Mycobacterium Kansasii Presenting As Bilateral Cervical And Mediastinal Lymphadenopathy, Masquerading As Lymphoma, In A Young Man With Human Immunodeficiency Virus Infection

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Citation

C Parsa, S Heye, R Orlando, J Guo. *Mycobacterium Kansasii Presenting As Bilateral Cervical And Mediastinal Lymphadenopathy, Masquerading As Lymphoma, In A Young Man With Human Immunodeficiency Virus Infection*. The Internet Journal of Pathology. 2021 Volume 22 Number 1.

DOI: 10.5580/IJPA.55636

Abstract

Mycobacterium kansasii is the second most common nontuberculous opportunistic mycobacterial lung infection associated with AIDS, surpassed only by Mycobacterium avium complex (MAC). The most common initial presentation of M kansasii is a chronic lung infection, similar to M tuberculosis. It may however infect other sites including skin and draining lymph nodes. We present a case of young HIV-positive patient who initially presented with neck skin ulcer and cervical lymphadenopathy. Subsequent imaging studies showed extensive bilateral cervical and mediastinal lymphadenopathy, clinically suspected of lymphoma. Mycobacterium kansasii should be included as a differential diagnostic consideration in immune compromised patients who present with cervical lymphadenopathy. Early diagnosis in such cases may be helpful in the initiation of appropriate therapy and may significantly improve these patients' morbidity and mortality.

INTRODUCTION

Mycobacterium kansasii is a slow-growing non-tuberculosis mycobacterium (NTM) that was first described by Buhler and Pollack in 1953[1]. NTM has become recognized as an increasing cause of disease burden within the United States, particularly is patients over 60. Environmental risk factors include soil exposure, swimming pool use and tapwater[2]. While *M. kansasii* is the second most common cause of NTM disease worldwide[3], it remains relatively rare in the United States[4]. Of the cases that do occur in the United States, distinct clusters of infections have been described particularly in southwestern and southeastern regions[5]. The most common manifestation of *M. kansasii* includes pulmonary disease, while lymphadenopathy remains rare as an initial presentation in adults[6]. We present a case of young male with human immunodeficiency virus (HIV) infection, cervical skin ulcer and extensive bilateral cervical and mediastinal lymphadenopathy, initially suspected of having a lymphoproliferative disorder, was ultimately diagnosed with M kansasii.

CASE REPORT

A 28-year-old male initially presented to the emergency department (ED) complaining of worsening oral lesions of two weeks duration and cough of several days duration. The patient had been diagnosed with HIV some two months earlier. Laboratory tests were unremarkable except for 31% bands (absolute count = 1.6 K/mm^3). The patient was diagnosed with pneumonia and thrush and discharged on corresponding therapeutics.

Three years later the patient presented with four days of intermittent mouth pain and fever worsening over the last few days. Pain increased with swallowing but he was without chills, rash, cough, chest pain, shortness of breath or abdominal pain. The patient had been on antiretrovirals but quit taking his medications six months prior to his current presentation, having reportedly an undetectable viral load. During a 3-year time, multiple CD4 counts were persistently <200 cells/mm^3. He was on anti-HIV and antibiotic prophylaxis at the time of presentation. Significant laboratory studies included leukopenia (WBC = 3.4 K/mm^3), normocytic normochromic anemia (hemoglobin = 7.8

mg/dL) and positive cryptococcal antigen titer (>1: 4000).

Two months later the patient was admitted after presenting with pulsating bilateral neck masses and nonproductive cough without hemoptysis. Computer-assisted tomography (CAT) scan of patient's neck revealed extensive cervical chain and mediastinal necrotic lymphadenopathy suspicious for malignancy (figure 1). A left anterior chest wall necrotic conglomerate mass measured up to 5 cm and eroded into the overlying skin with scattered subcutaneous emphysema. The lymphadenopathy also extended into the bilateral apices of the lungs with distal obstructive atelectatic changes.

Patient underwent bilateral ultrasound-guided biopsies of the neck masses suspected of lymphoma. Histopathologic sections revealed extensive epithelioid granulomas (figure 2). Special acid-fast stain was positive for abundant mycobacterial organisms (Fig. 3). A sample of the biopsied neck mass was identified at Center for Disease Control (CDC) by PCR (Mycobacterium genus 16S rRNA) as Mycobacterium kansasii/Mycobacterial gastri.

