

Case report

Pituitary abscess following expanding sphenoid sinus pyocele: Complication of endoscopic endonasal transsphenoidal surgery

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1. Introduction

Sphenoid sinus mucocele is a rare complication of endoscopic endonasal transsphenoid surgery [1]. Sphenoid sinus pyocele is defined as secondary infection of sphenoid sinus mucocele with bacterial colonization. If the clinical diagnosis is incorrect or delayed, several serious complications may occur, especially ascending intracranial extension with central nervous system infection [2]. Most patients with sphenoid sinus pyocele respond well to broad-spectrum antibiotics and nasal decongestants. Surgical intervention is only indicated for those who are refractory to medical treatment [2].

Pituitary abscess secondary to expanding sphenoid sinus infection was reported by few literature, and history of previous surgery for pituitary lesions may further increase its risk [3]. For patient with sphenoid sinus mucocele/pyocele, aggressive surgical intervention is recommended.

2. Case report

A 60-year-old female, previously well, presented with intermittent headache and blurred vision for 3 weeks. The ophthalmological consultation showed an incomplete bilateral temporal hemianopsia. Physical examination demonstrated no other neurological

deficit. MRI showed one isointense intrasellar mass lesion with suprasellar extension on T1-weighted images, hyperintense on T2-weighted images, with contrast-medium enhancement (Fig. 1A and B). Laboratory tests revealed that hormonal levels were within normal ranges. Then we used navigation guided endoscopic endonasal transsphenoidal approach for tumor removal. During surgery, no immediate complication was observed and the whole procedure was smooth.

After surgery, no hormonal deficit was noted and the patient was discharged 6 days later. By histopathological examination the lesions proved to be a non-functional pituitary adenoma. MRI was performed at 4 months after surgery, showing absence of pituitary adenoma. Otherwise, one hyperintense lesion over right superior portion of sphenoid sinus was detected on T1-weighted and T2-weighted images (Fig. 1C and D), without contrast-medium enhancement and hypointensity on diffusion-weighted images (DWI). The patient did not receive any treatment or management due to no related symptom or sign.

The patient started to suffer from intermittent headache, dizziness 6 months later (10 months after surgery). Due to clinical discomfort persisted and exacerbated with accompanied blurred vision, she came to our outpatient clinic for further investigation. She was afebrile with a temperature of 36.5°C. Physical examination showed incomplete bilateral temporal hemianopsia. Laboratory tests and hormonal levels were within normal ranges. MRI revealed one enlarged heterogeneous lobulated lesion over right superior portion of sphenoid sinus with intrasellar and suprasellar region involvement (Fig. 2A–C). Peripheral contrast-medium enhancement and hyperintensity on DWI were observed (Fig. 2D). Repeated endonasal transsphenoidal approach was performed. On entering the sphenoid sinus, the mucosa was thickened

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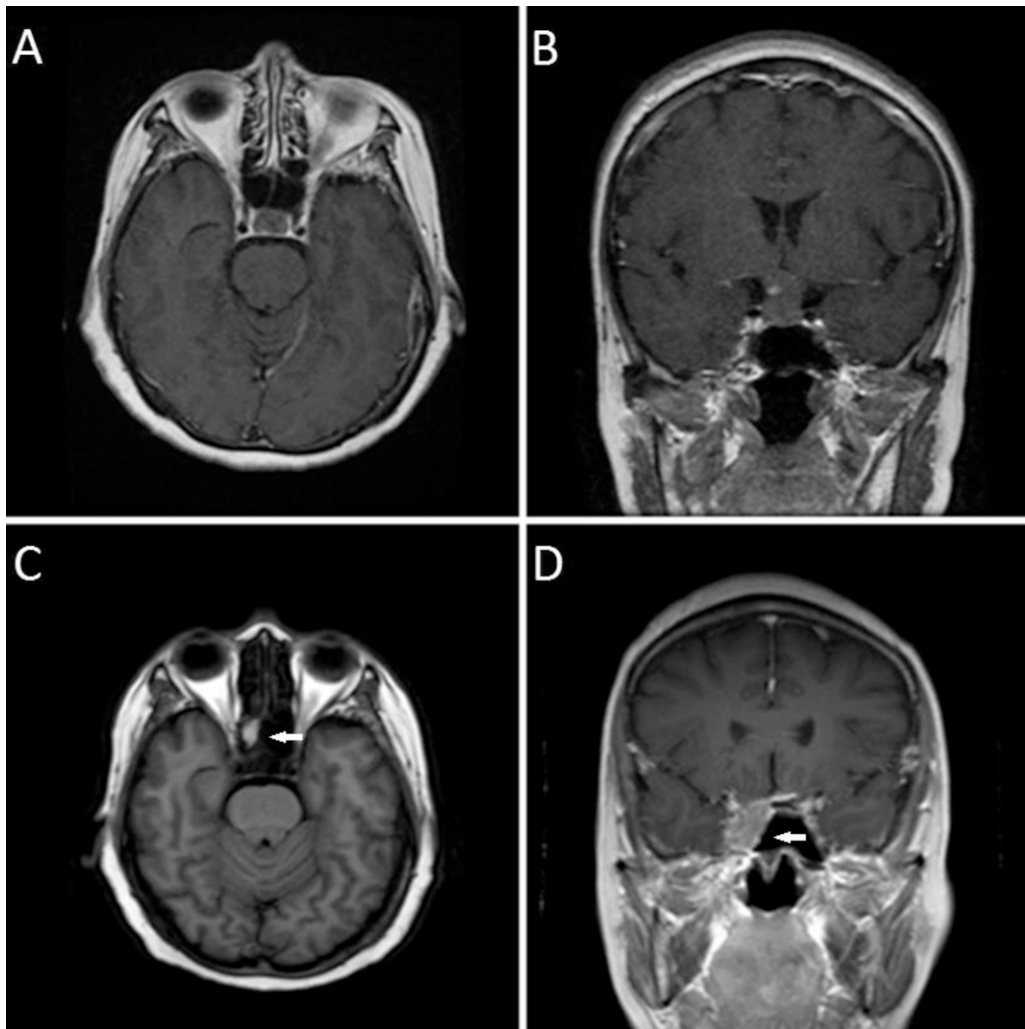


