

Case Report

Lemierre's Syndrome: The Result of an Incorrect Penicillin Allergy

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Abstract

We present a case of a previously healthy 21 year old male who presents with Lemierre's syndrome after getting inadequate treatment of a throat infection because of a penicillin allergy label. Lemierre's syndrome is a rare complication following an acute oropharyngeal infection due to the common use of penicillin in modern medicine. Unfortunately, many patients are labeled with a penicillin allergy at a young age and are therefore more susceptible to complications of not receiving the most effective treatment for, what should be, a routine illness.

Case presentation

A 21 y.o. male with no significant past medical history presents to the Emergency Room with shortness of breath and fever. Five days prior to presentation, he noted sore throat, fevers, and heartburn. Since that time, he has also noted increasing shortness of breath. He presented to an acute care clinic three days prior to presentation and had a positive rapid strep screen. He was given a script for azithromycin, due to a history of penicillin allergy, and magic mouthwash. He took Ibuprofen alternating with acetaminophen for fever, but continued having worsening dyspnea and a cough productive of clear sputum. He had significant pain over the right chest, 10/10 in severity, sharp in quality, exacerbated by deep breathing.

In the ER his vital signs were significant for fever to 40.1 C, tachycardia, tachypnea, and hypoxia requiring 3L oxygen. Physical exam revealed significant diaphoresis and decreased breath sounds at the right base. He had dullness to percussion over the right lower lung field, but no egophany was noted. A chest X-Ray showed possible right pleural effusion with no consolidation (Figure 1). CTA was obtained and showed no pulmonary emboli but found right air space concerning for pneumonia and an abscess superior to his right lower lobe bronchus. Blood cultures were obtained, he was given fluids and started on Ceftriaxone and Azithromycin (Figure 2).

On admission, Clindamycin was started for the concern of a pulmonary abscess until gram stains on the blood cultures grew Gram Negative and Gram Positive Rods. The patient was then converted to Ceftazidime, to cover possible pseudomonas, and Vancomycin, for possible MRSA. Over the next day, he continued to have significant right sided chest pain and persistent leukocytosis, fevers, and oxygen requirement. A repeat CXR was obtained on his third day of admission which showed a large right sided pleural effusion (Figure 3). Blood cultures at this time came back positive for *Fusobacterium necrophorum* which raised immediate concern for Lemierre's syndrome. He was restarted on IV Clindamycin and a CT larynx and chest was obtained, showing a possible non-loculated empyema, worsening infectious pneumonia, a clot in the left internal jugular vein,

but no retropharyngeal abscess (Figures 4 and 5). The Cardiothoracic surgery team was consulted and the patient went for right sided Video Assisted Total Decortication. They were able to peel off an exudate made up of fibrinous material with focal granulation tissue surrounding the lung and then drain the fluid. He had 3 chest tubes to drain fluid over the next few days, and was discharged on post-op day 5. On follow-up 2 weeks later, he was still on clindamycin and was feeling better, with no fevers and much improved breathing. During admission, the allergy/immunology team found he did not have a true penicillin allergy.

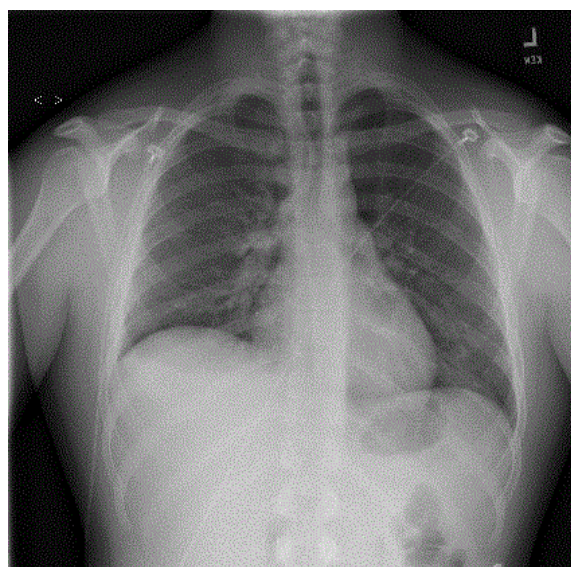


Figure 1: Chest X-Ray

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Received: May 02, 2017; **Accepted:** May 22, 2017; **Published:** May 25, 2017

Discussion

Lemierre's Syndrome refers to the progression of a bacterial throat infection to thrombophlebitis of the internal jugular vein. This thrombophlebitis can have serious implications when it leads to bacteremia and septic emboli. Most commonly, and as in our case, the lungs are a site of metastatic infection. This can include pulmonary infiltrates, pleural effusion, empyema and lung abscesses [1-5]. Other metastatic infections include septic arthritis, osteomyelitis, pericarditis, hepatic abscesses, and meningitis. Other organs including the spleen, skin, kidneys, brain and soft tissues may also be involved [1,6-9].

