



Secondary Pneumonia due to *Rothia mucilaginosa* in H1N1 patient

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Dear Editor,

Rothia mucilaginosa was previously called as *Micrococcus mucilaginosa* and *Stomatococcus mucilaginosa*.¹ Genus *Rothia* belongs to the Micrococcaceae family with four known species: *Rothia dentocariosa*, *mucilaginosa*, *nasimurium* and *amarae*. It is a normal oropharyngeal flora.² Since its first case described in 1978, it has been reported to cause bacteremia, endocarditis³, central nervous system infections, urinary tract infections, osteomyelitis, peritonitis, prosthetic devices infections⁴ and pneumonia⁵ in both immunocompetent and immunocompromised individuals.² We report a case of secondary pneumonia caused by *Rothia mucilaginosa* in H1N1 patient.

A 24-year old male patient who was a non-smoker and a non-diabetic but a known asthmatic since 1 year presented with fever, acute breathlessness and cough with expectoration since 2 days to Rajarajeshwari Medical College and Hospital, Bangalore. On general examination, his vitals were stable. Respiratory system– bilateral rhonchis were present. Other physical examination did not reveal any findings. His blood investigations were: Hb- 12g%, Total count: 11,600, Platelet count- 2.5 lakhs, ESR- 100mm/hr, HIV- Non-reactive, HbsAg- negative, VDRL- non-reactive. His chest X-ray showed bilateral bronchitis suggestive of pneumonia. Patient was diagnosed to be suffering from H1N1 after Real time polymerase chain reaction (RT-PCR) for H1N1 was positive. He was treated symptomatically. As he still persisted with cough with

expectoration and fever, sputum, blood and urine was sent for culture.

Sputum sample was plated on to chocolate and MacConkey agar. There was no growth on MacConkey agar. Chocolate agar showed pure growth of mucoid, non-haemolytic, greyish convex colonies after 48 hours of incubation at 37°C and 5% CO₂ (**Figure I**). Gram stain showed Gram positive cocci in pairs and tetrads. The organism was capsulated (**Figure II**), non-motile, catalase negative, modified oxidase negative, gelatin and esculin hydrolysed. In view of the above reactions and colony morphology, the organism was phenotypically identified as *Rothia* species. Later, the organism was confirmed by VITEK 2 as *Rothia mucilaginosa*. Same organism was isolated in a repeat sample from the patient. Antimicrobial susceptibility showed sensitivity to gentamicin, amikacin, amoxicillin with clavulanic acid, ceftriaxone, vancomycin & linezolid and resistant to ciprofloxacin and cotrimoxazole.

Figure I: Growth on chocolate agar



Figure II: Capsulated organisms in India ink

Blood & urine culture did not yield any growth. Patient was started with injection ceftriaxone and later changed to oral medications. Patient improved in 5 days & was discharged.

In this study, we present a case of secondary pneumonia, in which *R. mucilaginosa* was the only organism isolated from the sputum samples. It can easily be mistaken as coagulase negative *Staphylococcus*, *Micrococci* or *Streptococci* from which we can distinguish using catalase test, growth on 6.5% sodium chloride, and its ability to hydrolyze gelatin and esculin.²

To identify this organism, we require a suspicion and knowledge of the biochemical characteristics with the clinical manifestations caused by this organism. The clinical manifestations are mild bronchitis to recurrent pneumonia and pulmonary abscess.⁶ These manifestations have been seen in immunocompetent and immunocompromised patients. Secondary bacterial infections are known to occur in primary viral infections contributing to morbidity and mortality. *Streptococcus pneumoniae* and *Staphylococcus aureus* are predominant organisms contributing to the secondary bacterial infections in influenza A (H1N1).⁷ *R. mucilaginosa* has been reported to cause pneumonia in cases

of lymphoma patient, lung cancer and immunocompetent patient.²

To date, there is no report of *R. mucilaginosa* causing pneumonia in H1N1 patients. This organism has variable sensitivity to penicillin, clindamycin and macrolides with resistance pattern on the higher side to quinolones and aminoglycosides. Treatment of choice is vancomycin, third-generation cephalosporins and rifampicin.² This correlates to the sensitivity pattern shown by the isolated organism.

R. mucilaginosa may be easily be mistaken for *Micrococcus*, *Staphylococcus* or *Streptococcus*. We are hereby reporting this organism for the first time in H1N1 patients causing pneumonia to our best knowledge. Physicians and microbiologists should be aware of this organism when identifying or treating patients infected with Gram-positive bacteria.

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