Case Report

Miliary tuberculosis accompanying paravertebral tuberculosis abscess in an adolescent

Canan Eren Dagli[1], Ekrem Guler[2], Vedat Bakan[3], Nurhan Atilla[1], Nurhan Koksal[1]

[1]Department of Pulmonology, [2]Department of Pediatric Emergency, and [3]Department of Pediatric Surgery, Faculty of Medicine, Kahramanmaras Sutcu Imam University, Kahramanmaras, Turkey

Abstract

Although miliary tuberculosis (TB) is well known, the incidence of miliary TB accompanying paravertebral abscess is extremely rare in adolescent children. We report a case of paravertebral TB abscess and miliary TB in a 17-year-old male initially presenting with fever, general weakness, back pain, sweating, cough, dyspnea and weight loss. The patient was diagnosed as paravertebral TB abscess and miliary TB. The anti-tuberculous drugs were started and the follow-up imaging showed that the lesions had disappeared without surgery. Although seldom observed, TB should be kept in mind in the differential diagnosis of paravertebral abscess.

Key words: miliary tuberculosis, paravertebral abscess, tuberculosis

J Infect Dev Ctries 2009; 3(5):402-404.

Received 8 January 2009 - Accepted 27 March 2008

Introduction

Miliary tuberculosis (TB) accompanying paravertebral TB abscess is a quite rare entity in adolescent children and is a form of extrapulmonary TB. TB abscess, a complication of spinal TB, is frequently bilateral [1]. Miliary TB is a complication of primary TB in young children and the term miliary TB is used to denote all forms of progressive, widely disseminated hematogenous TB [2]. The clinical presentation of miliary TB is highly variable. Seeding of every organ in the body is reported in autopsy series of miliary TB [3]. Vertebral bodies are especially vulnerable to this seeding since blood flow remains high even in adulthood [4]. In this case report, we present a very rare case of paravertebral TB abscess and miliary TB in a 17-year-old male patient.

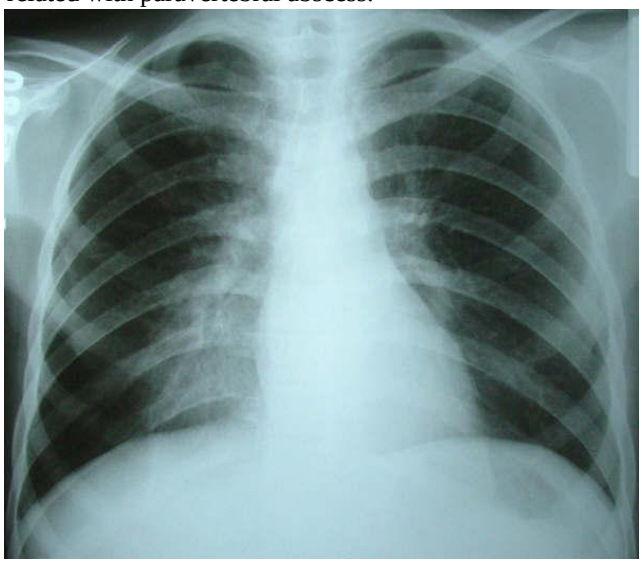
Case Report

A 17-year-old male was admitted with fever, general weakness, back pain and sweating lasting for six months. His history revealed that his grandmother had TB treatment for six months for pulmonary TB five years previous to his admittance, and his sister had TB treatment for tuberculous lymphadenopathy two months previously.

On examination, the left lumbar side was sensitive by palpation. The respiratory system physical examination showed no significant findings. Hemoglobin was 7.1 g/dl and white blood cell count 28,000/mm3 with 36% neutrophils, 58% lymphocytes, and 6% monocytes. The erythrocyte sedimentation rate was 140 mm/1st hour and C-reactive protein was 46 mg/l (normal < 5 mg/l). Chest radiograph showed enlargement of mediastenium (Figure 1). Thorax computerized tomography (CT) revealed bilateral paravertebral abscesses showing septated cystic lesion of 7 cm diameter, irregular bony lytic defect on the fifth thoracic vertebra, and randomly distributed miliary nodules in both lung fields, which was highly suggestive of miliary pulmonary tuberculosis (Figure 2). Also, High Resolution CT revealed miliary nodules (Figure 3).

The patient underwent paravertebral aspiration and in the cytological examination, many epithelioid cell granulomas and Langhans-type giant cells were seen in a necrotic background. A Ziehl-Nielsen stain revealed the presence of acid-fast bacilli and cultures of the material were positive. He had a positive tuberculin skin test (Mantoux) with a diameter of 19 mm. He was diagnosed as paravertebral TB abscess and miliary TB and was treated with an anti-tuberculous regimen consisting of isoniazid, rifampicin, pyrazinamide and streptomycin for the first two months and isoniazid and rifampicin for 12

Figure 1. At chest radiograph mediastinal enlargement related with paravertebral abscess.

