Tension pyothorax: Which empirical antibiotics to use

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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 pencillin, 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 perioperative mortality in patients with stage II and III empyema respectively.

References

