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Mycobacterium Thermoresistibile Infection in a Child

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ABSTRACT

Mycobacterium thermoresistibile was first reported in 1981 as a human pathogen. Several studies have reported pulmonary infection and cutaneous lesions due to this type of mycobacterium.

A five-year-old boy with cough, fever, and abdominal pain was referred to Masih Daneshvari Hospital. He had been treated with diagnosis of histiocytosis x. Gastric lavage was performed and examined by polymerase chain reaction (PCR) and Mycobacterium thermoresistibile was found. It seems that this case is the first report of an atypical tuberculosis caused by Mycobacterium thermoresistibile in a child. ***(Tanaffos 2006; 5(3): 61-63)***

Key words: *Tuberculosis, Abdominal tuberculosis, Mycobacterium thermoresistibile, Children*

INTRODUCTION

In 1966, Tsukamura described *Mycobacterium thermoresistibile* for the first time. It was isolated from soil near Nagoya, Japan, and derived its name because of its ability to grow at 52°C (1).

Reportedly, this organism was non-pathogenic and limited to the Far East. However, in 1981 a case of pneumonia owing to *M.thermoresistibile* was reported in an otherwise healthy woman from Brooklyn who had visited hot springs in Hawaii (2). The incidence of *M.thermoresistible* infections appears to be low. Subsequently, *M.thermoresistible* was reported as the causative agent of a pulmonary granuloma (3) and a cutaneous infection following a cardiac transplantation (4). We now report the first case of abdominal and pulmonary tuberculosis by this organism in a child.

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CASE SUMMARIES

A five-year-old boy with fever, cough and intermittent abdominal pain was referred to Masih Daneshvari Hospital. All of these symptoms initiated one year ago and numerous evaluations had been performed for him. For instance, a biopsy form cervical lymph nodes had been taken and was consistent with histiocytosis-x. He had undergone corticosteroid therapy for 2 months but did not improve. Thus, the specimen had been re-evaluated and based on pathological report, BCG granulomatosis had been considered for him. Further investigations showed abdominal tuberculosis in this

patient. Irregularly, he received four-drug antituberculosis regimen (isoniazid, rifampicin, pyrazinamide, and ethambutol), and was hospitalized with the primary diagnosis of multi-drug resistant tuberculosis.

The patient was below the fifth percentile with a temperature of 38°C. On physical examination, hepatosplenomegaly was found as the most important finding. Additionally, bilateral lymphadenopathy was detected in the anterior and posterior cervical chains. No further finding was detected. Chest x-ray showed bilateral hilar involvement; hilar and mediastinal lymphadenopathies were also detected on CT-scan (Fig 1,2). No active pulmonary infection was reported. Abdominal sonography and CT-scan showed hepatosplenomegaly and multiple para-aortic lymphadenopathies (Fig 3,4) .

Paraclinical findings were as follows: Erythrocyte sedimentation rate (ERS) = 104 mm, serum immunoglobulines = normal, nitroblue tetrazolium tests (NBT)=100%, and human immunodeficiency virus (HIV) test= negative. Furthermore, cellular immunity by flow-cytometry did not show any abnormal finding.

Purified protein derivative (PPD) test was negative. Gastric lavage was positive for acid-fast bacilli (AFB) in different times.

Culture results and antibiogram indicated sensitivity of mycobacterium to all first-line drugs namely isoniazid (INH), rifampin (RIF), ethambutol (ETB), and pyrazinamide (PZA). Polymerase Chain Reaction (PCR) showed *Mycobacterium thermoresistibile.*

The patient received the four-drug anti-TB regimen. After one month, he had no abdominal pain, no fever and had gained weight. Gastric lavage smear for AFB was negative following a four-month of treatment. Sonography showed normal liver size and decreased number of abdominal lymphadenopathies. He attained a good health and was discharged with anti-TB medication.

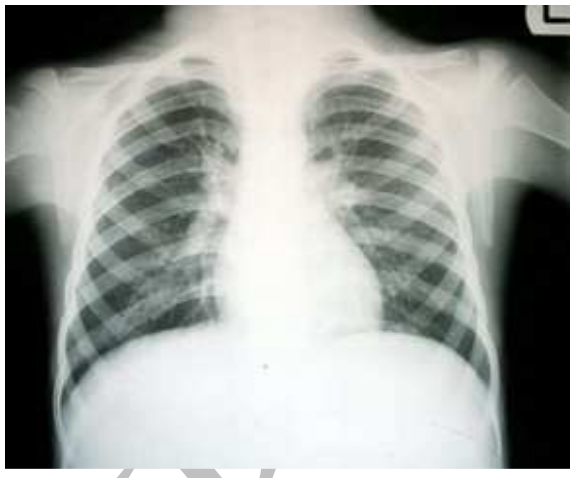

Figure 1. Chest x-ray of patient.