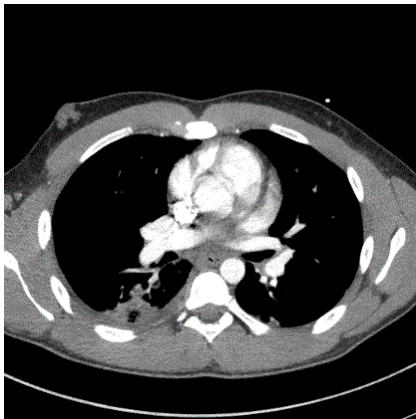


Figure 2. CTA

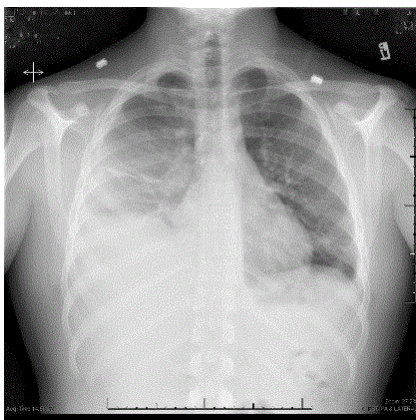


Figure 3. CXR

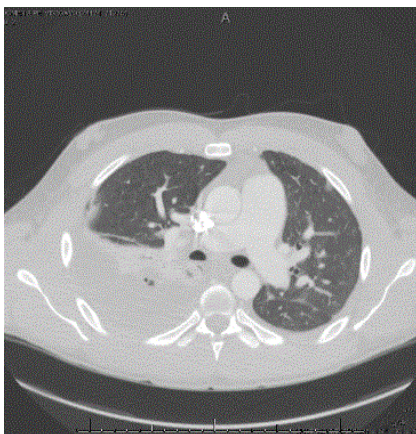


Figure 4. CT larynx

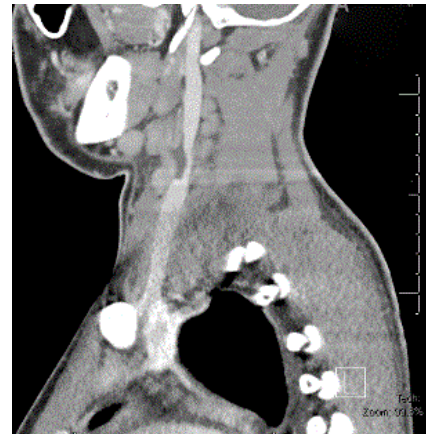


Figure 5: CT Neck

Lemierre's Syndrome is most commonly caused by *Fusobacterium*, which are normal flora of the oral cavity and gastrointestinal tract [10]. They are slow growing, anaerobic, gram-negative bacilli which are susceptible to Penicillin.

This constellation of symptoms occurs because a bacterial infection progresses to the formation of an abscess in the palatine tonsils or peri-tonsillar tissue. Inside the abscess, anaerobic bacteria can flourish. When this abscess ruptures, the bacteria can infect nearby structures including the internal jugular vein [10-12]. In most cases, this process is interrupted early in the course with the prescription of penicillin for strep throat. With increased use of penicillin for bacterial throat infections since the 1960s, the number of reports of Lemierre's syndrome has dropped [13]. Lemierre's syndrome remains a rare condition, with one retrospective study from Denmark estimating an incidence of around 1 case per million [14]. In our case, the patient had a charted "unknown allergy to penicillin," so he received Azithromycin for a perceived strep throat infection instead of Penicillin. *Fusobacterium* species is much more likely to be resistant to Azithromycin than Penicillin. This "fake allergy" reporting has become an epidemic in our current healthcare system with serious consequences. In a recent study, 96% of patients at one acute care facility who self-reported penicillin allergy had a negative skin test [15]. Similar to those in this study, our patient was tested during this admission by the allergy/immunology team and found not to have a true allergy to Penicillin making his entire hospitalization preventable.

Conclusion

Lemierre's syndrome is a rare complication following an acute oropharyngeal infection due to the common use of Penicillin to treat strep throat in modern medicine. Unfortunately, many patients get labeled with a Penicillin allergy at a young age and are therefore more susceptible to complications of not receiving the most appropriate treatment for an illness such as strep throat. Primary Care providers and Hospitalists should be more proactive in having an accurate allergy history and should be more suspicious of this syndrome in patients with a listed penicillin allergy.

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