A Rare Case of *Serratia Marcescens* Infective Endocarditis Initially Presenting as Pneumonia

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Background

- *Serratia marcescens* is an aerobic, opportunistic, gram-negative bacillus that is associated with intravenous drug use (IVDU), immunosuppression, and previous antibiotic exposure; it can cause respiratory tract infections, such as pneumonia, resulting in 4.1% of all cases.
- *Serratia marcescens* endocarditis is extremely rare, contributing to only 14 out of 10000 endocarditis cases, with an 85% estimated mortality rate. Thus, a high index of suspicion is necessary to accurately diagnose and treat at risk patients.
- Here, we present a complicated case of *Serratia marcescens* pneumonia and infective endocarditis with good prognosis.

Case Description

Presentation:

- A 50-year-old man with history of Hepatitis C, IVDU, alcohol use disorder, and hypertension presented in an altered state after a fall, reporting cough and dyspnea.
- Patient was brought in by EMS after being found wandering the streets
- Vitals in ED were Tmax of 103^{o}F, BP 157/60 mmHg, HR 87 bpm, RR 17 and SpO2 100% on Room Air.

Case Description

Physical Exam and Laboratory Findings:

- Patient oriented only to self and appeared diaphoretic. Cardiopulmonary exam was notable for tachycardia and decreased left basilar lung sounds.
- Laboratory studies were remarkable for WBC 12.7, platelets 25, CK 2795, creatinine 1.6 (baseline 0.7), troponin 0.21, ESR 56, and CRP of 48. Urine drug screen revealed cannabis, opiates, and barbiturates.
- Head computed tomography (CT) was unremarkable for acute pathology. Chest X-ray revealed a left basilar opacity. (Figure 1)

Hospital Course:

- Vancomycin and zosyn were initiated for suspected left lower lobe pneumonia with improvement in clinical status.
- On day 3 of admission, blood and urine cultures were found to have growth of *Serratia marcescens*. Empiric antibiotics were changed to meropenem based on reported susceptibility. Despite clinical improvement, further workup was initiated given rarity & virulence of organism.
- Transesophageal echocardiogram (TEE) revealed a large aortic valve vegetation (1.5cm x 1.4cm) and paravalvular abscess involving the aortic root, with concomitant aortic regurgitation due to leaflet rupture.
- Hospital course was complicated by left knee septic arthritis, lumbar paraspinal myositis and splenic abscess requiring drainage. Patient was not deemed an operative candidate for valvular surgery.
- Antibiotic regimen was changed from meropenem to ertapenem for a six-week total course and patient was safely discharged.

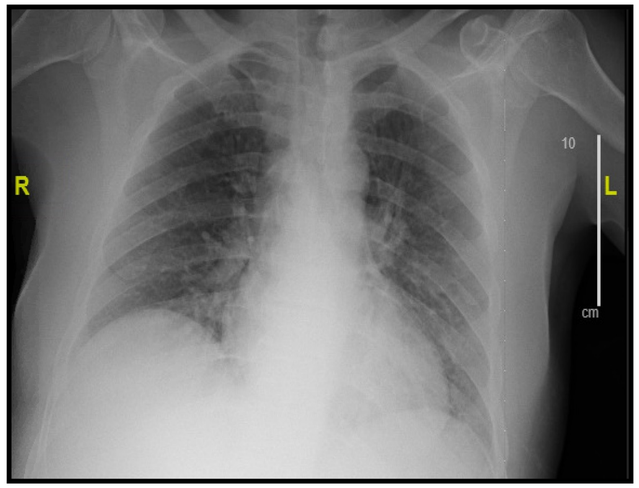

Figure 1: CXR obtained in the ED on presentation. Findings of radiology report were of a "left basilar opacity, most likely to represent consolidation or subsegmental atelectasis, pneumonia cannot be ruled out."

Discussion

- *Serratia marcescens* bacteremia in a patient with suspected pneumonia should prompt further investigation with a thorough evaluation of the underlying source.
- Clinical course in this patient was notable for additional infectious foci (i.e. including joint infections, splenic abscesses, myositis, and septic arthritis), despite the initial presentation concerning for pneumonia.
- Given the high mortality rate of Serratia marcescens endocarditis, consideration should be given to a bacteremic source for pneumonia in patients that have the epidemiological risk factors seen in this patient.

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