

**Journal of Clinical Monitoring and Computing**  
**Can Chest x ray confirm the right position of the central venous catheter?**  
 --Manuscript Draft--

<b>Manuscript Number:</b>	JCMC-11-446
<b>Full Title:</b>	Can Chest x ray confirm the right position of the central venous catheter?
<b>Article Type:</b>	Letter to Editor
<b>Keywords:</b>	central venous catheter, accidental arterial, chest x ray
<b>Corresponding Author:</b>	Chia-Wei Lin, MD China Medical University Hospital, Taichung, Taiwan and School of Chinese Medicine, College of Chinese Medicine, China Medical University, Taichung, Taiwan Taichung, TAIWAN, REPUBLIC OF CHINA
<b>Corresponding Author Secondary Information:</b>	
<b>Corresponding Author's Institution:</b>	China Medical University Hospital, Taichung, Taiwan and School of Chinese Medicine, College of Chinese Medicine, China Medical University, Taichung, Taiwan
<b>Corresponding Author's Secondary Institution:</b>	
<b>First Author:</b>	Chia-Wei Lin, MD
<b>First Author Secondary Information:</b>	
<b>All Authors:</b>	Chia-Wei Lin, MD CHUN-KAI TSENG, MD
<b>All Authors Secondary Information:</b>	
<b>Abstract:</b>	The placement of CVC is a routine procedure performed in critical patients. There are many methods in distinguishing arterial from venous puncture. Herein we present a case in which inadvertent arterial placement is not recognized from chest x ray(CXR) and demonstrates CXR is never an ideal tool in differentiating between arterial and venous placement.

## Can Chest x ray confirm the right position of the central venous catheter?

Chia-Wei Lin, Chun-Kai Tseng

<sup>1</sup>From the department of emergency medicine, China Medical University Hospital, Taichung, Taiwan and <sup>2</sup>School of Chinese Medicine, College of Chinese Medicine, China Medical University, Taichung, Taiwan

Correspondence to Dr. Chia-Wei Lin, irregular418@gmail.com

Editor,

I read with the great interest the article by Umesh et al. [1] on utilizing carina as a radiological landmark for detection of accidental arterial placement of a central venous catheter(CVC). The article demonstrates chest x ray(CXR) is a simple and convenient tool in distinguishing arterial from venous placement. However, it doesn't work in our patient. I wish to report a case in our emergency department.

A 87-year-old woman was referred to our hospital under the impression of septic shock. CVC was inserted from left neck area and inadvertent internal jugular artery placement was confirmed by the blood gas test thereafter. Pig tail catheter was inserted for left pneumothorax. Another CVC was placed in the right subclavian vein via the infraclavicular approach. CXR showed the two CVC tip, both in the same position(Figure 1). Chest computer tomography revealed one CVC in the superior vena cava and the other in the ascending aorta(Figure 2). Her disease deteriorated and she was discharged under critical condition on the 3th day of admission.



Figure 1

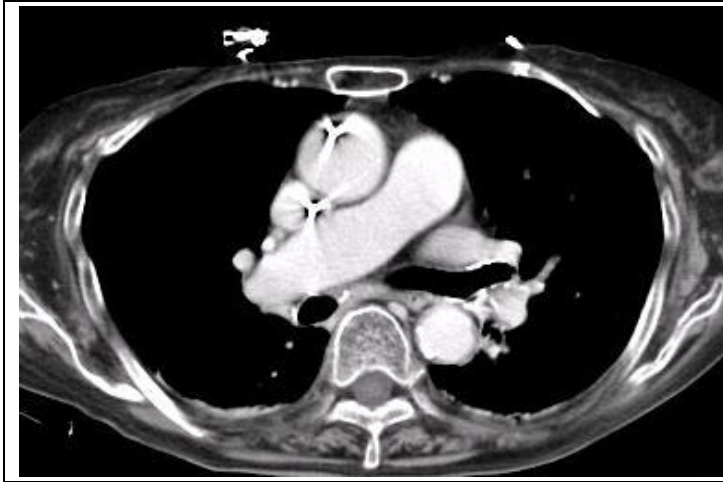


Figure 2

The placement of CVC is a routine procedure which usually performed in critical ill patients. Arterial puncture, hematoma, and pneumothorax are the most common mechanical complications during the insertion of central venous catheters. The use of blood flow and color criteria were not always reliable in detecting arterial puncture[2]. Even drawing the blood gas from the CVC and compared to a distant arterial sample provides limited information. Identification by transducing and viewing the waveform is most precise. CXR is never a dependable tool in distinguishing arterial from venous placement.

Reference:

1. Umesh G, Ranjan S, Jasvinder K, Nanda S. Carina as a useful and reliable radiological landmark for detection of accidental arterial placement of central venous catheters. *J Clin Monit Comput* 2010; 24: 403–406.
2. Jobs DR, Schwartz AJ, Greenhow DE, et al. Safer jugular vein cannulation: recognition of arterial puncture and preferential use of the external jugular route. *Anesthesiology* 1983;59:353.

Figure  
Common.Links.ClickHereToDownloadHighResolutionImage



