest x-ray film showed an almost complete pneumothorax of the left lung with an early beginning shift of the mediastinal
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The diagnosis was tension pneumothorax. The patient was immediately transferred to a hospital and treated with intensive care (including chest-drain) for one week. An x-ray film of the lung at the date of discharge from the hospital showed almost complete re-expansion of the left lung (Figure 2).

The patient sued the acupuncturist for negligence to at least reimburse the costs of domestic aid and care of her children during her hospital treatment. This was denied by the acupuncturist who argued that the woman experienced a spontaneous pneumothorax that was merely coincidental with his acupuncture treatment.

Discussion

Many case reports and reviews deal with the topic of pneumothorax from, or associated with, acupuncture. Among them are several reports on bilateral pneumothorax with or without tension pneumothorax.1-10

Unfortunately, most of the case reports on adverse events related to acupuncture lack important information that would enable the reader to learn from the case.11 There are several papers that review pneumothoraces and other traumatic complications related to acupuncture, for example, those by this author.11-12

However, some of the more recent prospective studies on adverse events related to acupuncture came to the conclusion that pneumothorax occurs

Figure 1  Chest x-ray film taken approximately one hour after acupuncture. An almost complete pneumothorax of the left lung (arrow heads) is shown. There is also some initial shifting of the mediastinal organs to the right side.
extremely infrequently in association with acupuncture. On the other hand, none of the respective studies differentiates the acupuncture treatments according to topographical data. It is rather unlikely that acupuncture at points in the leg would cause a pneumothorax. Equally, ear acupuncture, even if the 'lung point' is used, cannot result in a pneumothorax as a direct consequence of the acupuncture. Therefore, an assessment of the frequency of adverse effects of acupuncture (at least if traumatic complications are concerned) requires a differentiation between the points and regions treated.

A spontaneous pneumothorax occurs with a frequency of 1.2 – 6/100,000 per year in women younger than 35 years of age. Smokers suffer significantly more frequently from spontaneous pneumothorax than non-smokers. Most have a previously undetected bulla or bleb-formation. A bulla is defined as a sharply bordered region within an emphysematous lung with a diameter of at least 1cm and a wall-thickness of less than 1mm. Bullae are usually multiple. A 'bleb' refers to an air-filled cavity of the pulmonary pleura, or within the variably thickened border between the pulmonary pleura and the lung. These changes are usually located in the apical region of the lung.

In this specific case the author came to the conclusion that the tension pneumothorax resulted from the acupuncture treatment, and was not a spontaneous pneumothorax that occurred coincidentally during the acupuncture session. This assessment is supported by the lack of

Figure 2  Chest x ray film taken one week after the pneumothorax, and following appropriate treatment with a chest drain.
findings on medical examination of the lung specialist before acupuncture treatment. Moreover, the x-ray films before and after the treatment showed none of the pathological features that predispose to spontaneous pneumothorax (e.g. emphysema, bulla, blebs formation).

Two of the acupuncture points which were treated have a topographical correlation to the lung (LU1 and BL13). Treatment at LU1 might cause a pneumothorax if needling is performed in a medial rather than the suggested lateral direction. BL13 should be needled obliquely in a medial direction. Perpendicular needling might injure the lung at a depth of about 2-3 cm. Unfortunately, the documentation of the acupuncturists contained no information about the needling depth and direction. During the treatment, the patient was lying on her back. It may be possible that, whilst lying, the needles at BL13 were inadvertently pushed deeper by external pressure.

In the author’s opinion, the actions of the therapist were inappropriate. The patient suffered from severe pain in the chest and increasing difficulty breathing. She should have been transferred directly to a hospital with medical attendance.

Another question from the court referred to the necessity for giving information on risks before acupuncture treatment. In the author’s opinion, communicating risk information is important before acupuncture treatment. Two proposals have been published in this journal. On the other hand, the author suggests that pneumothorax (like most severe traumatic complications related to acupuncture) is not a specific risk of acupuncture but caused by negligent application. Therefore it would be better to use the wording ‘pneumothorax related to acupuncture’ rather than ‘pneumothorax caused by acupuncture’.


Reference List
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*Acupunct Med* 2004 22: 40-43
doi: 10.1136/aim.22.1.40

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