

## Isolated sphenoid sinus mycetoma: An unusual cause of chronic headache

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Dear editor,

A 58-year-old male patient was admitted to our neurology clinic with headache and blurry vision. The mean symptom duration was approximately five years for headache, and one year for blurry vision. He had no personal history of neurological and internal diseases. He was on analgesic therapy almost daily and was experiencing dizziness. Neurological and ophthalmological examinations showed no significant findings. Brain magnetic resonance imaging (MRI) revealed a T2 hypointense, diffusion-restricted, and intensely heterogeneous contrast-enhancing mass lesion in the left sphenoid sinus, suggestive of fungal infection (Figure 1). Paranasal sinus computed tomography (CT) disclosed total loss of aeration, increase in wall thickness, mild expansion, and sclerosis of the sphenoid sinus left compartment (Figure 2). These radiological findings raised suspicion of fungus ball (mycetoma). Functional endoscopic sinus surgery was performed. The macroscopic appearance during surgery strengthened the suspicion of non-invasive fungal infection. Therefore, the lesion was removed completely. Pathological examination of the specimens detected fungal hyphae with septate and narrow-angle branching features consistent with aspergillus. These results were compatible with mycetoma. The patient received nasal steroid therapy. At approximately two years of follow-up, he did not experience any neurological symptoms, and complaints were resolved entirely. Pre-operative and post-operative visual acuity was 20/30 and 20/20, respectively.

Fungal infections of the paranasal sinus occur rarely, and the responsible agent is often aspergillus [1]. Fungal sinusitis is classified into allergic fungal sinusitis, mycetoma, acute fulminant form, and chronic invasive form. While the first two of these four types are non-invasive, the last two are invasive, progress rapidly, and cause severe disease. Invasive fungal sinusitis has been described more frequently in immunosuppressed individuals, while fungal balls have been reported generally in immunocompetent individuals [2,3].

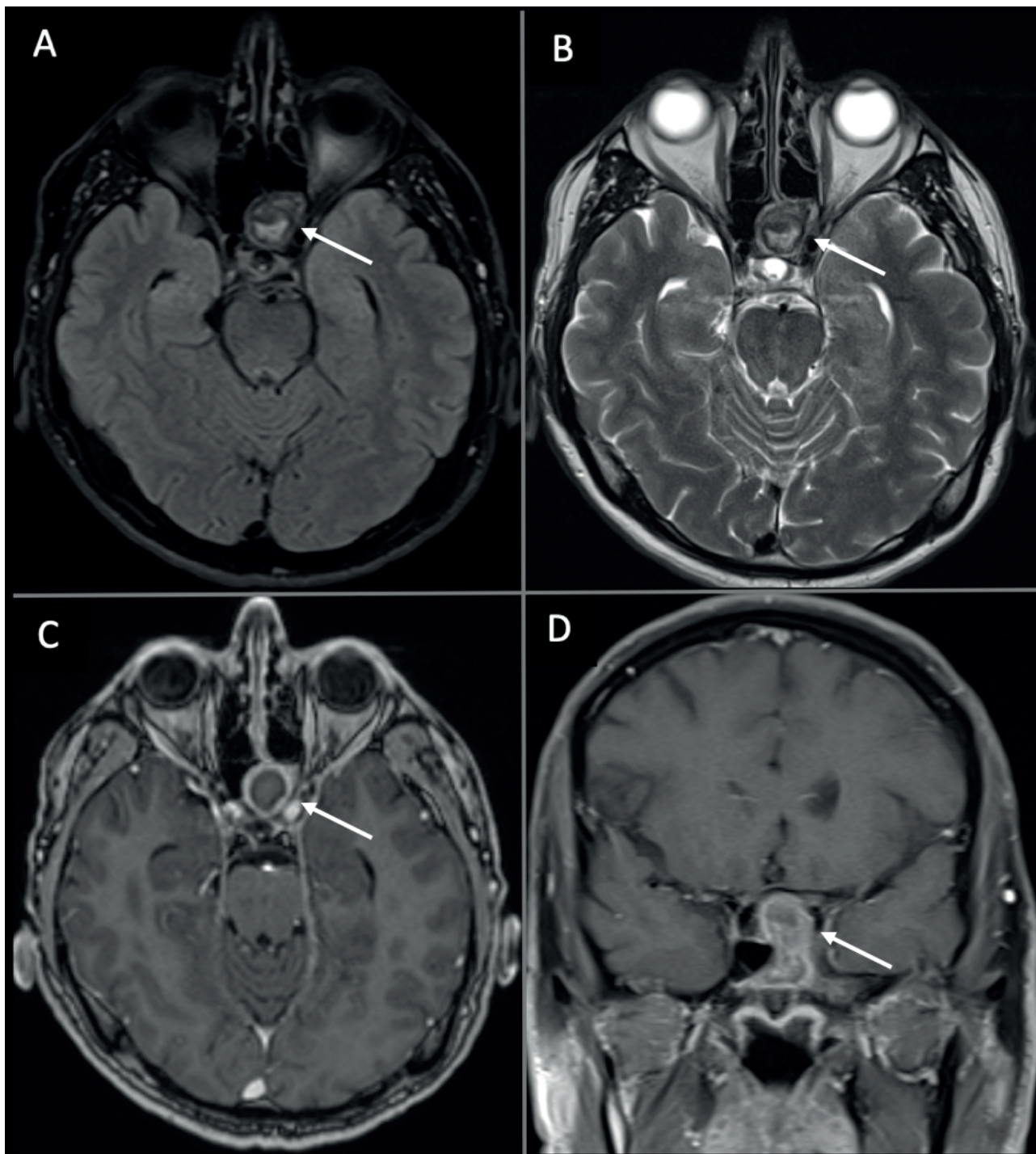
Fungus ball refers to extra mucosal fungal proliferation, usually localized in a single sinus. Its pathogenesis and formation mechanism are not fully known. Cytotoxic metabolites formed during mycelium growth can lead to tissue and bone damage, and thus various complications develop [1-3]. There is no development of immune reaction against fungi. The incidence of atopy in patients suffering from mycetoma is similar to healthy individuals. Generally, skin tests and immunoglobulin E levels are normal [4].