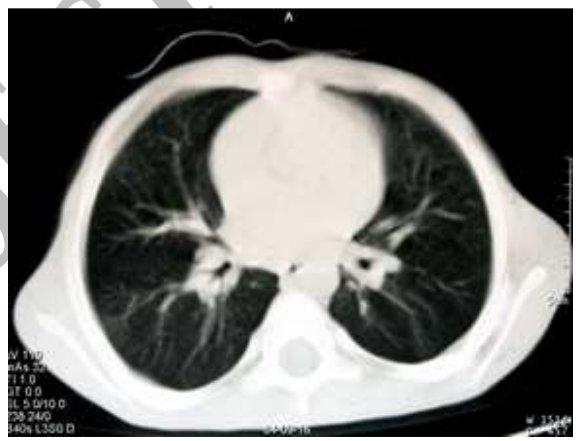

Figure 2. Bihilar lymphadenopathy in pulmonary CT-scan.

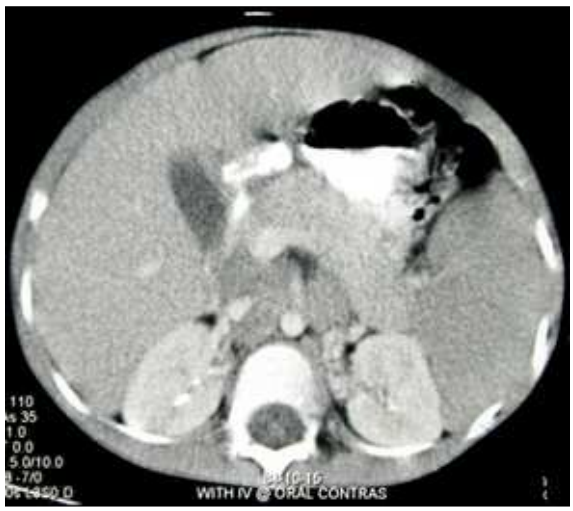

Figure 3. Abdominal CT-scan of patient.

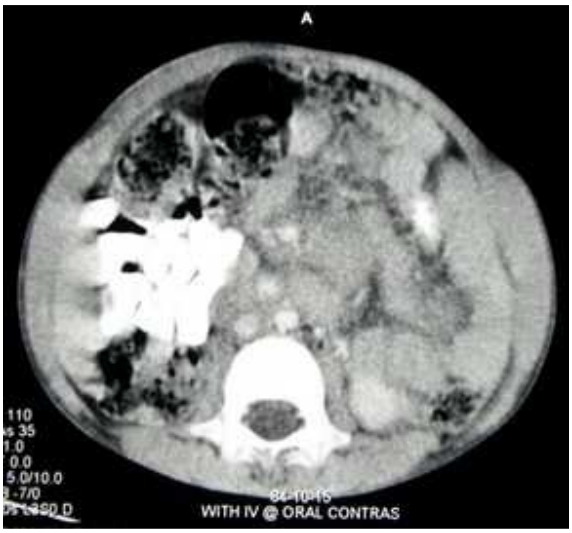

Figure 4. Multiple paraaortic lymphadenopathies in abdominal CT-scan

DISCUSSION

Mycobacterium thermoresistibile was found for the first time by Tsukamura in 1966. He presented another report regarding the isolation of this organism from dust of Japanese houses in 1985(5).

Since then, several diseases caused by *M. thermoresistibile* have been reported.

In 1984, Liu et al. demonstrated isolation of this organism in a 64-year-old male with common variable immunodeficiency. *Mycobacterium thermoresistibile* was reported as the cause of pulmonary infection (3).

Wolfe and his colleagues isolated this organism in a 41-year-old female with a cutaneous infection following mamoaplasty (6).

The last report was related to LaBombardi et al. in a hospital in New York in 2005. The patient was 37-year-old woman who underwent knee-replacement surgery (7).

There has been no report regarding the infection caused by *M. thermoresistibile* in children till now. In our study the immune system of the patient was normal and he had not undergone any surgery. Regarding to improvement of symptoms and signs of patients after receiving appropriate drug regimen, it seems that irregular and insufficient treatments had prolonged the period of disease. The present study is the first one in a child and also the first abdominal involvement by this organism.

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