

CASE REPORT

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Ophthalmoplegia secondary to left sphenoid sinus mucocoele

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Abstract

Sphenoid sinus mucocoele (SSM) is rare and constitutes 1-2% of all paranasal sinus mucocoeles. In general, patients present with symptoms such as headache, swelling of the face, nasal obstruction, proptosis, disturbance of globe movements, diplopia and visual loss. In this article, we present a case of ophthalmoplegia which is diagnosed with rare SSM. A 72-year-old man was admitted with an upper respiratory tract infection and concomitant complaints of low left eye lid, diplopia and retroorbital headache. On examination, there were left ptosis and paralysis in all globe movements except for the outward gaze. The patient's diplopia increased in downward gaze. Fundoscopy was normal. CT revealed a hypodense mass in the left sphenoid sinus that was compatible with a mucocoele of about 3x2 cm. The patient was diagnosed with SSM and we performed emergency surgery. Sphenoid sinus mucocoeles are very rare and benign lesions, but they can permanently damage the surrounding vital structures. Patients with headache and cranial nerve pathologies should be suspected of SSM. Surgical treatment of SSM by transnasal endoscopic approach can be preferred because of its ease of application and low morbidity and recurrence rates. Early surgical intervention can prevent the damages that will develop in patients.

Keywords: Diplopia, fundoscopy, ptosis, hypodense

Introduction

Mucocoeles are benign mucus-filled cystic masses of the paranasal sinuses that can invade the peripheral tissues. Mucocoeles are usually seen between the ages of 40-60. The frequency of occurrence is similar in men and women [1]. The most common one is the frontal sinus mucocoele [2]. Sphenoid sinus mucocoele (SSM) is rare and constitutes 1-2% of all paranasal sinus mucocoeles [1]. Symptoms and signs of the mucocoele vary depending on where the mucocoele is present. In general, patients present with symptoms such as headache, feeling of pressure on the face, swelling of the face, toothache, nasal obstruction, proptosis, periorbital pain, disturbance of globe movements, diplopia and visual loss. Especially, since the sphenoid sinus is close neighbor to important anatomical structures such as optic nerve, chiasm, cavernous sinus, dura, pituitary gland, internal carotid artery, cranial nerves III-VI, sphenopalatin artery, and pituitary canal, in the disorders associated with these structures, it should be suspected of SSM [3,4].

In this article, we present a case ophthalmoplegia which is diagnosed with rare SSM.

Case Report

A 72-year-old man was admitted with an upper respiratory tract infection that began about a week ago and concomitant complaints of left droopy lid, diplopia and retroorbital headache. On examination, there were left ptosis and paralysis in all globe movements except for the outward gaze. The patient's diplopia was increasing while he was looked down. Left ophthalmoplegia with oculomotor and trochlear nerve paralysis was detected. The visual acuity was found 8/10 on the left. Fundoscopic examination was normal. In nasal endoscopy, bilateral mucosal edema and purulent discharge were present and it was seen that the anterior wall of the left sphenoid sinus was directly extended to the nasal passage. Computed tomography (CT) revealed a hypodense mass in the left sphenoid sinus that was compatible with a mucocoele of about 3x2 cm extending to the anterior ethmoidal cells causing enlargement of the sinus and thinning of the bone tissue. Magnetic resonance imaging (MRI) supported the mucocoele diagnosis (Fig. 1). The patient also had a history of diabetes and hypertension and it was thought that diabetes may predispose to mucocoele formation. The patient was diagnosed with SSM and we decided to perform emergency surgery. Preoperatively, 80 mg/day prednisolone was administered and blood sugar regulation was provided. Under general anesthesia and under view of a 00 telescope endoscopic transnasal sphenoidotomy was performed and the anterior and sub-walls of the sphenoid sinus were partially excised. The mucocoele was marsupialised and the mucopurulent content was

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cleared. It was seen that mucocoele enlarged the sphenoid sinus. After the surgery, in control CT, MRI and endoscopic examination ventilation of the sphenoid sinus was found normal at the end of the first month and all complaints of the patient were recovered within a year (Fig. 2).

