Isolation of *Mycobacterium chelonei* from a patient with recurrent aspiration pneumonia

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**Summary**

Non-tuberculous mycobacteria are rarely isolated in South African laboratories. *Mycobacterium chelonei* has previously been shown to cause pulmonary disease, especially in the clinical setting of aspiration and lipid pneumonia. Isolation of non-tuberculous mycobacteria is not proof of pathogenicity; casual cultures may occur from contamination and colonization of the upper airways.

We report a patient with recurrent aspiration and lipid pneumonia in whom a confluent culture of *Myco. chelonei* was obtained from bronchial washings. Although the clinical setting for true pathogenicity was present, subsequent investigations led us to conclude that the organism was a casual mycobacterium.

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Case report

A 42-year-old man was admitted to hospital with a 3-day history of pleuritic chest pain on the right side, cough productive of yellow sputum, and haemoptysis. A month earlier he had been hospitalized for pneumonia of the left lower lobe. Both admissions were preceded by alcohol intoxication and grand mal seizures. There had been no previous significant respiratory illness. He denied contact with tuberculosis and had not received BCG immunization. For the past 25 years he had smoked 30 cigarettes daily.

On examination he was found to be pyrexial (38°C) and tremulous but fully orientated. He was not jaundiced, but spider naevi, testicular atrophy, bilateral gynaecomastia, palmar erythema and bilaterally enlarged parotid glands were present. The pulse rate was 100/min and the blood pressure 130/85 mmHg. Examination showed the heart to be normal. Plethora was present but without cyanosis. The trachea was central and chest expansion was full and equal, but dullness to percussion was present at the right base. A 4 cm, firm hepatomegaly was present.

Chest radiography at the patient's initial presentation revealed cavitation in the left lower lobe (Fig. 1). The chest radiograph taken at the current admission showed consolidation and collapse of the right lower lobe, two cavitating lesions in the right mid-zone, and a pleural effusion at the right base (Fig. 2).

**Fig. 1. Initial chest radiograph showing a resolving abscess cavity in the left lower lobe.**

Laboratory investigations revealed a white blood cell count of 14.8 x 10^9/l and a normal haemoglobin value with macrocytosis. Blood cultures were negative and a sputum culture revealed a mixed flora.

A diagnosis of aspiration pneumonia was made and the patient was treated with intravenous penicillin, gentamicin and metronidazole. Two weeks later rigid bronchoscopy was performed because of persistent collapse of the right lower lobe. No endobronchial lesion was noted. Tenacious sputum occluding the right lower lobe bronchus was aspirated under sterile conditions.

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conditions. A confluent growth of *Myco. chelonei* was cultured after 3 weeks. The strain had the following properties: non-pigmented rapid grower, niacin-negative, nitrate reductase-negative, strongly arylsulphatase-positive at 3 days, susceptible to ethionamide and erythromycin only, and resistant to isoniazid, streptomycin, rifampicin, para-aminosalicylic acid, thiacetazone and ethambutol. Five subsequent sputum smears and cultures were negative for mycobacteria. A skin test with *Mycob. tuberculosis* PPD was positive but that with *Mycob. fortuitum* PPD was negative.

Open-lung biopsy revealed numerous macrophages with foamy cytoplasm, compatible with a histological diagnosis of lipoid pneumonia. There was no histological evidence of mycobacterial disease. Pleural and lung biopsy specimens were smear- and culture-negative for mycobacteria.

No specific antimycobacterial therapy was administered and the patient remains well 1 year later. There is no evidence of progression of disease, and intermittent sputum cultures for *Myco. chelonei* have been negative.

**Discussion**

Non-tuberculous mycobacterial pulmonary disease has been reported in association with chronic bronchitis, pulmonary tuberculosis, bronchiectasis, malignancy, immunosuppression, alcoholism and chronic aspiration. Aspiration has been specifically associated with pulmonary disease due to *Myco. chelonei*. Fat and milk aspiration with the resultant pneumonia has been shown to enhance the pathogenicity of *Myco. chelonei* in experimental studies; this has been confirmed in a number of clinical reports.

Numerous articles describe the incidence and pattern of casual mycobacteria appearing as saprophytes, commensals or contaminants in sputum. Non-tuberculous mycobacteria are plentiful in soil, dust, milk and water. It is probable that the majority of casual mycobacteria arise from inhaled or ingested contaminants from the nose and mouth. The incidence of casual mycobacteria from bronchial washings, however, is unknown.

It is important to distinguish disease caused by true pulmonary pathogens from colonization by casual mycobacteria. Repeated isolation of a given species in high colony count coupled with a compatible clinical and radiographic picture are the necessary criteria for defining a case of mycobacteriosis.

Our patient had a confluent culture of *Myco. chelonei* from bronchial washings, and a compatible clinical and radiological picture. In addition, recurrent aspiration and lipoid pneumonia are settings in which pulmonary disease due to *Myco. chelonei* has most commonly been documented. We were, however, unable to isolate *Myco. chelonei* in repeated sputum specimens and the open-lung biopsy specimen revealed no features suggestive of mycobacterial disease. It is likely, therefore, that the confluent growth from the bronchial washings represents local colonization in a pathological environment favourable to the proliferation of *Myco. chelonei*.

The treatment of pulmonary disease due to non-tuberculous mycobacteria is usually difficult and ineffective because of the bacteria's resistance to most antituberculosis drugs; surgery may be required in cases of progressive disease. Non-tuberculous mycobacterial isolation should therefore lead to active investigation to document true pathogenicity before such vigorous therapy is embarked upon.

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**REFERENCES**