



# Tension pyothorax: Which empirical antibiotics to use

**Cho-Hung Chiang<sup>1\*</sup>; Cho-Han Chiang<sup>2</sup>; Cho-Hsien Chiang<sup>3</sup>**

<sup>1</sup>Department of Medicine, College of Medicine, Fu Jen Catholic University, Taipei, Taiwan

<sup>2</sup>Department of Medicine, College of Medicine, National Taiwan University, Taipei, Taiwan

<sup>3</sup>School of Medicine, Chung Shan Medical University, Taichung, Taiwan

**\*Corresponding Author(s): Cho-Hung Chiang**

Department of Medicine, College of Medicine, Fu  
Jen Catholic University, Taipei, Taiwan

Tel: 886-9728-71650;

Email: fjumed.chohung@gmail.com

Received: Apr 22, 2019

Accepted: May 30, 2019

Published Online: June 06, 2019

Journal: Journal of Clinical Images

Publisher: MedDocs Publishers LLC

Online edition: <http://meddocsonline.org/>

Copyright: © Cho-Hung C (2019). *This Article is distributed under the terms of Creative Commons Attribution 4.0 International License*

## Clinical Image

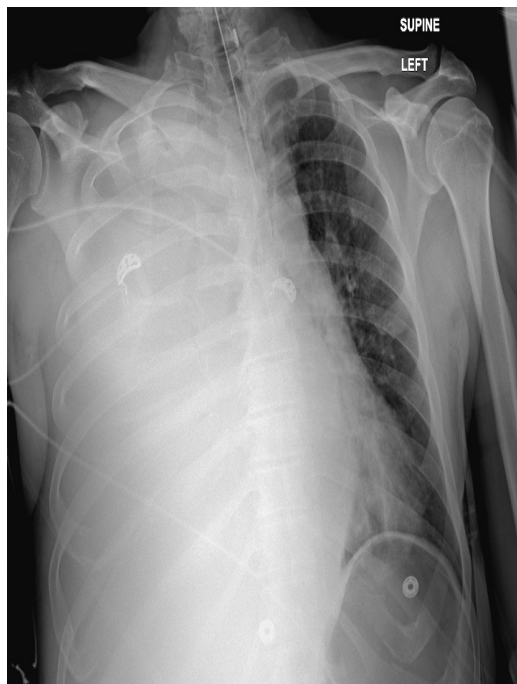
### Description

A 49-year-old male smoker with no significant past medical history presented with shortness of breath for 2 weeks was referred to our Emergency Department (ED). He had progressive upper respiratory symptoms including mild fever and productive cough. His temperature was 37.4°C (99.3°F). His blood pressure was 116/73mmHg, Pulse rate 112 beats/minute, and oxygen saturation 96%. Significant hypoxia and respiratory distress was noted, and intubation was performed. On auscultation, he had moderate respiratory distress with scattered wheezes and rhonchi with decreased breath sounds on the right lung.

Laboratory findings were positive for leukocytosis with neutrophilia. Chest X-ray revealed complete opacification of right hemithorax with leftward displacement of the mediastinum and trachea (Figure 1). Thoracentesis was performed and three liters of pus-like fluid was drained. Under the impression of Stage III tension empyema, he was treated with metronidazole 500 mg and ceftriaxone 1g. Culture of the fluid revealed *Streptococcus intermedius* and Methicillin-sensitive *Staphylococcus aureus* (MSSA). Video-Assisted Thoracoscopic Surgical (VATS) and decortication were done to remove the debris and the pus from the pleural space.



Patient are treated based on community acquired or hospital acquired empyema with empirical treatment for both aerobic and anaerobic infections for a range of 2-6 weeks. Treatment of community-acquired empyema includes a combination of beta-lactam antibiotic or second or third-generation cephalosporin and metronidazole. When patient is suspected of hospital-acquired infection, broader spectrum of antibiotics such as antipseudomonal penicillin, carbapenem, third-generation of cephalosporin or ciprofloxacin should be considered. [1,2] Aminoglycoside has poor penetration to the pleural cavity and a reduction in the efficacy in acidic environment, thus it should be avoided. Empirical antibiotics generally do not include treatment against atypical organisms. VATS and decortication is recommended to minimize hospitalization duration and peri-operative mortality in patients with stage II and III empyema respectively



## References

1. Shen KR, Bribriescio A, Crabtree T, Denlinger C, Eby J, et al. The American Association for Thoracic Surgery consensus guidelines for the management of empyema. *J Thorac Cardiovasc Surg*. 2017; 153: 129-146.
2. Davies HE, R JO Davies, CWH Davies. Management of pleural infection in adults: British Thoracic Society pleural disease guideline. 2010; 65: 41-53.
3. Farjah F, Backhus LM, Varghese TK, Mulligan MS, Cheng AM, et al., Ninety-day costs of video-assisted thoracic surgery versus open lobectomy for lung cancer. *Ann Thorac Surg*. 2014; 98: 191-196.