

Case Report

Traumatic Pneumothorax Secondary to Acupuncture Procedure: A Case Report

Alexander Lopez Villarreal ^{1,*}, Pablo-Andres Pérez Giraldo ², Alejandro Cardozo ³, Manuel-Alejandro Garcia Pareja ³¹ Emergency medicine resident, CES university, Medellín, Colombia² Emergency medicine resident, Cooperative university of Colombia, Medellín, Colombia³ Emergency physician, Neurological Institute of Colombia, Medellín, Colombia

*Correspondence: Alexander Lopez Villarreal (Lopez.alexander@uces.edu.co)

Abstract: Acupuncture is an alternative medicine, actually it has had a greater acceptance in our continent being use for multiple therapeutic purposes. Although it is a minimally invasive procedure it is not exempt from complications, most common minor complications such as infections or local pain have been described, as well as less frequently but potentially fatal complications such as subarachnoid hemorrhage and tension pneumothorax. We report a case of pneumothorax secondary to acupuncture in a patient who was treated for carpal tunnel syndrome.

Keywords: Pneumothorax; traumatic; acupuncture; point of care ultrasound

How to cite this paper:

Lopez Villarreal, A., Pérez Giraldo, P.-A., Cardozo, A., & Garcia Pareja, M.-A. (2023). Traumatic Pneumothorax Secondary to Acupuncture Procedure: A Case Report. *Global Journal of Medical Case Reports*, 3(1), 1–4. Retrieved from <https://www.scipublications.com/journal/index.php/gjmcr/article/view/633>

Academic Editor:

Christopher Mathew

Received: January 21, 2023

Accepted: February 28, 2023

Published: March 2, 2023



Copyright: © 2023 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Acupuncture a type of alternative medicine is increasing in popularity in our country being often performed by non-medical professionals [1, 2]. According to a paper from the Colombian Ministry of Health in March 2018 there were in Colombia 752 authorized traditional Chinese medicine centers that perform these procedures with multiple therapeutic intentions [3]. Although it is a minimally invasive procedure, it is not exempt from complications, some of them minor such as local pain and infections, to potentially fatal complications such as subarachnoid hemorrhage, cardiac tamponade and tension pneumothorax [4].

We report the case of a man who came to our emergency department with dyspnea secondary to an acupuncture therapy

2. Case

A 74-year-old male patient, with no previous known medical history, was admitted to the emergency department of our institution. His main symptoms were right pleuritic-type pain of a duration of approximately 2 hours associated with dyspnea starting after an acupuncture procedure.

This procedure was performed at the supraclavicular level, indicated for the management of right carpal tunnel syndrome. On admission, the patient is hemodynamically stable, with no evidence of frank signs of respiratory distress, with borderline oxygen saturation. On physical examination, decreased breath sounds on the right lung was evidenced and an increase in the anteroposterior diameter of the right hemithorax. An electrocardiogram was performed without signs suggesting acute ischemia. A Point of care lung ultrasound was performed with the absence of right pleural sliding in the B mode and “stratosphere” sign an M mode (See [Figure 1](#)). With these

findings, it was decided to perform an AP and lateral chest X-ray where a right pneumothorax was confirmed. (Figure 2).

