

# Rhodococcus Equi Bacteremia from Lung Abscess in an Immunocompetent Child

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*Rhodococcus equi* is an uncommon zoonotic pathogen causing pulmonary infections, such as necrotising pneumonia, cavitary lung mass and pulmonary malacoplakia in humans in immunocompromised hosts like human immunodeficiency virus (HIV) positive and transplant patients.<sup>1,2</sup> However, there are increasing reports of pulmonary infections in the immunocompetent hosts. We have recently managed a case of *R. equi* bacteremia in an immunocompetent host with lung abscess. A four-year-old female child presented with complaints of unresolving high grade fever and productive cough of five months duration. A provisional diagnosis of recurrent lower respiratory tract infection was made with a temperature of 100 °F, with bilateral coarse crepitations and wheeze. White cell counts were 13,900/mL with 50% neutrophils and 41% lymphocytes. Chest radiographs showed homogeneous shadows on the right lower and middle zones suggestive of lung abscess. Sputum for acid-fast bacilli (AFB) smear was negative and culture yielded normal oropharyngeal flora. Blood culture set on the second day grew non-haemolytic grey colonies that on further incubation had a bright pink appearance on 5% Sheep-Blood agar. Gram's stain of the colonies showed Gram's positive coccobacilli; club-shaped and pleomorphic in appearance. Some were 1% acid-fast cocci in Ziehl Neelsen stain. The organism was biochemically identified as *Rhodococcus equi*<sup>3</sup> and was confirmed by Vitek-2 automated system. It was sensitive to tetracycline, aminoglycosides, macrolides, quinolones, imipenem and resistant to penicillin, ceftriaxone and cotrimoxazole. Amikacin and ofloxacin were administered for 14 days. The symptoms resolved and serial chest radiographs showed resolution of the opacity. The child was discharged and had no further complaints on follow-up after one month. There was no history of traceable animal contact and the AFB culture remained negative.

*R. equi* is an easily overlooked organism but may be easily cultured in the laboratory. Micro-biologically

related mycobacteria, *Nocardia* or Nocardio-form and fungal organisms have to be ruled out for identification. *Mycobacteria spp* (including tuberculous bacilli) other than the rapid growers do not grow on culture media, such as Sheep-Blood agar and MacConkey agar. Small Gram-positive bacilli morphology at times appears like diphtheroides in sputum samples and sugar fermentation tests (positive) may be required to rule them out besides the AFB stain. *Nocardia spp* are partially acid fast, typically shows branching filaments and are hydrolysis test positive. *To the best of our knowledge*, this organism has been reported from India in four patients so far—two cases of bacteremia and one from osteomyelitis (all in immunocompetent children) and one from HIV-positive brain abscess (adult).<sup>4-7</sup> Though antibiotic therapy may be guided by the individual sensitivity pattern of the isolate, the organism generally shows *in vitro* susceptibility to erythromycin, rifampicin, vancomycin, quinolones, aminoglycosides and imipenem and is resistant to penicillin and cephalosporins, which was true for our isolate. Combination therapies with macrolides and rifampicin or vancomycin/imipenem have been administered in different cases and durations achieving therapeutic success. In our case, aminoglycoside-quinolone combination was administered for two weeks (shorter course in immunocompetent patients) with clinical improvement.<sup>8</sup> Therapy may extend to over a month in immunocompromised patients.

*Rhodococcus equi* pulmonary infections are rare but an awareness is necessary for making a prompt diagnosis.

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