Fig. 1. Preoperative contrast enhanced axial (A) and coronal (B) T1-weighted images showing one sellar mass with suprasellar extension and optic chiasm compression. Pathological report was pituitary adenoma. Axial native (C) and contrast enhanced coronal (D) T1-weighted images performed 4 months after transsphenoidal surgery showing absence of pituitary adenoma and the hyperintense lesion (white arrow) over right superior portion of sphenoid sinus.

and gelatinous. After opening the sellar floor by Kerrison Punch, yellowish liquefied creamy-like material leaked and was collected for microbiological examination (Fig. 3A). The cavity was then enlarged by puncturing sellar floor and abundant irrigation with normal saline was done. Microbiological examinations revealed moderate colonies of *Sternotroph. Maltophil*, susceptible to trimethoprim-sulfamethoxazole. After surgery, the patient accepted antibiotic therapy with trimethoprim-sulfamethoxazole. One month later, the patient presented with normal hormonal values, normal visual fields and absence of intrasellar mass lesion, evidenced by brain CT (Fig. 3B).

3. Discussion

Sphenoid sinus mucocele, the cystic lesion lined with mucociliary epithelium and filled with associated secretions, is a rare complication of endoscopic endonasal transsphenoidal surgery as treatment for intrasellar lesions. The pathogenesis of sphenoid sinus mucocele formation is related to blockage of the sphenoid sinus ostia, impaired mucociliary epithelium clearance and associated secretion retention [4]. Sphenoid sinus pyoceles are defined as secondary infection of aseptic sphenoid sinus mucocele with bacteria colonization. The incidence of sphenoid sinus pyocelae related to transsphenoidal approach is 1–6.2% [4,5].

The clinical expressions of sphenoid sinus mucocele and pyocelae are similar with the most frequent symptom is frontal headache, followed by visual symptoms. Not surprising, the majority of patients presented with a chronic and indolent course. If diagnosis is delayed or incorrect, progressive sequelae such as neurological deficits, ophthalmologic complications, and ascending infection may result [2]. MRI appearance of sphenoid sinus mucocele/pyocelae is dependent on its inclusive protein content. While fluid is predominant as mucocele content, it shows hypointense in T1-weighted images and hyperintense in T2-weighted images. As protein is predominant, it shows hyperintense in T1-weighted images and hypointense in T2-weighted images. Treatment choice for uncomplicated sphenoid sinus pyocelae begins with administration of broad-spectrum antibiotics and nasal decongestants. The majority of patients respond to it well. Surgical intervention is indicated for cases refractory to medical treatment to open up the blocked sphenoid sinus ostia, promote drainage from the sphenoid sinus, and obtain specimen for pathogen culture [2].

In our case, the MRI performed 4 months post first surgery revealed one lesion over right superior portion of sphenoid sinus with homogeneous hyperintense in T1-weighted and T2-weighted images. Its image finding was compatible with diagnosis of sphenoid sinus mucocele. The MRI appearance of expanding sphenoid sinus lesion with intracranial extension in our patient was

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