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Surgery

Unilateral Visual Acuity Loss Revealing a Fungal Ball in the Sphenoid Sinus: A Case Report

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Abstract | **Case Report**

Fungal rhinosinusitis is a common condition of the paranasal sinuses. The fungal ball (FB) is defined as an extramucosal accumulation of fungal elements filling one or more sinuses, most frequently the maxillary sinus. Sphenoid sinus involvement is rare, but represents a potentially serious condition due to its proximity to critical neuro-ophthalmic structures. Clinical presentation is often nonspecific and may be overlooked, especially in immunocompetent patients. However, characteristic imaging findings on computed tomography (CT), such as a spontaneously hyperdense lesion without contrast enhancement, is the key for diagnosis. Endoscopic sphenoidotomy remains the gold standard treatment and usually allows complete removal of the fungal material. We report the case of a 78-year-old immunocompetent patient presenting with progressive unilateral visual loss. CT and Cone Beam imaging revealed an isolated fungal ball in the left sphenoid sinus. Surgical treatment via endonasal sphenoidotomy led to a favorable outcome and visual stabilization. This case highlights the importance of considering sphenoid fungal sinusitis in the differential diagnosis of unexplained visual symptoms, and emphasizes the value of early ENT evaluation and surgical management.

Keywords: Fungal ball, Sphenoid sinus, Visual acuity loss, Sphenoidotomy, Case report.

INTRODUCTION

Non-invasive fungal sinusitis, particularly fungal balls (or fungal mycetomas), are well-known entities, mainly affecting the maxillary sinus [1]. The sphenoid sinus is an exceptional location, accounting for 4.5% to 26.8% of cases of fungal sinusitis [2]. However, this condition can lead to serious complications due to its anatomical proximity to the optic nerve, optic chiasm, pituitary gland, and internal carotid artery [3,4]. Diagnosis is often delayed due to vague or atypical clinical presentation. Among the telltale symptoms, unilateral visual disturbances are a major warning sign, sometimes the only one [5]. We report a case of isolated sphenoid fungal ball in an elderly patient, revealed by a gradual decline in visual acuity, illustrating the importance of rapid treatment.

CASE REPORT

A 78-year-old male patient, who was being treated for high blood pressure and dyslipidemia and had undergone bilateral cataract surgery a few years earlier. The patient consulted for a decreased visual acuity with no motility deficits, no Headache, no nasal complaints or other associated signs. The initial ophthalmological examination did not reveal any notable abnormalities: normal fundus, normal intraocular pressure, no visible damage to the optic nerve or retina.

In the absence of an ophthalmological cause, an ENT examination was requested. Nasofibroscopy revealed a purulent secretion draining from the left sphenoethmoidal recess. A cone beam (figure1) and sinus CT scan (figure2) showed a hypodense filling of the left sphenoid sinus, with a characteristic homogeneous, spontaneously hyperdense opacity occupying the sinus, without bone lysis, consistent with a fungal mycetoma.

Figure 1: Cone Beam CT (A: coronal view, B: sagittal view) revealing a solitary hyperdense lesion in the filled left sphenoid sinus

