

EDUCATIONAL FORUM

Location of needle decompression in managing tension pneumothorax

Wail Ba Madhaf^{1*} , Maryam Saif Al Ali¹ ,

A 28-year-old male was brought to the emergency department after involved in a road traffic accident. On arrival, he was intubated due to decreased level of consciousness. Primary survey assessment was unremarkable except for right side chest wall trauma with equal air entry bilaterally, normal oxygen saturation, and sinus tachycardia. Extended focused assessment for sonography in trauma (eFAST) was negative. The patient was sent for poly-trauma computer tomography (CT) scan. While the patient on the CT table, he became hypotensive, and reassessment of the primary survey revealed right side reduced air entry and EFAST showed the right side absent lung sliding sign. Needle decompression inserted using a large pore IV cannula (14G) in the second intercostal space (ICS) mid-clavicular line to treat tension pneumothorax and

intravenous fluid bolus started. Repeated vital signs were stable so we processed to complete CT and prepared for chest drainage insertion, which was inserted directly after CT. Post-insertion X-ray confirmed re-expansion of the lung. Reviewing CT images showed multiple bilateral rib fractures with bilateral lung contusion and large right-sided pneumothorax. It was noticed that the needle used for decompression did not reach intrathoracic space despite that the patient had an average muscular body. Failure of a traditional approach to insert a large-bore needle in the second ICS midclavicular line can reach 38% when compared to 13% when needle inserted to fourth or fifth ICS at the anterior axillary line [1]. The patient was discharged in a stable condition after an uneventful hospital stay.

Author details

Wail Ba Madhaf¹, Maryam Saif Al Ali¹

1. Emergency Department, Rashid Hospital Trauma Center, Dubai Health Authority, Dubai, United Arab Emirates

Reference

1. Laan DV, Vu TD, Thiels CA, Pandian TK, Schiller HJ, Murad MH, et al. Chest wall thickness and decompression failure: a systematic review and meta-analysis comparing anatomic locations in needle thoracostomy. *Injury*. 2016;47(4):797–804. <https://doi.org/10.1016/j.injury.2015.11.045>

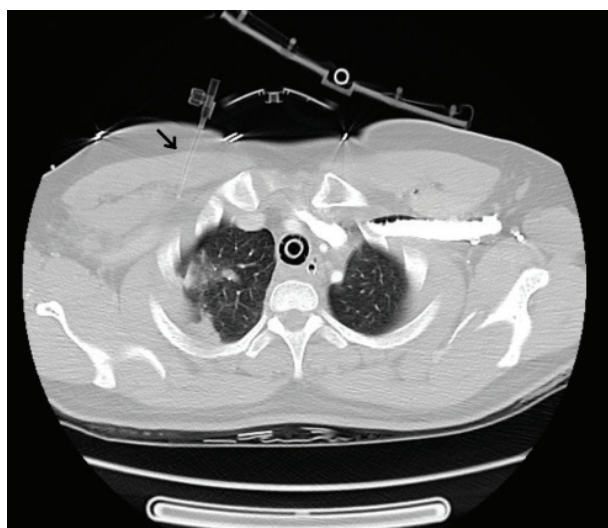


Figure 1. Needle decompression in the second intercostal space with black arrow.

Correspondence to: Wail Ba Madhaf

*Emergency Department, Rashid Hospital Trauma Center. Dubai Health Authority, Dubai, United Arab Emirates.

Email: wailbamadhaf@gmail.com

Full list of author information is available at the end of the article.

Received: 17 June 2020 | **Accepted:** 04 February 2021