Case Report: Legionella Pneumonia In An Immunocompromised Host

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OBJECTIVE

To describe the clinical presentation and lab results in order to increase the diagnostic awareness for Legionella pneumonia.
PATIENT HISTORY

42 year old white Caucasian male who works as an electrician in the old school building with history significant for psoriatic arthritis on immunosuppressants; prednisone and sulfasalzine, history of latent TB (negative PPD, Quantiferon TB Gold test positive and negative chest radiograph) on isoniazid for 8 months prior to start of adalimumab 4 months ago, current one pack per day smoker, drinks ten beers on weekends, recreational drug use (cocaine and marijuana), no recent travel history went to his primary care doctor after he started to feel sick. Reported taking an extra dose of adalimumab that week. He developed fevers, chills, night sweats, body aches, productive cough, SOB, chest pain, diffuse abdominal pain, vomiting, diarrhea, for the past 5 days and fatigue.
LABS & IMAGING

• 8/1/201X Emergency Department visit:
• Clinical symptoms: fevers, chills, night sweats, body aches, productive cough, SOB, chest pain, diffuse abdominal pain, vomiting, diarrhea, for the past 5 days and fatigue.
• CXR- No acute cardiopulmonary disease.
• WBC 18.3. Na 137. Lactate 1.8.
Patient left the emergency department without being seen by a physician.
• **8/2/201X**

• The following day the patient went to his PCP due to worsening fevers, chills, and nausea.

• PCP ordered a **spiral CT scan abdomen / pelvis without contrast which showed a 5.0 x 5.5 x 3.9 cm subpleural mass posteriorly left lower lobe with scattered air throughout the mass.** He is sent to the hospital for direct admission.
Vital Signs - Temp: 100.2 °F, Heart Rate: 105, Respirations: 22, Blood Pressure: 135/87

• Pertinent Physical Exam Findings:

Constitutional: He is oriented to person, place, and time. Appears distressed.

Cardiovascular: Regular rhythm and normal heart sounds. Exam reveals no gallop and no friction rub. No murmur heard. Tachycardic.

Pulmonary/Chest: He is in respiratory distress. Breath sounds are absent in the left lower lobe

Skin: He is diaphoretic. There is pallor.
RESULTS

• Labs: WBC 15.8, Na 134, lactate 0.9, procalcitonin 0.17, ESR 54, CRP 33

• Patient was septic on admission and was started on 30cc/kg bolus normal saline with broad spectrum antibiotics: vancomycin, piperacillin/tazobactam, and ciprofloxacin.

• Fungal and bacterial cultures were sent to the lab. He was placed on TB isolation until sputum cultures were negative x3.

• Urine antigen for legionella was reported positive and infectious disease was consulted and ciprofloxacin was switched to azithromycin. The legionella sputum cultures returned positive x2.

• Biopsy of lung mass done on 8/4, both cytology and histology were negative for any malignancy, bacteria and fungi. Report mentioned acute organizing pneumonia.
• 8/4: CT guided needle biopsy imaging:
• 8/4 post biopsy chest radiograph: Left lung base consolidation
• Patient’s condition improved throughout hospitalization and his antibiotics were optimized to only azithromycin. He was discharged on 14 more days of Azithromycin 500mg PO daily to complete a 21 day course of treatment.

• A follow up appointment was scheduled for the patient but he was lost to follow up.
CONCLUSION

Legionella pneumonia should be included in the differentials for patients presenting with fever, cough, malaise with negative chest radiograph and a low CURB-65 score because the mortality reaches 16-30% if untreated or with inactive antibiotic use and 1/10 people with the disease will die. 6

• Drug-condition interactions: Adalimumab is a fully human recombinant monoclonal antibody IgG that binds to human tumor necrosis factor alpha (TNF-alpha), thereby interfering with binding to TNFα receptor sites and subsequent cytokine-driven inflammatory processes resulting in down regulation of macrophages and T-cell function. 4
DISCUSSION

Literature: Database - Pubmed, Cochrane Review
Search terms: Legionella, immunocompromised, drug abuse

Legionella became recognized due to an outbreak in 1976 American Legion convention in Philadelphia. Several tests are available for diagnosis including culture, direct antibody fluorescence stain, urine antigen and a PCR test. Urine antigen has a sensitivity of 70-80% but only detects Legionella pneumophila and the culture detects all serogroups with sensitivity of <10-80%.
• In one retrospective study, researchers concluded that Legionella pneumonia did not always present as severe pneumonia and that other extrapulmonary manifestations may be useful clues for diagnosis. Legionella pneumonia should be included in the differential diagnosis even in cases of mild to moderate pneumonia when presenting with extrapulmonary symptoms, especially in diabetic patients. ¹

• A case series reported that Legionnaires’ should be on the differential in the late spring and summer months in patient with history of tobacco use and comorbidities. The report also recommends empirically starting patients with severe pneumonia on newer macrolides or respiratory fluoroquinolones especially if clinical suspicion exists for Legionella. ²
• A small 20 case legionella outbreak reported in European Respiratory Journal outlined the importance of clinicians being aware of Legionella pneumonia as potential cause of severe community acquired pneumonia even when the CURB-65 score is not severe and there is no occupational history.
REFERENCES:

1) Akihiro UEDA, Masayuki OKI. “Clinical Characteristics of Legionella Pneumonia Diagnosed with Legionella Urinary Antigen Test”. Division of General Internal Medicine, Department of Internal Medicine, Tokai University School of medicine (Received June 5, 2015; Accepted November 27, 2015). In: Tokai Journal of Experimental and Clinical Medicine, Vol. 41, No. 1, pp. 8-13, 2016

2) Legionella pneumonia in the Niagara Region, Ontario, Canada: a case series Journal of Medical Case Reports, 2016, Volume 10, Number 1, Page 1. Stephanie Cargnelli, Jeff Powis, Jennifer L. Y. Tsang