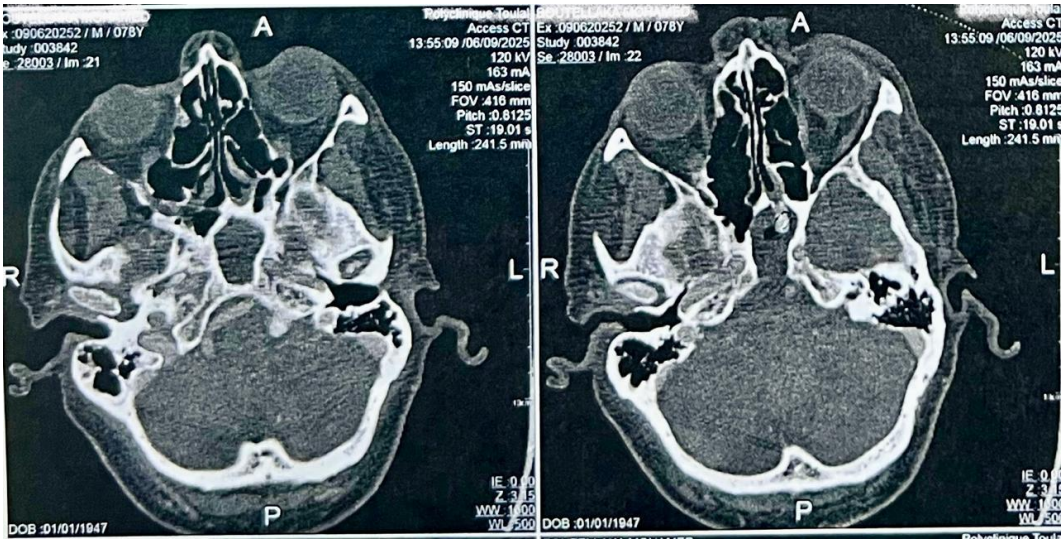

Figure 2: Axial CT scan of the sinuses (bone window) showing a hypodense filling of the left sphenoid sinus, within which a characteristic spontaneously hyperdense opacity was identified, consistent with a fungal ball

The patient underwent endonasal surgery with left sphenoidotomy and complete removal of the fungal ball (figure 3).

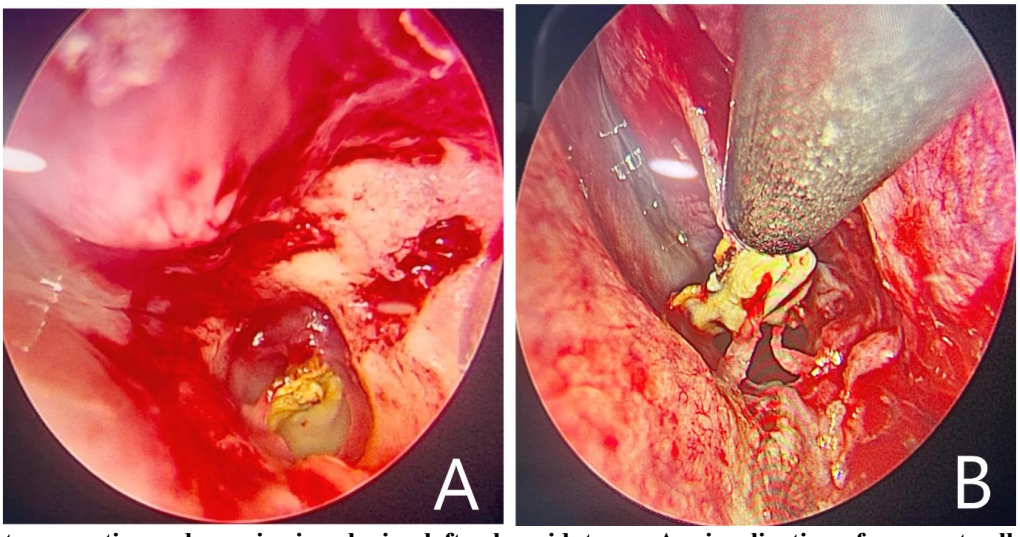

Figure 3: Intraoperative endoscopic view during left sphenoidotomy: A: visualization of compact yellow-greenish fungal material, typical of an aspergilloma inside the sphenoid sinus, B: extraction of fungal material

Histopathological examination confirmed the diagnosis of non-invasive fungal ball and revealed Aspergillus-type mycelial filaments. The postoperative course was uneventful, with no complications and stabilization of visual acuity.

DISCUSSION

Fungal balls are chronic, non-invasive infections characterized by an accumulation of dense fungal material, often due to Aspergillus fumigatus [1,6]. Sphenoid involvement is rare but serious due to its proximity to critical neurovascular structures [3,4].

Clinically, patients may be asymptomatic or present with nonspecific signs such as retro-orbital headaches, hyposmia, or decreased visual acuity [5]. Visual loss may be related to mechanical compression of the optic nerve, secondary ischemia, or perineural inflammation [7].

A sinus CT scan is the key examination: it shows a homogeneous hyperdense opacity, often calcified, without post-injection enhancement and without bone erosion in non-invasive forms [8]. MRI is useful in cases of diagnostic uncertainty or suspected orbital or intracranial invasion [9].

The standard treatment is endonasal surgery, with wide opening of the sphenoid sinus (sphenoidotomy) and complete excision of the fungal ball [10]. Systemic antifungals are not indicated in the absence of tissue invasion [11]. The visual prognosis depends mainly on the early treatment [7].

In our case, the diagnosis was quickly made thanks to close collaboration between ophthalmologists and ENT specialists. Surgery stabilized the visual progression.

CONCLUSION

Although rare, fungal ball of the sphenoid sinus should be considered in any case of unexplained visual acuity loss, especially in elderly patients. Sinus imaging is essential. Prompt surgical treatment can prevent serious complications and improve the visual prognosis.

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