

Case History:

A 27 year old male presents to emergency department with complaints of productive cough, feeling feverish with chills, and nausea/vomiting for 1 week. Patient admits to progressive shortness of breath at rest. Patient complains of severe left-sided chest pain while in ED which he states is causing him to vomit forcefully. Patient denies abdominal pain, diarrhea, hematemesis or hematochezia. Patient denies sick contacts, seasonal flu vaccine, recent travel, or significant PMHx.

Vitals:

Temp: 38.3 C
BP: 95/47 mmHg
HR: 121
RR: 24
O2 Sat: 98% Room Air
Pain: 10/10 chest pain left side

Notable Physical Exam Findings:

General: Mildly acute distress, actively vomiting clear fluid
Pulmonary: Bilateral wheezing in all lung fields, crackles present at lung bases bilaterally, mild tachypnea
Cardiac: Tachycardia

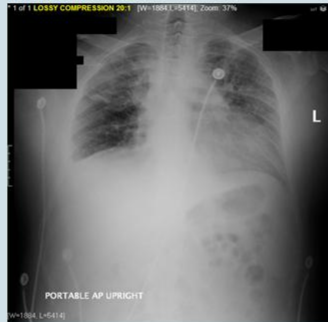
Differential Diagnosis:

1. Myocardial Infarction
2. Sepsis due to Bacterial Pneumonia
3. Sepsis due to Viral Pneumonia
4. URI
5. Viral Gastritis

Notable Labs:

WBC: 15.15 (Ref: 4.5-10.5)
Neutro: 12.49 (Ref: 1.8-8.4)
Trop: Negative x2
Procal: 0.78 (Ref: 0.02-0.09)
Urine: Negative
Influenza: Positive for influenza B

Notable Imaging:



Notable Imaging Continued:

Chest XR: Right Upper Lobe consolidation with diffuse air-space opacity

CT: Right lung consolidation primarily in upper lobe; Tiny right pleural effusion

CTA: Negative for PE but Large Right pleural effusion present

Thoracentesis performed 3 days into hospital admission: 600 mL removed. Clear/Amber color

Sputum Culture: MRSA cultured 2 days into admission

Bronchoscopy Culture: MRSA cultured 3 days into admission

Treatment:

Patient was hemodynamically stable after fluid bolus was administered in ED. Patient was admitted to the general floor and started on IV Azithromycin, Vancomycin, and Cefepime. Tamiflu was started as well. Day 2 of hospital stay antibiotics were de-escalated to remove cefepime and start ceftriaxone by pulmonology. Bronchoscopy was performed on day 3 due to hemoptysis. Severe erythema and inflammation was observed and bronchoalveolar lavage was performed. Right sided pleural effusion was drained as well. Patient continued to improve in regards to symptoms and repeat chest imaging. He was discharged home on Zynox and Prednisone.

Final Diagnosis:

MRSA pneumonia with Influenza B coinfection

Outcome & Follow Up:

After spending 6 days in the hospital, the patient was discharged home on Zynox 600mg BID for 10 days. Repeat chest Xray was performed 2 weeks after discharge and chest CT 6 weeks after discharge which showed improvement of inspiratory effort and clearing of lung fields. Patient was instructed to use incentive spirometry at home and was near-baseline by his 6 week follow up appointment with his PCP. Patient did not require any further medical intervention for this illness after his 6 week visit.

Discussion/Conclusion:

Community acquired MRSA pneumonia is a uncommon occurrence (1-2% of all pneumonias) in the US population without the patient having significant comorbidities. The only risk factor the patient did present with was coinfection with influenza B. Having a current or recent infection of influenza greatly increases the likelihood of MRSA pneumonia for all age groups. This patient likely would have suffered worse symptoms and potentially death if the early initiation of vancomycin was not ordered during admission. It reiterates the idea of broad spectrum antibiotics followed by de-escalation as cultures return. It also reinforces the point that severe bacterial infections can be seen following viral illnesses.

References:

- Lambert, M. (2011, August 15). *IDSA Guidelines on the Treatment of MRSA Infections in Adults and Children*. Practice Guidelines - American Family Physician. <https://www.aafp.org/afp/2011/0815/p455.html>
- Liu, C. (2011, February 1). *Clinical practice guidelines by the infectious diseases society of america for the treatment of methicillin-resistant Staphylococcus aureus infections in adults and children*. PubMed. <https://pubmed.ncbi.nlm.nih.gov/21208910/>
- Lobo, J. L. (2010, February 19). *Expanded clinical presentation of community-acquired methicillin-resistant Staphylococcus aureus pneumonia*. PubMed. <https://pubmed.ncbi.nlm.nih.gov/20173050/>
- Murray, R. J. (2010, January 14). *Community-acquired pneumonia due to pandemic A(H1N1)2009 influenza virus and methicillin resistant Staphylococcus aureus coinfection*. PubMed. <https://pubmed.ncbi.nlm.nih.gov/20090931/>
- Nakou, A. (2009, November 1). *MRSA as a cause of community-acquired pneumonia*. European Respiratory Society. <https://erj.ersjournals.com/content/34/5/1013>