Hypersensitivity Pneumonitis Due to MAC Exposure from Hot Tubing

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Objectives:

-Recognize presentation and imaging consistent with hypersensitivity pneumonitis as well as treatment.

-Highlight a less common source of hypersensitivity pneumonitis.

Introduction:

- Over the years, hot tubs have gained a notorious infectious reputation from hot tub folliculitis due to pseudomonas infection to legionella pneumonia.
- A less common, but still prominent risk from hot tub usage and source of hypersensitivity pneumonitis is Mycobacterium avium complex (MAC) exposure.
- Hypersensitivity pneumonitis develops in 5-15% of those exposed to the offending agent.

Case Presentation:

- 41 y.o. female with PMH of ulcerative colitis on Imuran and Infliximab.
- CC: Dyspnea, fever, and malaise. One week prior, she went on a fishing trip followed by progressive malaise and fever, home recorded Tmax of 104.7 F. Stated to have been in an enclosed hot tub during her trip with others becoming ill as well. She does own cats, dogs, and horses. Denied recent exposure to tobacco, including vaping, quit year ago.
- Exam: Increased WOB. Lungs clear to auscultation bilaterally.
- Vitals: HR 109, RR 27, BP 114/72, O2 sat 88%, and Temp 101.8 F.
- Labs: ABG pH 7.39, pCO2 27.8, pO2 70, Bicarb 16.6. Lactic Acid: 1.9 mg/dL. Procalcitonin: 2.40 ng/mL. Legionella urine antigen: Positive

Imaging:

Figure 1: CXR noted bilateral interstitial lung opacities which could be due to pulmonary edema or atypical/viral infection.

Figure 2: CT PE without evidence of acute PE. Diffuse bilateral interstitial thickening with ground glass and consolidate opacities with trace bilateral pleural effusions, favored infectious or inflammatory in nature. Severe pulmonary edema could have a similar appearance. Multiple prominent mediastinal hilar lymph nodes, likely reactive.

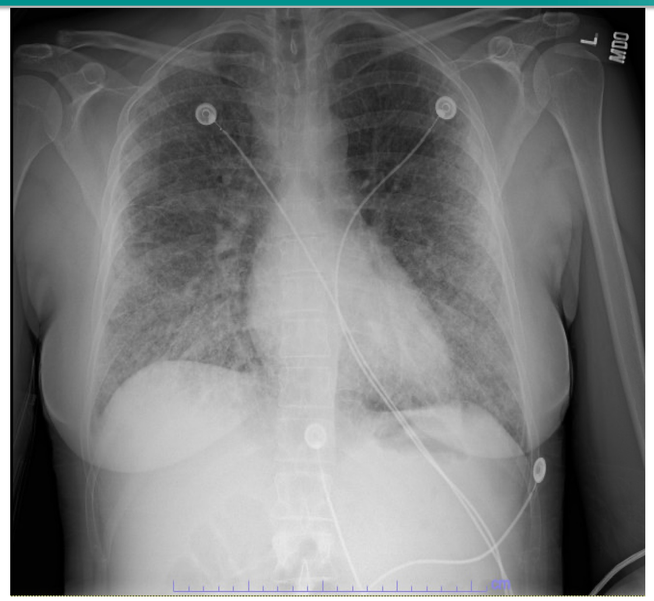

Figure 1

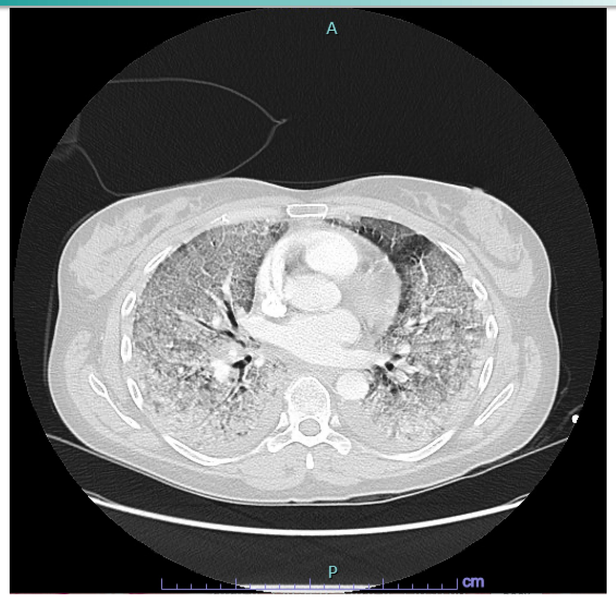

Figure 2

Management:

- Placed on HFNC. Initiated on Solu-medrol 60 mg BID with ceftriaxone and azithromycin for CAP coverage. Azathioprine held due to concern for infection. Pulmonology consulted inpatient. Transitioned to oral prednisone 40 mg PO daily followed by 10 mg wean every 7 days followed by 5 mg for one additional week. Transitioned to 7 day course of levofloxacin in the setting of positive legionella antigen. At time of discharge, titrated down to and discharge on 3L NC with symptoms greatly improved.
- Outpatient follow up with pulmonology two months after discharge. Repeat CXR noted few interstitial infiltrates, but vastly improved form prior. No longer requiring oxygen supplementation. Water sample positive for MAC.

Discussion:

- Exposure to aerosolized MAC from hot tub usage as a source of hypersensitivity pneumonitis.
- Hypersensitivity pneumonitis treatment with steroids, O2 support as needed, and removal of offending agent regardless of source.
- Importance of detailed history and correlation with work up including imaging.

References:

- " Hypersensitivity Pneumonitis Associated With Mycobacterium Avium Complex and Hot Tub Use." Define_me,https://www.mayoclinicproceedings.org/article/S0025-6196(11)61814-4/pdf.
- "Mycobacterium Avium Complex Infections." Genetic and Rare Diseases Information Center, U.S. Department of Health and Human Services,https://rarediseases.info.nih.gov/diseases/7123/mycobacterium-avium-complex-infections.
- American College of Physicians. MKSAP : Medical Knowledge Self-Assessment Program VIII. Philadelphia, PA :American College of Physicians, 19881989.
- ES;, Yi. "Hypersensitivity Pneumonitis." *Critical Reviews in Clinical Laboratory Sciences*, U.S. National Library of Medicine, https://pubmed.ncbi.nlm.nih.gov/12484500/.

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