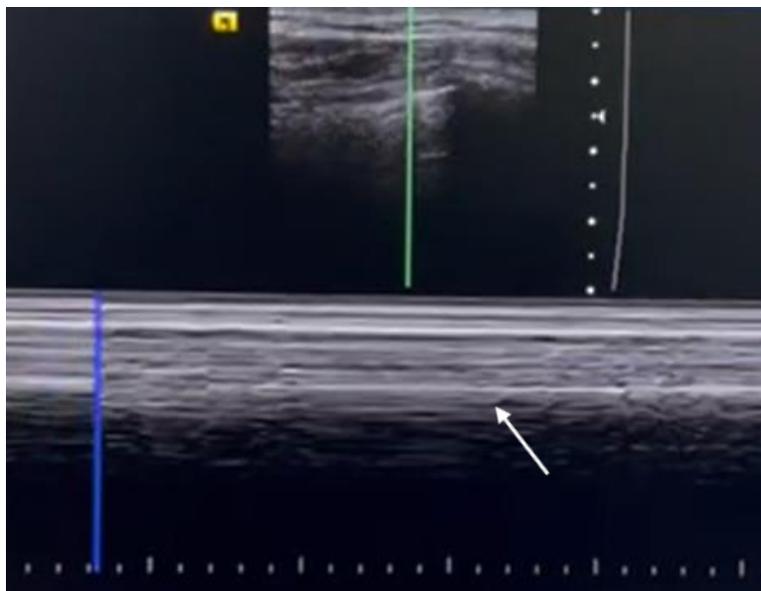


Figure 1. M-mode lung ultrasound (note the arrowed stratosphere sign)

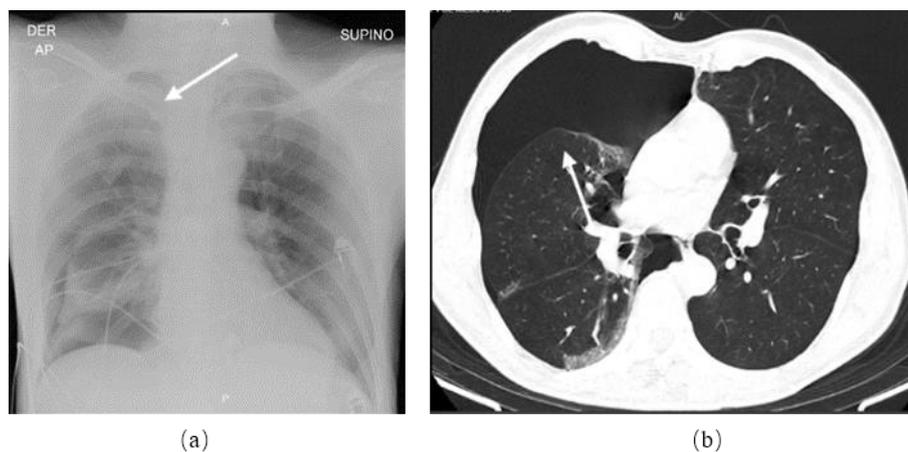


Figure 2. a) AP chest X-ray and Image; b) Simple axial section chest tomography with pneumothorax (white arrow)

3. Discussion

Pneumothorax is defined as the presence of air in the pleural space, and is classified as spontaneous and traumatic [5]. A traumatic pneumothorax can result from either a blunt force or a penetrating injury to the chest [6]. The most frequently associated injuries are assaults, traffic accidents or falls [7]. Some cases of traumatic pneumothorax secondary to acupuncture have been described in several countries [8, 9].

A systematic review carried out in China in 2010 reviewing 115 articles, with 479 reported cases of adverse events related to acupuncture procedures classifies them into 3 categories: infectious, traumatic and others. Pneumothorax being one of the most common complications reported 201 cases, of which 4 died, giving great importance to this adverse event [4].

The clinical presentation is similar to that of a pneumothorax due to any other etiology. The most frequent symptoms of presentation are pleuritic pain and dyspnea, taking into account the history of the previously performed procedure [10].

The diagnosis is based on clinical suspicion and imaging to confirm it [11]. Multiple studies have recently been conducted that suggest point-of-care ultrasound as a more sensitive alternative to chest X-ray for diagnosis, with a sensitivity ranging from 80-89% and a specificity of 89-95 %. Chest radiography has a sensitivity between 47-61% and a specificity of 90-98%, depending on the technical conditions in which it is performed [12, 13] Tomography is becoming more accessible and allows better quantification of the size of the pneumothorax and the identification of occult pneumothorax in certain circumstances [14].

Treatment is performed based on its characteristics [size, associated lesions, mechanical ventilation, etc.]. Is traditionally indicated in patients with tension pneumothorax, pneumothorax of more than 30% and pneumothorax in patients who will require mechanical ventilation [15]. Its management is performed by closed thoracostomy, however there is an increasing evidence about less invasive management using pig tail catheters [16].

