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Clinical vignette: Tension pneumothorax complicating septic pulmonary emboli

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# TENSION PNEUMOTHORAX COMPLICATING SEPTIC PULMONARY EMBOLI

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## CASE PRESENTATION

A 40-year-old female was referred from the local jail with a tension pneumothorax. She had a long history of intravenous (IV) heroin and cocaine use followed by a 2-year history of sobriety. She had received intravenous heroin use for 3 weeks before admission and soon thereafter developed fever and chills. She was incarcerated 7 days before admission. Five days before admission she developed progressive dyspnea and left-sided pleuritic chest pain. On arrival in the emergency department, she was found to be febrile (39.0 deg C), tachycardic (121 beats/min), tachypneic (34 breaths/min), and hypoxemic. Leukocyte count was 12,100 cells/mcL. A chest x-ray showed a large left tension pneumothorax with mediastinal shift and a moderate left sided pleural effusion. After placement of a left-side chest tube, computed tomography revealed multifocal peripheral cavitary nodules suggestive of septoemboli. Per the radiology report, the etiology of the pneumothorax was compatible with bronchopleural fistula, suspected to be due to a peripheral cavitary nodule in the anteromedial left lower lobe. A transthoracic echocardiogram revealed a large tricuspid valve vegetation measuring 0.95 x 1.47 cm. Blood cultures grew methicillin-sensitive Staphylococcus aureus. She was treated with nafcillin. Her initial hospital course included respiratory failure requiring mechanical ventilation and development of a right-sided pleural effusion. An echocardiogram showed a large tricuspid valve vegetation measuring 1.3 x 0.9 cm. Blood cultures grew methicillin-sensitive Staphylococcus aureus. She was transferred to a skilled nursing facility to complete a six week course of nafcillin. At the time of discharge, she was without leukocytosis and no longer required supplemental oxygen.

## REFERENCES


## TEACHING POINTS

1. Pneumothorax is an uncommon complication of pneumonia; it may be seen with Pneumocystis jiroveci, tuberculosis, or necrotizing bacterial pneumonia.
2. Pneumothorax associated with septic pulmonary embolus is a very rare complication of Staphylococcus aureus bacteremia.
3. The pathophysiology of pneumothorax in the setting of septic pulmonary emboli is presumed to be erosion of an embolic bacterial cavitary lesion into a bronchus with creation of a bronchopulmonary fistula.
4. Septic pulmonary embolus is a severe complication of staphylococcal bacteremia and right-sided endocarditis that may be seen in IV drug users. On rare occasion, it may be associated with pneumothorax. This infection is often associated with prolonged morbidity and increased mortality.

## IMAGING

- CXR showing tension pneumothorax and peripheral cavitary nodules

## CONCLUSIONS

Septic pulmonary embolus is a severe complication of staphylococcal bacteremia and right-sided endocarditis that may be seen in IV drug users. On rare occasion, it may be associated with pneumothorax. This infection is often associated with prolonged morbidity and increased mortality.