

Tuberculosis Brainstem Abscess Which is Surgically Inoperable and Treated with Medical Therapy

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Abstract

Objective: Tuberculosis (Tbc) brainstem abscess extremely rare reported. We present the case of a 14-year-old boy with Tbc who had a brain abscess.

Clinical Presentation: A 14-year-old boy presented with a history of cough, shortness of breath, low-grade fever, weakness and weight loss. His sputum Tbc culture was positive. A cranial CT scan showed a brain abscess in the pons. He was treated with isoniazid, ethambutol, rifampicin and, streptomycin.

Conclusions: Tbc abscesses are treated with a combination of surgical and medical treatments. If a patient has a high risk of surgical complications, medical therapy may be preferred, as in the case of our patient.

Keywords: CNS tuberculosis; Brain abscess; Meningitis; Extrapulmonary tuberculosis

Introduction

Central Nervous System (CNS) manifestations of Tbc are meningitis, tuberculoma and arachnoiditis. However Tbc brain abscess are extremely rare. We present a 14-year-old boy with Tbc abscess located in brainstem and treated with medical therapy.

Case Report

A 14-year-old boy presented with history of coughs, shortness of breath, low-grade fever, weakness and, weight loss over a period of 6 months. He also had a 3-month history of headaches, dizziness, vomiting and, had experienced generalized seizures for one week. His mother had been treated with anti-Tbc treatment for a long time. The patient was homeless and undernourished. His neurodevelopmental history was normal. Physical examination revealed the following: temperature 36.4°C, pulse 84 beat/min, blood pressure 100/65 mmHg and respiratory rate 24 breaths/min. His head circumference was 49 cm (25th-50th percentile), his body weight was 45 kg (10th-25th percentile) and his height was 165 cm (50th-75th percentile). The neurological examination revealed that the patient was apathetic, disoriented and uncooperative. His cranial nerves and optic fundus were normal. His motor system and deep tendon reflexes were normal and, pathologic reflexes were not observed. Cerebellar tests and, the sensory examination were normal. He was HIV negative, his tuberculin skin test was negative and, his erythrocyte sedimentation rate was 80 mm/h. His sputum was positive for acid-resistant bacteria and, the sputum Tbc culture was positive. There were pulmonary cavitary lesions on his chest X-ray (Figure 1A). A cranial CT scan

showed a 2.5×2 cm lesion, suggesting an abscess with edema and mass effect involving the pons, especially the left region (Figure 1B). We started isoniazid, ethambutol, rifampicin and streptomycin for two months. After Tbc treatment, his clinic showed rapidly recovery and a significant reduction in the size of the abscess was observed on the cranial CT which is obtained in end of the first month of treatment. Isoniazid and rifampicin treatments were continued for 1 year. He was full recovery and radiological examinations were became normal after treatment.

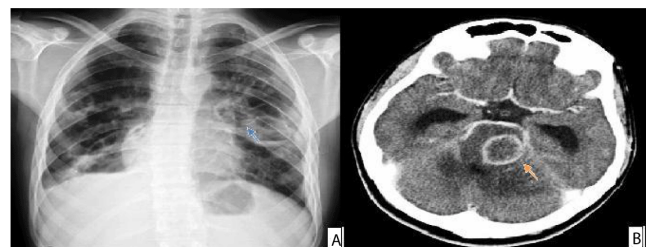


Figure 1: A) Pulmonary cavitary lesions on chest X-ray, B) Tbc abscess in pons area.

Discussion

Intracranial Tbc abscesses are clinically and radiologically similar to tuberculomas. On CT scans, Tbc abscesses typically appear as hypodense lesions with edema and mass effect. Contrast images indicate ring enhancement that is usually thin and uniform but can be irregular and thick. The target sign is almost pathognomonic for tuberculoma [1]. On MRI scans, Tbc abscesses have hyperintense

centers on T2-weighted images with edema and mass effect. In contrast to tuberculomas, Tbc abscesses are usually large, single and multi loculated [2]. These abscesses are commonly located in the frontal lobe and cerebellum and, reports of brainstem abscesses have been extremely rare, especially in childhood [3]. In our country, low social and economic conditions, exposure to active tuberculosis patients and, a positive family history are the most common risk factors [4]. Our patient was HIV negative, but he was homeless and undernourished. His mother had been treated with an anti-Tbc regimen and, his family had a low socioeconomic status. He had pulmonary Tbc and, a lesion in the pons region with edema and, mass effect, which suggested that the lesion was a Tbc abscess. The most reasonable mechanism of abscess formation is that the infecting embolus spreads from the primary pulmonary focus through the bloodstream and may cause meningitis or tuberculomas [5]. The size of the inoculum and, the absence of adequate cell-mediated immunity may be related to the development of Tbc brain abscesses [6].

Treatment of Tbc brain abscesses is antituberculosis drugs and, surgical excision or stereotactic aspiration. Ruelle et al. [7] suggest the use of drug therapy for patients who have a stable neurological status or have a high risk of surgical complications. We could not perform stereotactic aspiration or surgical operation, because of the location of the lesion and the high operative risk. Corticosteroids and antituberculous medications reduce the morbidity and mortality before the excision of intracranial tuberculosis masses. Isoniazid, ethambutol and rifampicin, should be included in the chemotherapy regimen. Our patient was treated with isoniazid, ethambutol,

rifampicin and streptomycin for two months than isoniazid and rifampicin given for ten months. Conclusions Intracranial Tbc abscesses are uncommon even in countries in which tuberculosis is endemic. In our patient, the abscess was located in the pons, a very rare location according to the literature. Tbc abscesses are treated with a combination of surgical and medical treatment. However, if the patient has a high risk of surgical complications, medical treatment is preferred, as for our patient.

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