ARTICLE INFO

ABSTRACT

We describe here a case of Rothia mucilaginosa infection associated with a cavitary lesion in an immunocompetent 52-year-old male. The subject presented with a forty-pack year smoking history, progressive dyspnea for 2 months, and a right upper lobe cavitary lesion suspected for malignancy. Cultures obtained by navigational bronchoscopy (NB) were positive for Rothia mucilaginosa and negative for all other pathogens. The patient was treated with vancomycin resulting in complete resolution and significant clinical improvement. To the best of our knowledge, this is the first documented case of a cavitary lesion associated with Rothia mucilaginosa and demonstrates the utility of NB in diagnosing pulmonary infectious diseases. The mechanisms responsible for pathogenicity under immunocompetent conditions are not known, but may be closely related to chronic lung disease.
INTRODUCTION:
Rothia mucilaginosa (RM) is an aerobic or facultatively anaerobic, encapsulated, pleomorphic, gram-positive cocco-bacillus. Rothia species were discovered in 1949 and determined to be part of the normal flora of the oropharynx and upper respiratory tract. The species was first reported as a causative agent of prosthetic valve endocarditis in 1978, which remains as the most common systemic disease associated with infection by this organism. Local infections like dental and periodontal diseases, however, are more commonly seen now. We present a case of R. mucilaginosa associated with a pulmonary cavitary lesion identified using navigational bronchoscopy (NB) in an immunocompetent patient.

OBJECTIVE:
High clinical index of suspicion is needed for diagnosis of Rothia infections and utility of navigational bronchoscopy in infectious lesions.

CASE REPORT:
A 52-year-old male with a 40 pack-year smoking history presented with progressive dyspnea for 2 months. The patient complained of persistent, productive cough with yellowish-brown sputum and occasional hemoptysis. He denied fevers or chills. PFTs indicated mild COPD with an FEV1/FVC ratio of 76 and FEV1 of 96% predicted. A CT chest with contrast was obtained which revealed mild emphysematous changes and a 3.2 x 2.4 cm right upper lobe (RUL) cavitary lesion (Figure 1) with right hilar and mediastinal adenopathy raising suspicion for malignancy. The lesion exhibited low FDG uptake on PET scan (SUV 1.5). CBC, CMP along with a connective tissue disease work up and serum fungal antibodies were negative. We performed endobronchial ultrasound (EBUS) and NB using standard approach. The location of the sheath was confirmed at the center of the lesion using pEBUS and multiple biopsies were obtained. Pathology of the lymph nodes and the RUL lesion were negative for malignancy. However multiple coccobacilli were visualized with the remainder of the work up including fungal cultures, AFB smears and cultures were negative. After few weeks one of the BAL cultures was positive for R. mucilaginosa. The patient was referred to the infectious disease team and started on vancomycin (1250mg Q12hrs for 21 days) due to penicillin allergies. He was treated for 3 weeks with significant improvement in clinical symptoms. Repeat CT chest two months later showed a decrease in size of cavitary lesion (Figure 2). Six months later he was doing well clinically but was lost to follow up. Patient presented to the clinic two years later with SOB secondary to COPD and repeat CT demonstrated resolution of cavitary lesion with formation of scar tissue (Figure 3).

Figure 1: CT chest showing a right upper lobe cavitary lesion of 3.2 x 2.4 cm along with speculations and early changes of emphysema on presentation.
DISCUSSION:
Rothia mucilaginosa is an opportunistic pathogen, causing invasive disease nearly always in immunocompromised patients and rarely affecting immunocompetent individuals. Rothia has been reported to cause infections of almost all organ systems including prosthetic valve endocarditis, bacteremia, meningitis, peritonitis, cellulitis, osteomyelitis, infectious arthritis and eye infections. Only about 20 cases of pulmonary infection have been reported to date, ranging from mild bronchitis or pneumonia to empyema and lung abscess.

The diagnosis of Rothia infection is made from cultures of the sputum, bronchial aspirates or BAL. A BAL is preferred, given the difficulty in determining the clinical significance of R. mucilaginosa in cultures obtained from the oropharynx. Rothia species are slow growing and may take up to 4 weeks to be identified, which poses diagnostic complexity. Hence, the diagnosis of Rothia infections demands a high level of suspicion. The identification of Rothia has also been facilitated by use of mass spectrometry (MALDI-TOF). R. mucilaginosa exhibits high resistance to quinolones, but is uniformly sensitive to third generation cephalosporins, vancomycin and rifampin. Early administration of antibiotics is critical for a good prognosis. Since Rothia infections are frequently seen in immunocompromised hosts, a work up to identify immune deficiencies is recommended. We believe our patient was immunocompetent, with no clinical history consistent with immunosuppression.

Figure 2: CT chest at the end of treatment with vancomycin showed decreased size of the lesion with resolution of cavitation and development of fibrosis.

Figure 3: CT chest two and half year after initial presentation showing scar formation at the site of cavitary lesion.
and complete recovery following antibiotic treatment. This highlights the possibility that this pathogen is not always opportunistic and may in fact become pathogenic under immunocompetent conditions. We propose that co-morbidities such as COPD, bronchiectasis and chronic lung disease may in fact be risk factors for Rothia infection in immunocompetent pulmonary patients.

To the best of our knowledge, this is the first documented instance of Rothia mucilaginosa associated cavitary lesion. NB is mainly used in diagnostic work up of suspicious malignant lesions. Few cases of pulmonary infections diagnosed with NB have been reported in the literature. Thus, our case report highlights the utility of NB in diagnosing peripheral pulmonary purpose.

REFERENCES:

How To Cite This Article:

Source of Support: Nil
Conflict of Interest: None declared