Abstract

Here, we present possible death caused by *Mycobacterium gordonae* infection in a patient with angioimmunoblastic T-cell lymphoma. Our patient was severely immunocompromised in whom we suspect to an infection, but we did not have isolates until she died. After she died, we received a positive sputum culture of *M. gordonae*. We conclude that when having severely immunocompromised patients with suspicion of infection but without isolates we should always consider the saprophytic mycobacteria. These mycobacteria require a long period of isolation, but patients with these mycobacteria are potentially curable if appropriate treatment is applied for a sufficiently long period.

**Keywords:** Angioimmunoblastic lymphoma, immunocompromised disease, *Mycobacterium gordonae*

INTRODUCTION

Angioimmunoblastic T-cell lymphoma is a rare disease that comprises 15%–20% of peripheral T-cell lymphomas and 1%–2% of all non-Hodgkin lymphomas.[1] It is clinically characterized by B-symptoms (fever, night sweats, and weight loss), generalized lymphadenopathy, pruritus, and some other clinical manifestations that are typical for lymphoma. This is an immunocompromising disease, so patients present with unusual infections or have infections during and after treatment. Patients must be monitored for infections, and the assessment and treatment of infection is a very important aspect of medical care.

*Mycobacterium gordonae* is a commonly found species of mycobacteria. It is classified in Runyon Group 2 as a scotochromogenic organism and it is a frequent isolate in tap water.[2] It is one of the least pathogenic mycobacteria and most of the isolates represent contamination of the specimen or colonization. Infections are found not only in patients with severe immunosuppression such as patients with HIV but also there are reports of infections in immunocompetent patients.[3-10] Mortality rate is <0.1%.[3] According to a retrospective cohort study on all Croatian residents with nontuberculous mycobacteria (NTM), the annual incidence of probable pulmonary NTM disease is 0.23/100,000. *M. gordonae* was the most frequent isolate in this study (42.9% of all isolates), but only 1% of all patients with *M. gordonae* isolates met criteria for probable disease and 6% for possible disease.[4] According to these data, *M. gordonae* is a rare cause of infection.

CASE REPORT

A 75-year-old woman was admitted to our department in June 2015 for the treatment of generalized lymphadenopathy. After workup, the diagnosis of angioimmunoblastic T-cell lymphoma in clinical Stage 3B was set. From July to December 2015, she received eight cycles of cyclophosphamide, vincristine, doxorubicin, and methylprednisolone chemotherapeutic protocol with a good response. She achieved a very good partial remission of the disease in interim control. Three weeks after the last cycle of chemotherapy, the patient was admitted to...
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a local hospital due to bilateral pneumonia. She was treated with Co-amoxiclav for 7 days with improvement in clinical status and decline of inflammatory parameters. X-rays showed interstitial pulmonary pattern with smaller left pleural effusion, and there was no microbiological isolates of pneumonia. Two days after discharge, the patient became subfebrile and had a cough with minimal expectoration of mucus. Her pulmonologist recommended continuation of Co-amoxiclav therapy. The situation did not improve, and so she was referred to our hospital because of suspected recurrence of lymphoma. On X-rays, there was progression of interstitial lung pattern [Figure 1]. At admission to our department, she was subfebrile, slightly dyspneic with partial respiratory failure but without peripheral lymphadenopathy. We performed chest computed tomography scan which showed us ground-glass opacities bilaterally with some nodules in the right lung, and there were no signs of active lymphoma or pathologically enlarged lymph nodes. In laboratory report, there were moderately elevated C-reactive protein (CRP) (32 mg/L), normocytic anemia (102 g/L), moderate hypogammaglobulinemia (3.74 g/L), and normal lactate dehydrogenase value (211 U/L). After taking sputum, blood, urine, and stool samples for microbiology, we started azithromycin therapy (500 mg/day) with methylprednisolone (1 mg/kg body weight). After initial clinical and radiological improvement, the patient’s condition was deteriorating. Microbiological workup that was done did not found any pathogen responsible for infection. The patient became febrile up to 39°C, azithromycin (a total of 11 days) was replaced with piperacillin-tazobactam. The patient was referred to a tertiary center for further diagnostic workup – lung biopsy with the question of etiology; inflammatory, lymphoma infiltration, or autoimmune disease. There she underwent lung biopsy, and malignant cells were not found immunohistochemically and by immunophenotyping. Cytology in bronchoalveolar lavage showed numerous foamy macrophages without malignant cells. Candida albicans 10,000 CFU/ml is isolated in mycological bronchoalveolar lavage, and Staphylococcus species (coagulase negative) 10,000 CFU/ml in bacteriological bronchoalveolar lavage. It was concluded that there is no evidence of lymphoma infiltration and no evidence of autoimmune disease, but there is also no isolate for infective disease. The patient returned to our hospital and fluconazole was continued with slow reduction of corticosteroid dose. Her condition was deteriorating; she became dyspneic at rest with the progression of respiratory failure. In laboratory report, there was still moderately high CRP (67–63 mg/L), normocytic anemia, and partial respiratory failure. The patient was transferred to a palliative institution for further symptomatic treatment not knowing the real cause of her illness. She died 3½ months after the first signs of respiratory symptoms with clinical picture of respiratory failure. At 3 weeks after she died, we received a positive result of M. gordonae from our reference center for mycobacterium isolation. Sputum was obtained at the time when we started azithromycin treatment. It was concluded that M. gordonae is probably responsible for death, because there was no other causes that could lead to death. Possibly early diagnostic procedures such as sputum and bronchoalveolar lavage before antibiotic therapy could identify M. gordonae in more than one sample.

**DISCUSSION**

It is our opinion that M. gordonae isolate is responsible for death in our patient. The patient had immunocompromised disease – angioimmunoblastic T-cell lymphoma, and she received chemotherapy which further compromised her immune system. Due to interstitial lung involvement of unknown origin (suspected lymphoma involvement or autoimmune disease), we started with a corticosteroid therapy that also had adverse effects on her immune system, particularly in the already compromised T-lymphocytes. The patient was treated most of the time with antibiotics (Co-amoxiclav, azithromycin, and piperacillin-tazobactam) but without effect. It is because Co-amoxiclav and piperacillin-tazobactam are not effective in the treatment of M. gordonae while azithromycin that can be effective was not applied for a sufficiently long period. Antibiotic therapy may be the reason that we did not isolate more than one sample with M. gordonae in sputum culture. In literature, there are reports of M. gordonae infections in immunocompromised and immunocompetent patients. [3-10] Most of the immunocompromised patients are HIV positive or organ transplant recipients, and involvement of the lungs and skin is most common. [6,7,9,10] There is also some unusual involvement such as peritoneal, cecum, or prosthetic aortic valve. [3,8] Most patients were successfully treated with long-term antibiotic therapy, but there is a report of fatal outcome in patients with M. gordonae peritonitis. [3] Patients who were successfully treated receive the following antibiotics: azithromycin, rifampin, ciprofloxacin, levofloxacin, and ethambutol, often as multidrug regimen. We conclude that when having severely immunocompromised patients with suspicion of infection but without isolates we should always consider the saprophytic mycobacteria. These mycobacteria require a long period of isolation, but patients with these

![Figure 1: Chest X-ray at admission to our department showing interstitial lung pattern.](image-url)
mycobacteria are potentially curable if appropriate treatment is applied for a sufficiently long period.

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**Conflicts of interest**
There are no conflicts of interest.

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