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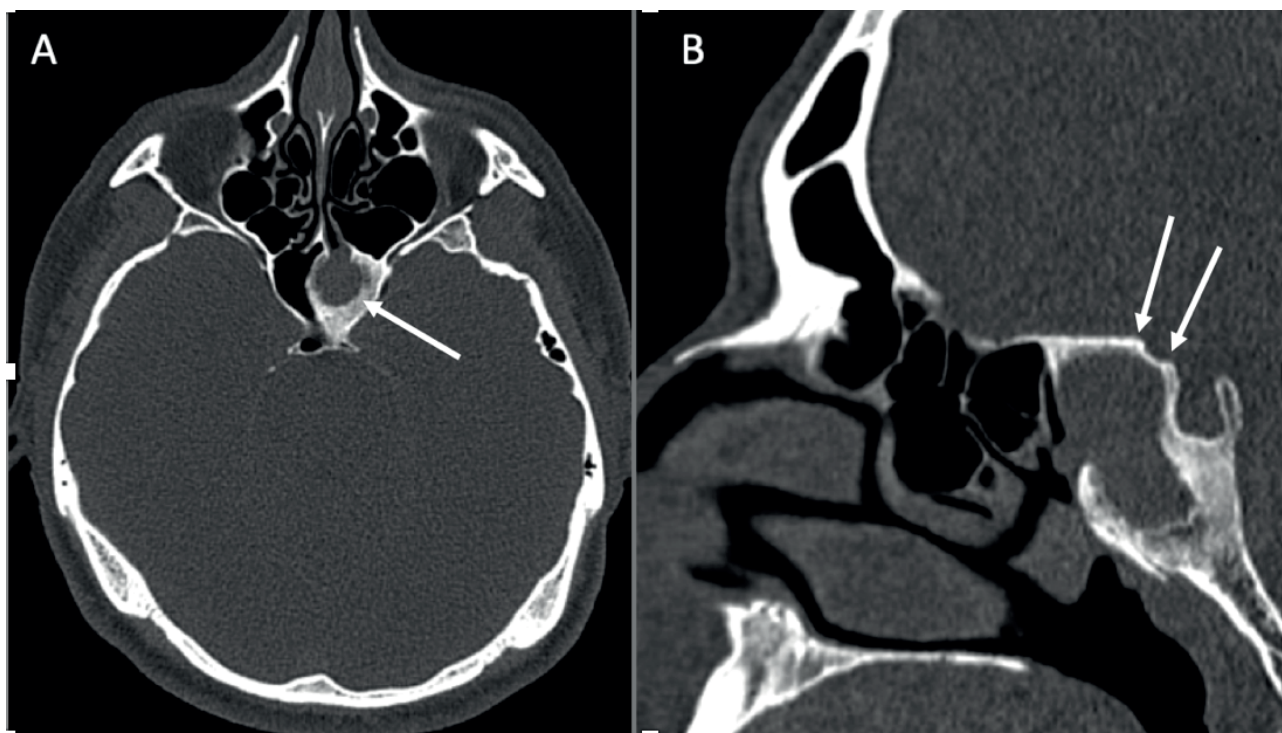
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**Figure 1.** The initial brain magnetic resonance imaging, axial fluid-attenuated inversion recovery (FLAIR) image (A, arrow), and sagittal T2-weighted (W) image (B, arrow) discloses hypointense and diffusion-restricted mass lesion in the left sphenoid sinus. The axial (C, arrow) and coronal (D, arrow) contrast-enhanced T1-W images shows intensely heterogeneous contrast-enhancing of this lesion.

The sphenoid sinus is anatomically close to the neural and intracranial vascular structures such as optic nerve and chiasm, pituitary gland, internal carotid artery, and cranial nerve (III, IV, V1, V2). Therefore, delays in diagnosing and treating pathologies localized to the sphenoid sinus may result in serious complications [2]. Headache is

the main complaint in isolated sphenoid sinus diseases, and there is no distinct type of pain. It can also lead to proptosis, ptosis, and visual symptoms [3]. There was no evidence of mucosal invasion of the pathogen in our patient. Orbital symptoms may have arisen as a result of pressure ischemia [2].



**Figure 2.** Paranasal sinus computed tomography axial (A, arrow) and sagittal (B, arrows) imaging demonstrates fungus ball (mycetoma).

Functional endoscopic sinus surgery is the primary treatment in this entity. Microbiological and histopathological studies of surgical material confirm the diagnosis. Surgical debridement and sinus ventilation are the main steps of treatment. It was discussed whether antifungal treatment was necessary or not, and it was emphasized that it was unnecessary [1-3].

In summary, paranasal sinus pathologies often present with non-specific symptoms. Brain MRI should be performed in patients with lesions

detected in the sphenoid sinus on paranasal CT. It should be kept in mind in the presence of nasopharyngeal and vision loss in addition to atypical headaches.

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#### Conflict of interest

The authors declare that there is no conflict of interest.

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