4. Conclusions

It should be noted that minimally invasive procedures such as acupuncture are also at risk of potentially fatal adverse events such as tension pneumothorax. Timely recognition considering the clinical history and the recent performance of this procedure, should set warning signs for the medical staff at the emergency services. Diagnosis and treatment are the same as for pneumothorax of any other etiology.

Conflicts of Interest:

No conflicts of interest are declared.

References

- [1] Rare but Serious Complications of Acupuncture: Traumatic Injuries - Elmar Peucker, Dietrich Grönemeyer, 2001 [Internet]. [cited October 23, 2022]. Available at: https://sage.cesproxy.elogim.com/doi/10.1136/aim.19.2.103?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%20pubmed
- [2] Grusche F, Egerton-Warburton D. Traumatic Pneumothorax Following Acupuncture: A Case Series. *Clin Pract Cases Emerg Med.* 2017 Jan 23;1(1):31-2.
- [3] Serna LFC. Technical guidelines for the articulation of complementary medicines and therapies, within the framework of the general system of social security in health. Ministry of Health and Social Protection; 2018. 1-73.
- [4] Acupuncture-related adverse events: a systematic review of the Chinese literature - PMC [Internet]. [cited October 23, 2022]. Available at: <https://ncbi.cesproxy.elogim.com/pmc/articles/PMC2995190/>
- [5] Tran J, Haussner W, Shah K. Traumatic Pneumothorax: A Review of Current Diagnostic Practices And Evolving Management. *J Emerg Med.* 2021 Nov 1;61(5):517-28.
- [6] Dennis, B. M., Bellister, S. A., & Guillaumondegui, O. D. (2017). Thoracic Trauma. *The Surgical clinics of North America*, 97(5), 1047–1064. <https://doi.org/10.1016/j.suc.2017.06.009>
- [7] Acute Pneumothorax: Critical Care Nursing Quarterly [Internet]. LWW. [cited October 23, 2022]. Available at: https://journalww.cesproxy.elogim.com/ccnq/Fulltext/2016/04000/Acute_Pneumothorax.10.aspx
- [8] Pardo JR, Scortechini M, García FJR, Marín AG, Román MJ, Carrillo JV. Iatrogenic pneumothorax secondary to dry needs. A rare complication to take into account. *Rev Esp Patol Torac* 2021; 33 (1) 59- 61.
- [9] Fajardo-Noriega JA, Flores-Ojeda A, Ramírez-Ramírez EI. Pneumothorax secondary to acupuncture. Report of a case and review of the bibliography. *Rev Spec Medical-Surgical.* 2021 Jun 1;25(1):6147.
- [10] Sharma A, Jindal P. Principles of diagnosis and management of traumatic pneumothorax. *J Emerg Trauma Shock.* 2008 Jan;1(1):34-41.
- [11] Pneumothorax - BAUMANN - 2004 - Respiriology - Wiley Online Library [Internet]. [cited November 6, 2022]. Available at: <https://onlinelibrary.wiley.com/doi/10.1111/j.1440-1843.2004.00577.x>
- [12] Jalli R, Sefidbakht S, Jafari SH. Value of ultrasound in diagnosis of pneumothorax: a prospective study. *Emerg Radiol.* 2013 Apr 1;20(2):131-4.

-
- [13] Accuracy of Ultrasound in Diagnosis of Pneumothorax: A Comparison between Neonates and Adults—A Systematic Review and Meta-Analysis - PMC [Internet]. [cited October 26, 2022]. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6942780/?report=classic>
- [14] Omert L, Yeane WW, Protect J. Efficacy of thoracic computerized tomography in blunt chest trauma. *Am Surg*. 2001 Jul;67(7):660-4.
- [15] Traumatic Pneumothorax: Emergency Department Management [Internet]. [cited November 6, 2022]. Available at: <https://www.ebmedicine.net/topics/trauma/emergency-medicine-traumatic-pneumothorax>
- [16] Chang SH, Kang YN, Chiu HY, Chiu YH. A Systematic Review and Meta-Analysis Comparing Pigtail Catheter and Chest Tube as the Initial Treatment for Pneumothorax. *Chest*. 2018 May;153(5):1201-12.