steroids and the addition of chlorambucil permitted withdrawal of steroids. She was treated with chlorambucil for a year and was symptom free on no treatment at the time of reporting.³ A review of 15 cases of pulmonary lymphoproliferative conditions including three originally defined as "pseudolymphoma" showed monoclonality in 13 (including all three pseudolymphomas). Patients with diffuse or patchy lung shadowing on radiography had been treated with a mixture of chemotherapy regimens containing steroids, two receiving steroids and chlorambucil alone. One of these was lost to follow up and the other had a clinical response with no change in the radiographic appearance.⁴ Insufficient detail is given in this and other reports⁸ to evaluate the regimens used. Two of a reported series of 13 patients with lymphocytic interstitial pneumonitis were treated with chlorambucil and steroids with improvement in one.¹⁰ There is no consensus established for the treatment of these conditions. As histologically these patients have low grade lymphoma, we chose to treat our two patients with steroids and chlorambucil, agents well tried and effective for other types of low grade B cell lymphoma and chronic lymphatic leukaemia and used successfully in some patients with "pseudolymphoma". To

date this approach has produced a good response in these two patients.

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Culture of *Mycobacterium kansasii* in the blood of an HIV negative patient

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Abstract

A 23 year old man with a congenital myelodysplastic disorder and fibrosing lung disease received treatment with prednisolone. After nine months his condition deteriorated and *Mycobacterium kansasii* was isolated from blood cultures and lymph node biopsy specimens. He responded to antituberculous treatment. *M kansasii* has not previously been isolated from the blood stream of HIV negative patients.

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Mycobacterial bacteraemia with organisms other than *M tuberculosis* (mycobacteria other than tuberculosis, MOTT) is not unusual in

patients with acquired immunodeficiency syndrome (AIDS),¹ and the *M avium* complex is the most frequently isolated subtype.² There are few reports of isolation of non-tuberculous mycobacteria from blood cultures in non-HIV patients.³ We report a young man with a familial myelodysplasia and persistent Epstein-Barr virus infection who developed widespread *M kansasii* infection with isolation of the organism from blood cultures.

Case report

A 23 year old man developed fever and rigours five weeks after returning from a holiday in Spain. He then developed a cough with clear sputum and nausea. In his past history he had suffered severe varicella and recurrent herpes simplex infections and a persistent Epstein-Barr virus infection from the age of 20 years. An older brother had died of refractory anaemia with excess lymphoblasts. Genetic studies had determined familial dysplasia with constitutional inversion of chromosome 1.⁴ Immunological studies had shown leucopenia with a profound lymphopenia but no other abnormality. On examination he had gross digital clubbing and generalised lung crackles. White blood cell count (WBC) was $0.9 \times 10^9/l$ and he was HIV antibody negative. Chest radiography showed diffuse patchy parenchymal shadow-

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ing. He was treated with broad spectrum antibiotics but showed no clinical response and was referred to the regional respiratory centre. Open lung biopsy samples showed desquamative pneumonitis typical of Hamman-Rich syndrome. Specimens were cultured and examined on a weekly basis, but there was no evidence of fungi, mycobacteria, or pneumocystis pneumonia after eight weeks. He was treated with high dose steroids and showed an immediate clinical and functional improvement.

Twelve months later, while taking 20 mg prednisolone and acyclovir 200 mg three times a day, he became unwell and had a recurrence of fever. No lymph nodes were palpable but he had persistence of lung crackles. His haemoglobin was 9.2 g/dl and his WBC $1.4 \times 10^9/l$. One week later repeat chest radiography showed the new development of mediastinal adenopathy and a diagnosis of Epstein-Barr driven lymphoma was suspected. Large fleshy lymph nodes were found at mediastinoscopy, and histological examination revealed numerous acid fast bacilli which proved to be *M kansasii* on culture. He also developed a large pericardial effusion which required drainage. He was initially treated with standard antituberculous chemotherapy comprising rifampicin, isoniazid, and pyrazinamide. He deteriorated, however, on this regimen and treatment was therefore changed to rifabutin, isoniazid, ethambutol, and ciprofloxacin with gradual and sustained improvement. *M kansasii* was isolated from blood cultures, sputum, pericardial fluid, and mediastinal tissue. All specimens were inoculated onto Lowenstein Jensen slopes and tissue specimens into Kirchner's broth. Blood cultures were inoculated directly into the broth, then saponised. The organism was sensitive to rifabutin, rifampicin, ethionamide, ciprofloxacin, capreomycin, ethambutol, and cycloserine but resistant to isoniazid, streptomycin, and pyrazinamide. No synergy tests were performed. He did not suffer any relapse of symptoms following completion of 12 months antituberculous treatment. The dosage of prednisolone was gradually reduced and he has returned to active sports.

Discussion

M kansasii has been isolated from many environmental sources including tap water⁵ and grows best at 37°C. It is usually sensitive to rifampicin and ethambutol.⁶ In immunocompetent patients treatment for between three and 24 months resulted in cure in all cases with no relapses after a mean follow up of five years. *M kansasii* has been recorded in pericardial effusion in one previous report.⁷

Disseminated infection with MOTT was first reported by Koch and Rabinowitsch in 1907.⁸ There have been numerous reports of disseminated *M avium* complex infection in patients with AIDS,^{2,9} but a study of 134 patients who were immunosuppressed from

causes other than HIV showed no isolation of MOTT.¹ Disseminated infection with *M kansasii* has been reported in patients with AIDS.¹⁰ Pierce *et al* isolated MOTT from blood in eight patients with non-HIV related immunodeficiency, all of whom were on long term steroids for a variety of conditions including preleukaemia,³ but in none of these was the organism *M kansasii*.

Bacteraemia with mycobacteria other than *M avium* complex is a rare event and occurs most commonly in immunosuppressed patients.³ Isolation of *M kansasii* from blood is rare in HIV patients and previously unknown in non-HIV patients. It may be that the organism is seldom present in blood, but it is most probably because blood culture specimens are taken too infrequently. Technical inadequacies may also play their part, but the development of radiometric detection methods may improve the yield of positive results.^{11 12}

As MOTT in immunosuppressed patients may well be more responsive to treatment in non-HIV patients¹³ than in those with HIV, it is important to culture specimens including frequently obtained blood samples for a prolonged period with appropriate media in relevant clinical situations.

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