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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

An 80 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 resumed intravenous heroin use 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/mL. 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-sided chest tube, computerized tomography revealed multifocal peripheral cavitary nodules suggestive of septic emboli. 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 transesophageal 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 pneumothorax requiring placement of an additional chest tube. Serial chest x-rays showed improvement of the cavitary lesions and resolution of the bilateral pneumothoraces. She was eventually transferred to a skilled nursing facility to continue parenteral antibiotic therapy. On discharge, she was ambulating with supplemental oxygen 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 emboli 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 a embolic bacterial cavitary lesion into a bronchus with creation of a bronchopulmonary fistula.
4. Septic pulmonary emboli 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.

CONCLUSIONS

Septic pulmonary emboli 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.