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Multiple Large Lung Cavitory Lesions Due to Streptococcus Intermedius in an Otherwise Healthy Young Male

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BACKGROUND

- Streptococcus intermedius is a member of the Streptococcus anginosus group [SAG], previously known as the Streptococcus milleri group.
- It is a Gram-positive, catalase negative coccus that is non motile and is a facultative anaerobe. This group is part of the normal flora of the oropharynx, genitourinary, and gastrointestinal tracts.
- However, they have been known to cause a variety of purulent infections and abscess formation.
- This includes those of the brain, meninges, heart, sinuses, liver, lungs, spleen, peritoneum, pelvis, and appendix. It has been suggested in some reports that infections by these bacteria are increased in patients with multiple comorbidities, malignancy, and diabetes i.e. immunocompromised and chronically ill individuals.
- Our case illustrates an unusual presentation of Cavitory lung lesions caused by S. intermedius in an otherwise healthy immunocompetent young male.

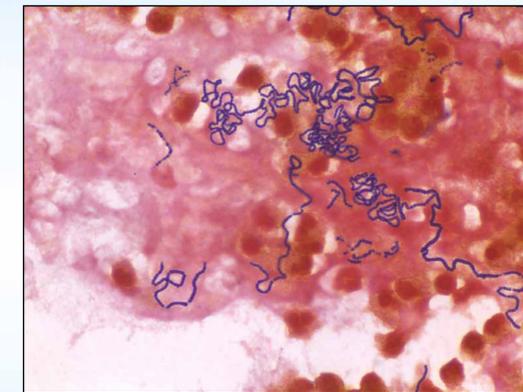
CASE PRESENTATION

- A 26 year old male presented to the emergency department with four days of cough with blood tinged sputum, left pleurisy, weight loss and night sweats.
- The patient denied any recent travel, drug abuse and had a negative PPD within the last year.
- On Physical exam his vitals were stable. On oral exam he had poor dentition with a visible dental caries. Cardio pulmonary exam revealed scattered rhonchi. Otherwise, the rest of the exam was unremarkable.
- Lab work up showed only leukocytosis and minimally elevated transaminase and total bilirubin. HIV was negative.

- Chest x-ray revealed multiple bilateral large confluent pulmonary nodules, some of which were Cavitory.
- Due to the above findings on chest x ray , High resolution CT scan of the chest was done which showed multiple Cavitory pulmonary nodules with adjacent consolidation.
- Subsequent CT guided needle biopsy was done and it was negative for any form of malignancy, however, cultures from the Cavitory lesions grew Strep intermedius.
- Trans-esophageal echocardiogram was negative for vegetation hence ruled out associated Endocarditis.
- The patient was started on Ampicillin plus sulbactam with eventual clinical improvement and discharged home on Amoxicillin with clavulanic acid.



Growth of Streptococcus intermedius in culture.



Gram stain appearance of Streptococcus intermedius.

DISCUSSION

- The SAG are different from other Streptococcus in their ability to form abscesses and potential to cause fatal multi organ abscesses in immunocompromised and chronically ill individuals. Based on published case series, predisposing factors were present in 80% of patients and included the following: pneumonia, excess alcohol intake, previous thoracic surgical procedures, and malignancy. Laboratory features of S milleri infection were leukocytosis, neutrophilia, anemia, abnormal liver function tests, and hypoalbuminemia.

- Pulmonary infection with S milleri may result in considerable morbidity and mortality, and is characterized by a strong male predominance, non-specific symptoms (often without toxicity), the presence of predisposing factors, pleural loculation, pneumothorax, and a protracted stay in hospital most likely in immunocompromised individual.
- This case however illustrates that Streptococcus intermedius can be a causative agent for Cavitory lung lesions which is an uncommonly reported presentation. Furthermore , most of the reported cases in literature as noted above are in patient's with pre disposing condition where as our patient was other wise healthy at baseline which makes this case unique.
- Streptococcus intermedius is for the most part susceptible to beta-lactam agents. Antimicrobial therapy should consist of Ceftriaxone; alternatively, monotherapy with a beta-lactam–beta-lactamase inhibitor or a carbapenem are also reasonable choices for antimicrobial therapy. The duration of therapy depends on clinical response; four weeks of intravenous antimicrobial therapy is generally appropriate.
- Literature review revealed that none of the organisms belonging to SAG was resistant to beta-lactam antibiotics, although a few isolates were intermediately resistant whereas resistance was demonstrated against clindamycin and fluoroquinolones.

CONCLUSION

- Streptococcus intermedius can cause serious pulmonary infections including Cavitory lung lesions in an other wise young healthy male and lung infections have known to carry high mortality and morbidity. Hence it is important to biopsy and culture lung lesions as it is possible to treat these infections effectively with beta lactam group of antibiotics.

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