Round pneumonia with *Pseudomonas luteola* and *Escherichia vulneris* bacteremia

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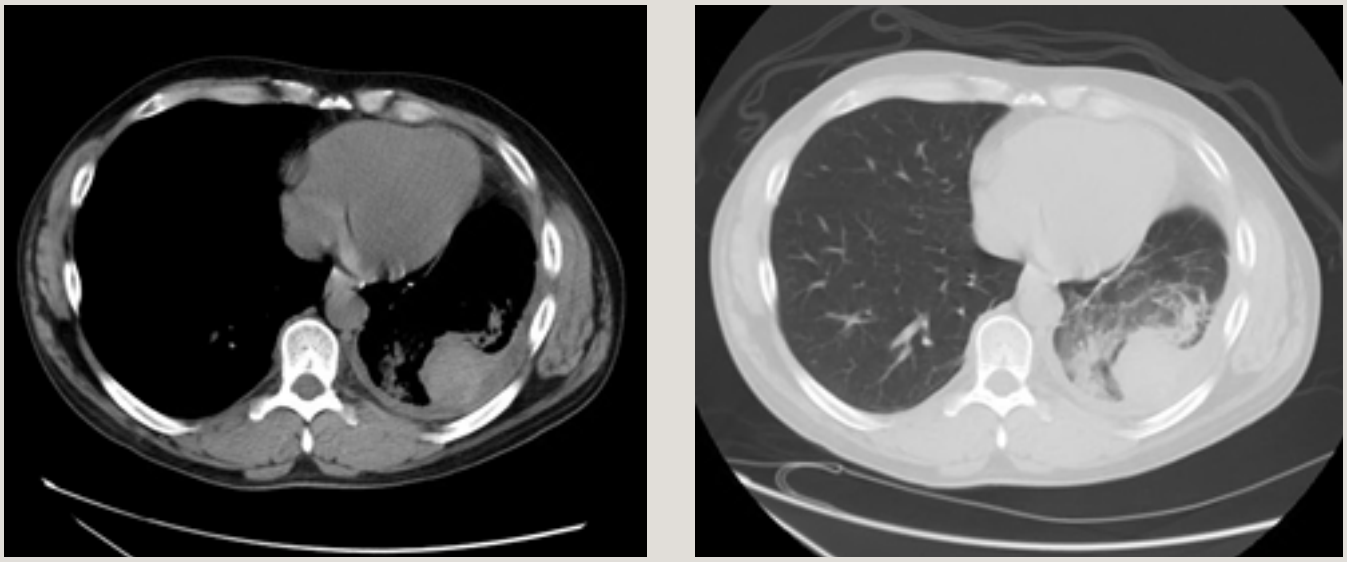

Figure 1

CASE REPORT

A 40-year-old man with a past medical history of alcohol abuse presented with altered mental status. The patient's wife reported that he had stopped drinking alcohol three days prior, and on the day of presentation had experienced two seizures and fever while at home. Physical examination at the time of admission revealed crackles over the left lower lung fields and a fluctuating mental status without focal neurological deficits or meningeal signs. Patient was febrile with a temperature of 101.4 F. Posteroanterior and lateral chest radiographs revealed a left sided pleural effusion with suspected pneumonia. After drawing blood cultures, he received ceftriaxone 1g IV and azithromycin 500mg IV in the emergency department. On the second day of admission, the patient's mental status had improved remarkably with treatment for suspected alcohol withdrawal with no further episodes of seizure, making the diagnosis of meningitis unlikely. He then reported he had experienced hemoptysis beginning five days prior to admission that lasted approximately three days. Later that day, blood cultures returned positive for two Gram negative rods, at which point piperacillin/tazobactam was started. It was decided to evaluate the lung infiltrates and pleural effusion by computed tomography (CT) of the chest which showed a 3.2cm x 6.0cm rounded, slightly hyperdense lesion in the left lower lobe with an adjacent small pleural effusion. This lesion could represent a neoplasm, pneumonia, or hematoma (Figure 1). As the patient did not report any recent trauma in this region and had evidence of current infection, it was thought that this infiltrate was a round pneumonia. Blood culture speciation revealed *Pseu-*

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domonas luteola in two bottles and *Escherichia vulneris* in one bottle. Upon further questioning, it was discovered that the patient was a contractor, often requiring him to work in attics with exposure to insects, bird nests, and droppings without a mask. Thus, the diagnosis of round pneumonia with *P. luteola* and *E. vulneris* bacteremia was established, likely secondary to bacterial inhalation at work. Repeat blood cultures obtained after a single dose of ceftriaxone and azithromycin, but prior to piperacillin/tazobactam, showed clearance of the bacteremia. A PICC line was then placed and patient was discharged home to complete a 14 day course of IV ciprofloxacin, based on susceptibility testing of the initial blood cultures. The patient missed his initial follow up appointment and had to be rescheduled, at which point a repeat chest radiograph showed significant improvement in the effusion and infiltrates, 37 days after discharge.

Discussion

Round pneumonia is a condition most often seen in the pediatric population; however, it is occasionally seen in adults.[1] On chest radiographs, these lesions typically appear as solitary pulmonary nodules, often first suspected to represent carcinoma of the lung which may require further evaluation by CT. In our case, it was the presence of the Gram negative rods in the blood culture that prompted further evaluation. *Pseudomonas luteola* (formerly *Chryseomonas luteola*) is a catalase positive, oxidase negative, motile Gram negative bacillus of the family *Pseudomonaceae*.[2] While *P. luteola* infections are less common than those of *P. aeruginosa*, there have been case reports of the bacterium causing bacteremia, empyema, prosthetic valve endocarditis, post-surgical infections, and peritonitis.[3-6] Although most often found in the soil and water sources, *P. luteola* has been isolated in animals, including turtles, tortoises and fish.[7,8] Clinical isolates show susceptibility to third generation cephalosporins, mezlocillin, imipenem, aminoglycosides, and quinolones. The second pathogen, *Escherichia vulneris*, is a Gram negative, oxidase negative, indole negative, fermentative motile rod of the family *Enterobacteriaceae* that has been isolated from animals, drinking water, and humans.[9] The bacterium is a known human pathogen found previously described causing bacteremia, as well as osteomyelitis, sepsis secondary to urinary tract infection, meningitis, and peritonitis.[10-14] While *E. coli* is a cause pneumonia, a literature review did not reveal any previously reported cases of pneumonia involving *E. vulneris.* Animals known to carry the bacteria include wild birds and cockroaches.[15,16] It displays a similar antibiotic sensitivity profile as *E. coli* and *E. hermannii*, generally with increased susceptibility.[17] Although this bacterium grew in only one out of two bottles, it was considered a pathogen as the patient had significant occupational exposure to likely bacterial sources. Treatment duration of both bacteria is dependent on the site of infection. Treatment of round pneumonia is typically with antibiotics alone, requiring further evaluation if the lesion does not resolve on follow up imaging. Antibiotic therapy should be tailored to the suspected organism or based on culture and sensitivities, if available. Given our case, it should be noted that the presence of either *P. luteola* or *E. vulneris* should warrant consideration of a pulmonary source and a thorough occupational and exposure history should be obtained.

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