

Pulmonary Septic Emboli and Pseudomonas Pneumonia: Complication of Hemodialysis Catheter

S Perloff, B Vahid

Citation

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Abstract

To The Editor,

A 33 year old woman was admitted to our hospital with fever, chest pain, and vomiting. Chest pain was pleuritic and was worse with inspiration. The patient was febrile for 6 days before evaluation. Her past medical history was significant for systemic lupus erythematosus (SLE), chronic renal failure on chronic hemodialysis, and hypertension. Physical examination showed temperature of 103°F, heart rate of 125/min, respiratory rate of 28/min, and blood pressure of 142/88 mmHg. The patient was ill-appearing and mildly tachypnic. Chest exam was remarkable for bilateral basilar crackles. Heart and abdominal exam were unremarkable. Mild erythema surrounding the right anterior chest wall venous catheter site was noted. Chest imaging studies during hospitalization are shown in figure 1.

Figure 1

Figure 1a: Chest radiograph on admission showing right lung infiltrates.



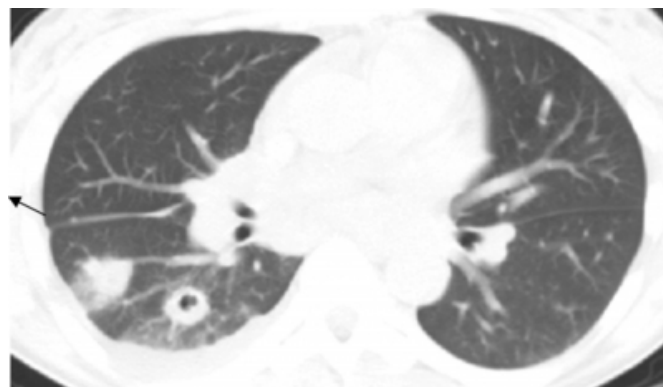
Figure 2

Figure 1b: Chest radiograph after 2 days showing progression of infiltrates.



Figure 3

Figure 1c: Chest CT scan showing cavitating pulmonary infiltrates (arrow).



The venous catheter was removed. A sonographic study of

right upper extremity showed a thrombus in right internal jugular vein. The catheter tip culture grew more than 100 colonies of *Pseudomonas aeruginosa*. The blood cultures and sputum culture were also positive for *Pseudomonas aeruginosa*. *P. aeruginosa* was sensitive to ceftazidime and amikacin. The patient was successfully treated with 14 days of ceftazidime and amikacin.

DISCUSSION

Pseudomonas is leading cause of gram negative rod induced hospital-acquired pneumonia. The most common presentation of *Pseudomonas* respiratory infection in hospitalized patients is nosocomial tracheobronchitis in mechanically ventilated patients.

Pseudomonas spreads to lungs either by aspiration of gastric contents/oropharyngeal secretions or through blood stream infection. Pseudomonal virulence factors are exotoxins, endotoxin, flagella, proteases, phospholipases, iron-binding proteins, biofilm formation, and pyocyanin production^{1,2,3}.

Risk factors for *Pseudomonas* pneumonia include use of prior antibiotics, malnutrition, congestive heart failure, neutropenia, steroid use, immunosuppression, structural lung abnormalities, and mechanical ventilation^{3,4}.

Clinical manifestations are cough, purulent sputum, dyspnea, fever, confusion, and systemic toxicity. Chest radiograph usually shows multifocal airspace disease. Pseudomonal pneumonia mortality rate is high (70-80%). Poor prognostic indicators are old age, serious underlying condition, hemodynamic compromise, prior surgery, and broad-spectrum antibiotic therapy in 6 months prior to presentation. Antipseudomonal penicillins, penicillins plus β -lactamase inhibitor, antipseudomonal cephalosporins, aztreonam, carbapenems, and fluoroquinolones can be used in treatment of pseudomonal pneumonia^{1,3}.

CORRESPONDENCE TO

Bobbak Vahid, MD 1015 Chestnut Street Suite M-100
Philadelphia, PA 19107 Tel: 215 9556591 Fax: 215 9550830
E-mail: Bobbak.vahid@mail.tju.edu

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Author Information

Sarah Perloff, D.O.

Department of Infectious Diseases, Thomas Jefferson University

Bobbak Vahid, M.D.

Department of Pulmonary and Critical Care Medicine, Thomas Jefferson University