

Cerebral Aspergillosis in a Patient with Pulmonary Tuberculosis

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Abstract-

Cerebral aspergillosis is an opportunistic infection commonly transmitted hematogenously. A 42-year-old woman with a past history of diabetes mellitus and pulmonary tuberculosis presented to our Institution with deterioration of mental status and tonic-clonic seizures. Muscle strength was rated as 4/5 on the right side but no sensory deficits were noted. Moreover, vision was intact. The magnetic resonance imaging (MRI) evaluation revealed a left temporo-occipital cystic area with surrounding edema, which was ring enhancing after contrast administration. Diffusion weighted imaging and the apparent diffusion coefficient map exhibited limited diffusion. The cerebral blood volume perfusion map depicted lack of vasculature in the area. Cerebral aspergillosis can occur in the form of abscess and/or vascular insult. Computed tomography is the first line of control but MRI is the method of choice with high sensitivity for the investigation of brain abscesses. Diffusion techniques increase specificity.

Key Words: aspergillosis, tuberculosis, MRI modalities

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INTRODUCTION

Cerebral aspergillosis is an opportunistic infection commonly transmitted hematogenously⁽¹⁾. A 42-year-old woman with a past history of diabetes mellitus and pulmonary tuberculosis presented to our Institution with deterioration of mental status and tonic-clonic seizures. Muscle strength was rated as 4/5 on the right side but no sensory deficits were noted. Moreover, vision was intact.

The magnetic resonance imaging (MRI) evaluation (T1, T1 with contrast, T2, and FLAIR sequences) revealed

a left temporo-occipital cystic area with surrounding edema which was ring enhancing after contrast administration (Figure 1A,B,C,D). Diffusion weighted imaging (DWI) (Figure 2A) and the apparent diffusion coefficient (ADC) map (Figure 2B) exhibited limited diffusion. The cerebral blood volume (CBV) perfusion map (Figure 2C) depicted lack of vasculature in the area.

A stereotactic biopsy verified *Aspergillus fumigatus* as the etiologic agent of infection. Grocott silver stain revealed hyphae with 45 degrees branches. Cerebral phaeohyphomycosis was excluded by employing the

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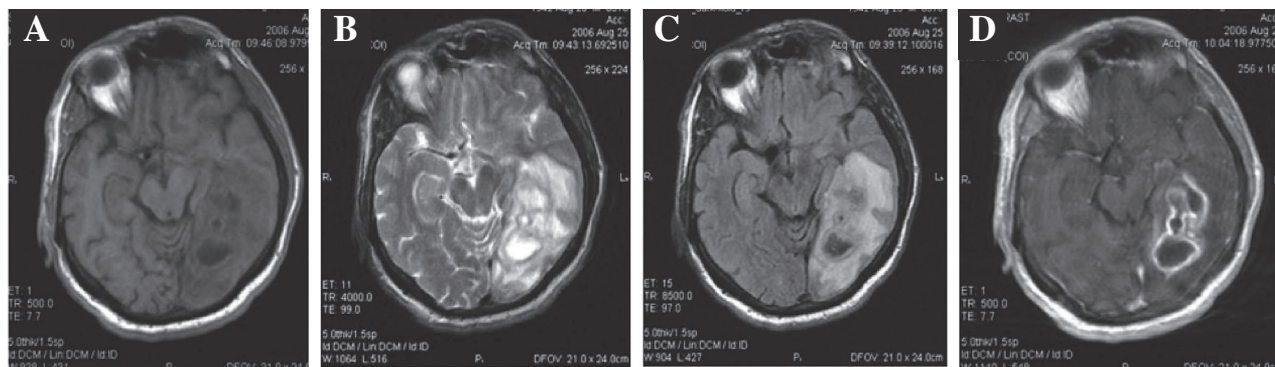


Figure 1. (A) T1: Lesion is depicted having a central cystic area and marked perilesional edema (left side). (B) T2: A large area of edema is shown temporo-occipitally. (C) FLAIR: The cystic portion exhibits a low intensity signal as compared to the higher-signal perilesional area (angiogenic edema). (D) T1 postcontrast: A ring enhancement is illustrated.

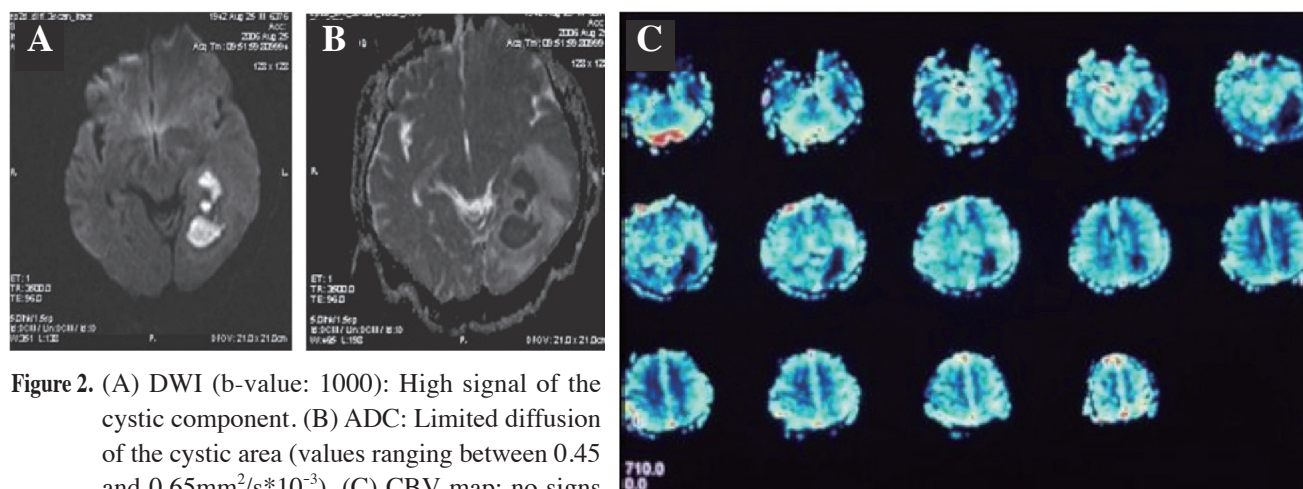


Figure 2. (A) DWI (b-value: 1000): High signal of the cystic component. (B) ADC: Limited diffusion of the cystic area (values ranging between 0.45 and $0.65 \text{ mm}^2/\text{s} \times 10^{-3}$). (C) CBV map: no signs of vascularization in the abnormal region.

melanin-specific Masson-Fontana stain. Conidiophores of $9 \mu\text{m}$ terminating in subclavate vesicles of $22 \mu\text{m}$ bearing uniseriate phialides were identified. After inoculation of the brain specimen on Sabouraud dextrose agar, growth of white-dark grey colonies was seen.

Cerebral aspergillosis can occur in the form of abscess and/or vascular insult⁽²⁾. Computed tomography (CT) is the first line of control but MRI is the method of choice with high sensitivity for the investigation of brain abscesses⁽³⁾. Diffusion techniques increase specificity^(1,2).

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