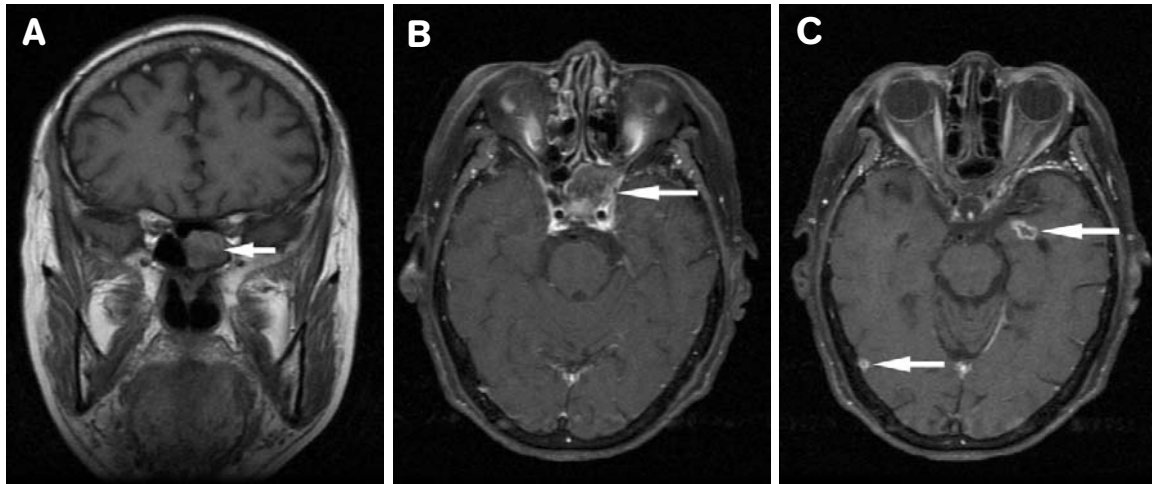


## Invasive Aspergillosis and Thrombosis of Carotid Artery

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**Figure 1.** Coronal T1-weighted (A) and post-enhanced axial T1-weighted (B & C) MR images. (A & B) At sphenoid level, the lesion in the left sphenoid sinus showed low signal intensity on T1-weighted image with peripheral faint enhancement in the left sphenoid sinus (arrow) and hypointensity signal on T2-weighted images (not shown), characteristic of fungal ball. Note the bilateral ICAs with signal void. (C) At higher level, two small cystic lesions with ring enhancement were noted in the left medial temporal and right temporal-occipital regions (arrows).

A 67-years-old woman with diabetes mellitus was admitted because of having difficulty in opening her left eye for two days following a left frontal pain of two months duration. Neurological examination revealed a left trochlear nerve palsy and a left oculomotor nerve palsy with preserved light reflex. Tendon reflexes in the limbs were equally depressed. All sensation was impaired in a stocking and glove fashion. Magnetic resonance images (MRI) of the brain with gadolinium showed a mass lesion in the left sphenoid sinus (Figs. 1A-B), and two brain abscesses in the left medial temporal and right temporal-occipital regions (Fig. 1C). The

mass was removed surgically and pathological examination revealed clumps of aspergillus with septated hyphae and focal purulent exudate. Cerebrospinal fluid analysis was unremarkable. The patient received a 2-month course of combined intravenous amphotericin-B and oral itraconazole. Oral itraconazole alone was continued for 10 more months. The functions of left oculomotor and trochlear nerve recovered after above treatment.

Two months after admission, slight right hemiparesis was observed. MRI of the brain showed thrombotic change of the siphon portion of the left internal carotid artery (ICA) (Figs. 2A-B) along with a low-flow infarct-

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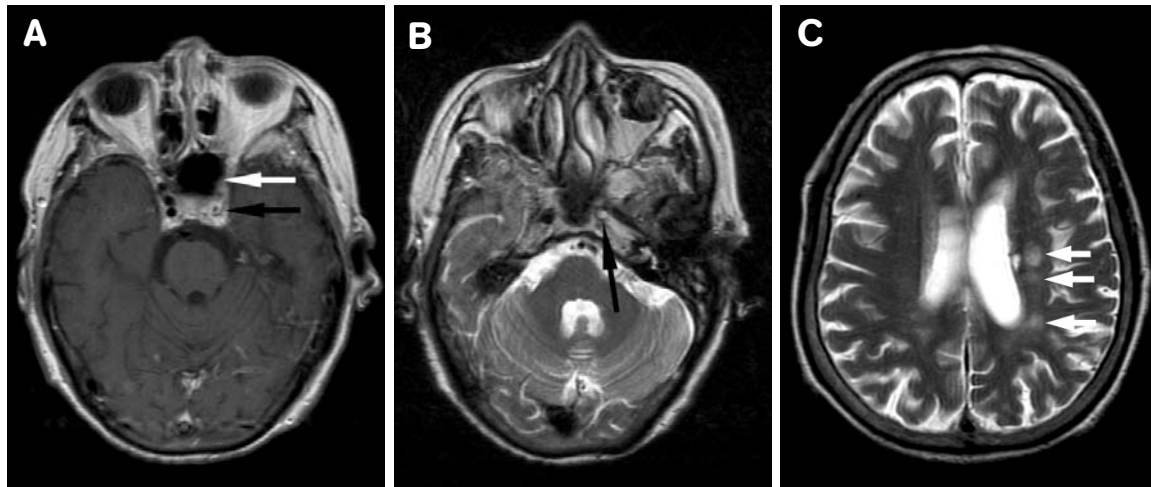


Figure 2. Post-enhanced axial T1-weighted (A) and axial T2-weighted (B&C) MR images performed 2 months later. (A) At the sphenoid sinus level, it showed postoperative empty sphenoid sinus (white arrow) and thrombotic change of the left ICA with thickened wall and narrowed central lumen (black arrow). (B) At lower level, the absence of signal void of left ICA indicated arterial thrombosis (arrow). Note the normal patent lumen appearing as dark dot on the other side (black arrow). (C) Multiple small lesions with high T2-weighted signal intensity showed a chain-like arrangement along the cella media of the left ventricle, consistent with low-flow infarction (arrows).

tion in the left hemisphere. (Fig. 2C). Extracranial carotid duplex revealed mild stenosis of bilateral carotid arteries and patent left ICA.

Aspergillosis commonly presents as localized infection of the respiratory tract, paranasal sinuses, or cutaneous tissue. Invasive aspergillosis often developed in debilitated patients with alcoholism, diabetes, hepatic failure, chronic renal failure, drug addiction, or hematological malignancy. Cerebral vasculitis due to *Aspergillus* infection is usually the result of disseminated disease following hematogenous spread from the lungs. Local spread into the brain from the paranasal sinuses may occur<sup>(1)</sup>. The angio-invasive nature of *aspergillus* may result in infarction in the distal field of the affected artery<sup>(2)</sup>.

In this patient, the original focus of *aspergillus* infec-

tion was in the left sphenoid sinus. The left frontal pain and left sided cranial nerve palsies might be indicative of the early invasion to the lateral wall of the left cavernous sinus. Subsequently, fungal vascular wall invasion then induced the formation of the thrombus in the left ICA with significant hemodynamic consequence.

#### References:

1. Roberts M, Carmichael A, Martin P. Cerebral vasculitis caused by *Aspergillus* species in an immunocompetent adult. *Infection* 2004;32:360-63.
2. Hurst RW, Judkins A, Bolger W, et al. Mycotic aneurysm and cerebral infarction resulting from fungal sinusitis: imaging and pathologic correlation. *AJNR Am J Neuroradiol* 2001;22:858-63.