Figure 1

CAT scan of neck region showing bilateral cervical lymphadenopathy

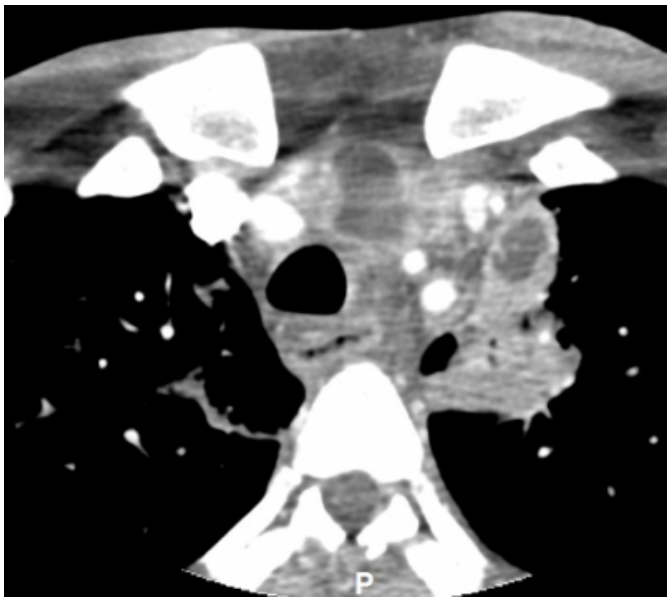


Figure 2

H&E sections of the lymph node biopsy with epithelioid granuloma

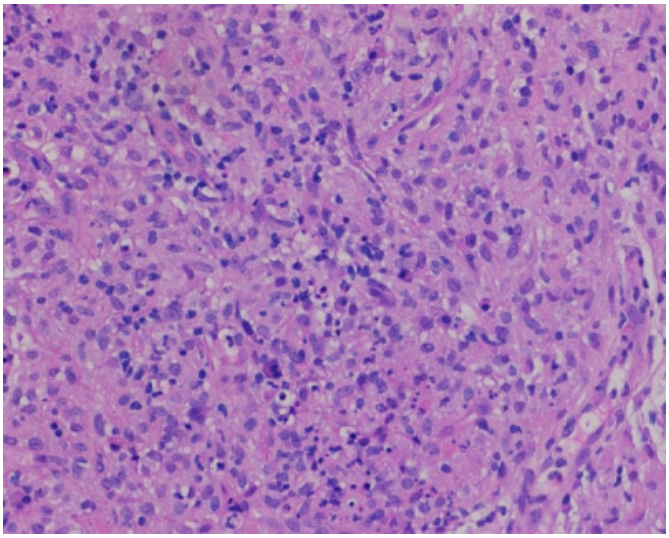
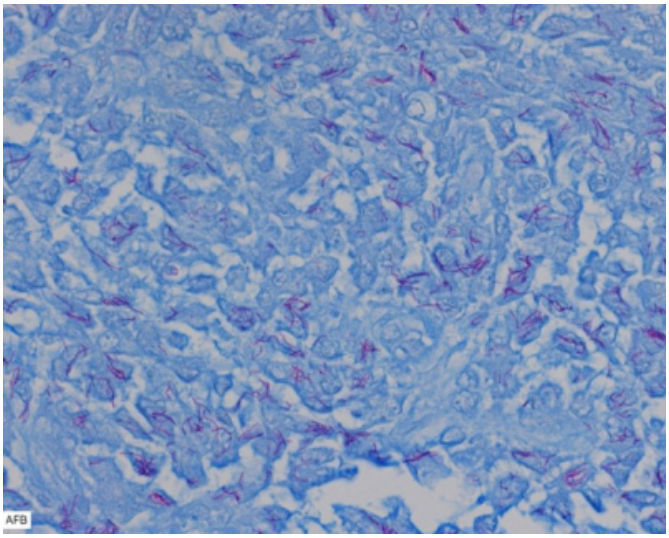


Figure 3

acid-fast stain is conspicuously positive for large numbers of mycobacterial organisms.



DISCUSSION

Mycobacterium kansasii is slow-growing non-tuberculosis mycobacterium that typically manifests as pulmonary disease. It is one of the most common causes of NTM lung disease in the world[6,7]. A 2017 review of a US national hospitalization database found that M kansasii made up only 3% of all clinical isolates of NTM, with a higher frequency of isolation in the western states[8]. The most common presentation of M kansasii infection is a chronic pulmonary infection that resembles pulmonary tuberculosis. It may also infect other organs, but presentation with lymphadenopathy

is rare in adults. Diagnosis of NTM may however be suspected in children less than five years old with subacute, unilateral, non-tender cervicofacial lymphadenitis with a history of water exposure, penetrating injection, as well as negative routine cultures or response to antistaphylococcal and antistreptococcal antibiotics[9].

As in this presentation, NTM should also be included in the differential diagnostic consideration in patients with immune deficiency, who present with bilateral cervical and mediastinal lymphadenopathy without significant clinical or radiologic evidence of pulmonary disease. To our knowledge, this is the first report of M. kansasii manifested as a necrotizing cervical and mediastinal lymphadenitis. Published literature is limited regarding the use of M. kansasii infection models as a screening tool to evaluate recently licensed or new experimental compounds, the above studies suggest that these models should be used to determine if more effective therapy is achievable and whether their use may lead to a shorter duration of therapy compared to the current standard regimen[10].

Patients with M kansasii pulmonary infection should be closely monitored with routine clinical examinations and regular sputum for AFB smears and cultures for mycobacteria during the treatment period. The antimycobacterials can be stopped after AFB sputum results are negative for at least 12 months. Patients with extrapulmonary and disseminated M kansasii infections should be treated in a similar manner to those with pulmonary disease[11].

With appropriate treatment, the prognosis is usually good. Mortality is higher and can go up to 50% in patients with HIV who have M. kansasii infection. In HIV patients who have a pulmonary infection with M. kansasii, survival predictors include higher CD4 cell count, negative smear microscopy, antiretroviral therapy and adequate treatment for M. kansasii[12].

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