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CASE REPORT

Striated Enhancement Sign in Invasive Cerebral Fungal Granuloma by Aspergillus: a Case Report

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CEREBRAL aspergillosis is a rare and severe disorder with rapid progressive pathogenesis, and commonly seen in immunocompromised patients.¹ Typical cerebral aspergillosis presents abscess with ring enhancement or cortical or subcortical infarctions on magnetic resonance (MR) images. In this communication, we describe a rare cerebral aspergillosis with relative characteristic MR imaging findings.

CASE DESCRIPTION

A 21-year-old man came to us from the local hospital with intermittent headache and vomiting lasting for 10 days. The patient did have no fever and immunocompromised history. Clinical examination showed that the patient suffered from superficial coma, disappearance of light reflex of the left eye, and the weakness of the right extremity. MR imaging of the brain was performed to determine the cause of headache and vomiting. Chest computed tomography (CT) was performed to check for the lung disorder.

The chest CT examination was normal. MR images

showed a mass lesion in the left frontal lobe involved corpus callosum and left basal ganglia region. The lesion showed slight hyperintensity on T2-weighted imaging and slight hypointensity on T1-weighted imaging, and patchy hyperintensity on diffusion weighted imaging (Fig. 1). After contrast administration, the lesion showed striated enhancement sign (radiating linear enhancement) (Fig. 2).

The white blood cell count in peripheral blood was $9.67 \times 10^9/L$, and that in cerebrospinal fluid was negative. The patient underwent a brain operation, and the hyphae of aspergillus were observed on the pathological section (Fig. 3).

DISCUSSION

The neuroimaging patterns of cerebral aspergillosis include three patterns: (1) ring-enhancing lesions consistent with abscesses; (2) multiple cortical and subcortical lesions consistent with areas of embolic infarction; (3) enhancing soft-tissue abnormalities of the sinuses, orbit, and calvaria.²

However, a solid mass lesion was observed in this case, and the evident striated enhancement sign (radiating linear enhancement) was detected based on MR images. The pathology demonstrated that the linear enhanced lesions were the hyphae of aspergillus, consistent with a diagnosis

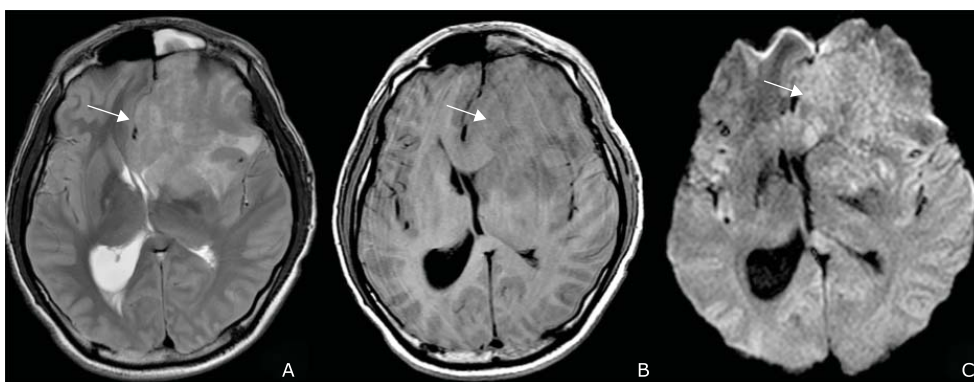


Figure 1. 3-T brain magnetic resonance images.

Axial T2-weighted imaging (T2WI, 5000/116, A), T1 fluid attenuated inversion recovery (T1-FLAIR, 2060.9/6.9, B), and diffusion weighted imaging (DWI, $b=1000 \text{ s/mm}^2$, C) images show mass lesion in the left frontal region involved corpus callosum and left basal ganglia region (arrows).

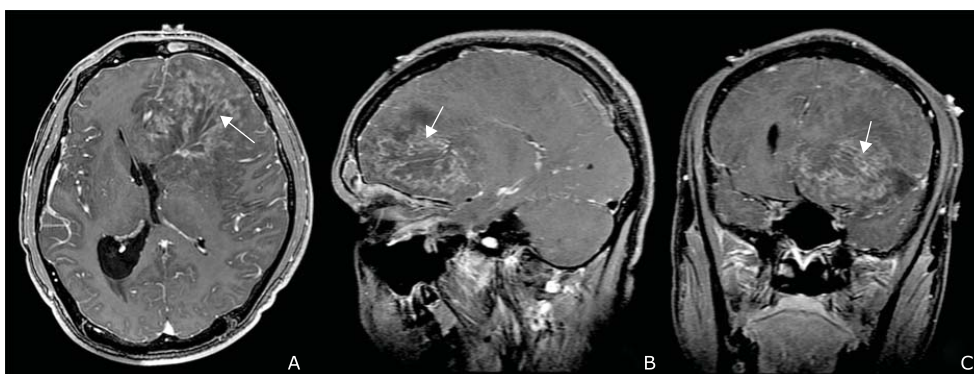


Figure 2. Gadolinium-enhanced T1-FLAIR (2070/6.9) images.

Axial (A), sagittal (B) and coronal (C) post-contrast images indicate striated enhancement sign (radiating linear enhancement, arrows).

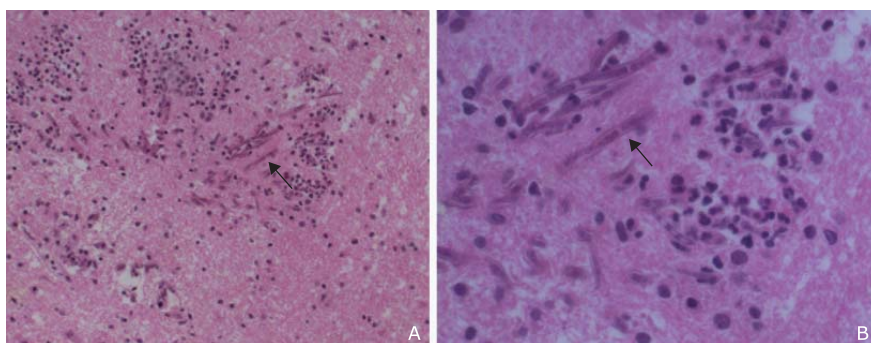


Figure 3. Pathological section with hematoxylin and eosin (HE) staining shows the hyphae of aspergillus (arrows).

A. original magnification $\times 10$; B. original magnification $\times 100$.

of fungal granuloma by aspergillus. Therefore, the striated enhancement sign on post-contrast images strongly suggested cerebral aspergillosis, and it could be considered as the key differential fact for the glioma, which commonly showed irregular ring enhancement.

In the present case, it is important to establish the prospective diagnosis of aspergillus infection according to striated enhancement sign on MR images, and the antifungal therapy should be performed before the brain operation.

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