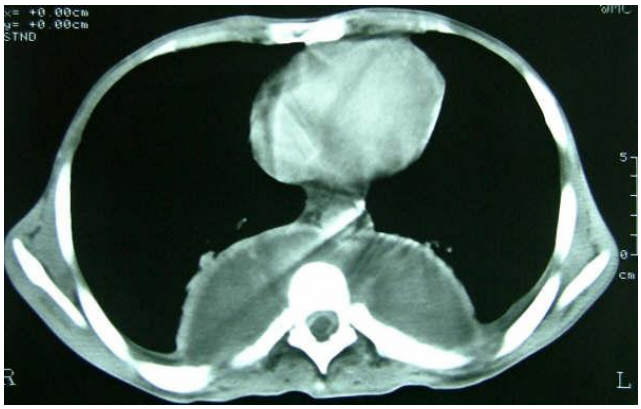


months. Two months after the initiation of treatment, clinical and radiological findings disappeared by medical treatment without surgery.

Discussion

Miliary TB is common disease in areas where TB is endemic. It is the widespread dissemination of *Mycobacterium tuberculosis* from hematogenous spread. The infection is characterized by the appearance of numerous small nodular lesions that resemble millet seeds on chest radiography [5]. As in our patient, characteristic miliary involvement may not be seen easily in chest radiography; therefore, high-risk patients with family history of TB should be evaluated by further diagnostic methods. CT scanning of the chest may help to better define

Figure 2: Thorax CT shows bilateral paravertebral abscesses.



abnormalities in patients with vague findings on chest radiography [5].

The skeletal form of TB is responsible for 3% of the total number of cases, with 50% of these due to spinal TB [6]. The paravertebral abscess is a rare clinical entity with approximately one to two cases per year described in the medical literature, and *M. tuberculosis* has been identified as one of its etiologic agents. It may be the result of progression of inflammation via ligaments. These lesions are usually fusiform, as seen in our patient; and radiologically, TB causes lytic reactions rather than sclerotic lesions. Paraspinous lesions and calcifications in the cold abscess strongly suggest tuberculosis but are not patognomonic [7]. The differential diagnosis of paravertebral abscess includes bacterial and fungal infections such as TB, brucellosis, salmonellosis, *Staphylococcus aureus*, actinomycosis and aspergillosis [2]. In this case, the clinical picture and pulmonary lesions combined with laboratory findings

Figure 3: Torax High Resolution CT shows miliary nodules.

of paraspinal abscess aspiration material were consistent with TB. The history of the patient revealed that his symptoms started five years ago and, because of the lack of the treatment, it progressed to disseminated TB.

In developed countries disseminated TB is rarely seen. Owing to its low prevalence in western countries compared with developing countries, many physicians in the west are unfamiliar to this disease. During the last 10 years the main causes for the increase of the incidence of spinal TB in developed countries are thought to be the increase in number of AIDS patients, transmission of TB among the

homeless and poor population, and high emigration rates [8]. A report of spinal TB including five cases from Belgium assesses that doctors did not consider TB as an initial diagnosis although the patients had severe back pain and this caused delay in the diagnosis [9]. In our case, we also think that delay of the diagnosis caused a worse condition.

In conclusion, severe forms of TB can be caused by delay of diagnosis and inappropriate treatment. Early diagnosis of this progressive disease can save young patients from death or permanent disability. TB should be part of the differential diagnosis in any case of paravertebral abscess in high-risk groups, especially in developing countries, and must be treated immediately.

References

1. Kumar K, Saxena MBL (1988) Multifocal osteoarticular tuberculosis. Int Orthop 12: 135.
2. Daniel TM, Bates JH, Downes KA (1994) History of tuberculosis. In: Tuberculosis: Pathogenesis, Protection, and Control, Bloom, BR (Ed), American Society for Microbiology, Washington 13 p.
3. Cuende E, Almeida V, Portu J, Aldamiz M, Erdozain MA, Vesga JC, Saracibar N (1998) Poncet's disease and papulonecrotic tuberculid in a patient infected with the human immunodeficiency virus. Arthritis Rheum 41: 1884.
4. Kaufmann SH, Cole ST, Mizrahi V, Rubin E, Nathan C (2005) Mycobacterium tuberculosis and the host response. J Exp Med 201: 1693.
5. Klaus-Dieter L (2007) Miliary tuberculosis. Available:http://emedicine.medscape.com/article /969401-overview. Accessed 26 March 2009.
6. Vilar FC, Neves FF, Colares JK, da Fonseca BA (2006) Spinal tuberculosis (Pott's disease) associated to psoas abscess: report of two cases and a literature review. Rev Soc Bras Med Trop 39: 278-282.
7. Fishman Jay A (2002) Mycobacterial Infections. In: Fishman's manual of pulmonary diseases and disorders, 3rd edition. New York: McGraw-Hill. 763-819.
8. Shanley DJ (1995) Tuberculosis of the spine: imaging features. AJR Am J Roentgenol 64: 659-664.
9. Alame T, Dierckx P, Ninane V, Sergysels R (1996) Spinal tuberculosis: a report of five cases and a review. Monaldi Arch Chest Dis 51: 362-368.

Corresponding author

Dr. Ekrem Guler
Department of Pediatrics, Faculty of Medicine
Kahramanmaras Sutcu Imam University, Kahramanmaras (TR-46050) - TURKEY
Phone: +90 344 221 2337
GSM Phone: +90 505 807 6138
Fax: +90 344 221 2371
E-mail:ekremguler@hotmail.com, ekremguler10@yahoo.com

Conflict of interest: No conflict of interest is declared.