

Gram Staining: A Simple Effective Tool for Diagnosis of Nocardiosis

Sir,

Identification of the causative agent of pneumonia in a patient irrespective of their immune status is always a diagnostic challenge. We describe two cases of pulmonary nocardiosis who presented with progressive pneumonia. One of them was immunocompromised with retropositive status. Bronchoscopy showed mucopurulent secretions in the bronchi, suggestive of active infection in both cases. Gram stain of bronchoalveolar lavage (BAL) from one of the cases showed Gram-positive thin branching filamentous bacteria [Figure 1]. On modified acid-fast staining (1% sulfuric acid as decolorizer), acid-fast bacilli with morphology similar to Gram stain was found, a finding consistent with *Nocardia* species. However, the immunocompromised case faced an initial diagnostic difficulty with sputum and BAL being negative for aerobic bacteria, *Nocardia*, fungi and *Mycobacterium tuberculosis*. A repeat

sputum examination had Gram stain features consistent with *Nocardia*. Both patients were treated successfully with cotrimoxazole with one of the cases requiring initial intravenous antibiotic therapy with imipenem and amikacin along with oral cotrimoxazole.

These two cases emphasize few of the known but forgotten aspects. (1) Nocardiosis, though commonly considered as an opportunistic infection, about 1/3rd of *Nocardia* infections occur in immunocompetent hosts.^[1] Here, one of the cases of Nocardiosis was immunocompetent with no comorbidities. (2) Nocardiosis can closely mimic tuberculosis and should be considered in differentials, especially in an immunocompromised patient. Furthermore, in countries with high prevalence of tuberculosis, this poses high chances of patients being started on antitubercular therapy.^[2,3] (3) Both cases were incidental findings during routine screening of

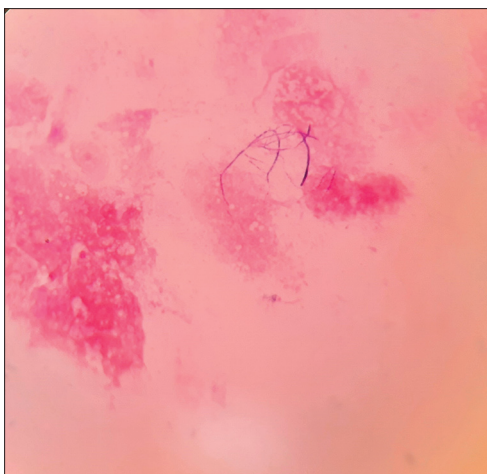


Figure 1: Gram stain of bronchoalveolar lavage showing Gram-positive, branching, filamentous bacilli resembling *Nocardia* species

Gram-stained smears. Smears showing thin, filamentous Gram-positive bacilli need to be examined with modified acid-fast staining.^[4] The value of direct microscopic Gram stain examination of specimens is immense since early diagnosis and treatment are associated with improved clinical outcomes. (4) Thorough examination of repeated samples may be required in suspected cases.

These cases emphasize the need for increased awareness of nocardiosis in both treating and the laboratory team.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patients have given their consent for their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Research quality and ethics statement

The authors followed applicable EQUATOR Network (<https://www.equator-network.org/>) guidelines, notably the CARE guideline, during the conduct of this report.

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Conflicts of interest

There are no conflicts of interest.

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