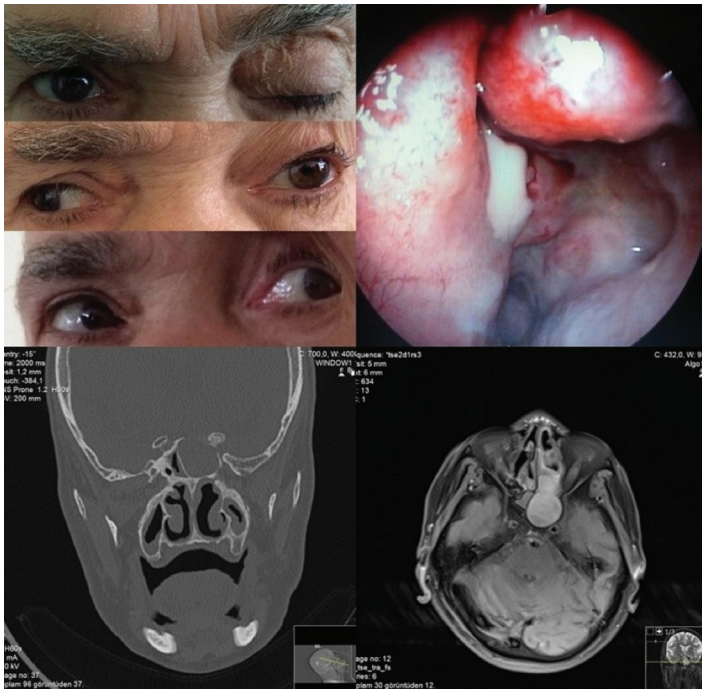


Figure 1. Left ptosis and limited globe movements (ophthalmoplegia) (on the upper left side); Nasal endoscopic view of expansion of the left sphenoid sinus to anterior (on the upper right side); Coronal computed tomography image of the sphenoid sinus mucocoele (on the lower left side); Axial image of the sphenoid sinus mucocoele in T2 weighted magnetic resonance imaging (on the lower right side).

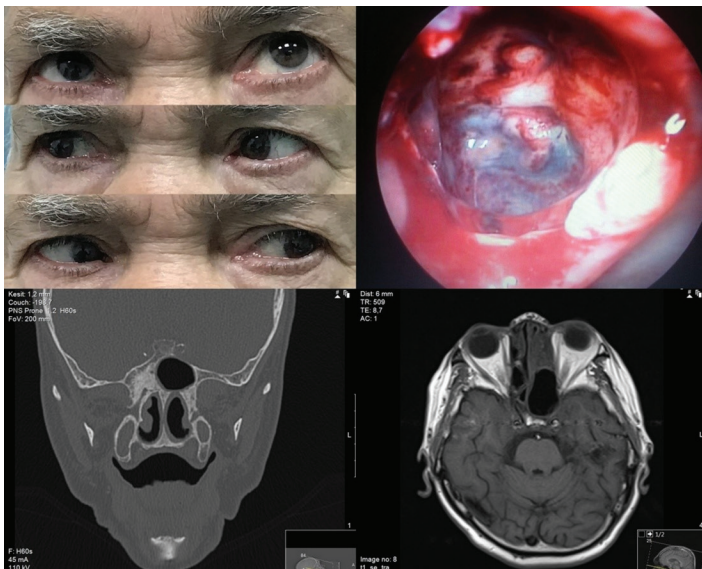


Figure 2. A year after the surgery, recovered globe movements and ptosis were seen (on the upper left side); Normal aeration of the sphenoid sinus in nasal endoscopy (on the upper right side), in coronal computed tomography (on the lower left side) and in axial magnetic resonance imaging (on the lower right side).

Discussion

Although pathophysiology is still uncertain, it is generally thought that paranasal sinus mucocoeles emerge due to occlusion of the sinus ostium. Other hypotheses include cystic development

from cystic dilatation of glandular structures and embryonic epithelial remains. Radiotherapy, previous sinus surgery and mass compression may also cause mucocoele formation [1,2]. Regardless of the cause, the clinical tables of mucocoeles are various, and although they are benign pathologies, due to the pressure that they exert on the surrounding tissues they can lead to significant morbidity [1,5]. SSM is particularly important because of vital structures adjacent to the sphenoid sinus, and mucocoele should be treated immediately when detected. So in this case, we urgently performed left transnasal endoscopic sphenoidotomy and mucocoele marsupialisation procedures.

Sphenoid sinus mucocoeles tend to spread to the nasopharynx and orbit [1]. The most common symptom is headache, especially localized to supraorbital or retroorbital area, occurring in 70 to 80% of patients. SSM can cause rapid visual loss, optic neuropathy, ptosis, ophthalmoplegia and diplopia, especially by optic canal and superficial orbital fissure compression. Ophthalmoplegia occurs in 30-50% of cases of sphenoid sinus mucocoeles. Oculomotor nerve is affected more frequently than the abducens and the trochlear nerves. The nervus abducens is also frequently affected by SSM due to its medial placement at the cavernous sinus. Although cranial nerve pathologies are usually seen in patients, cranial complications such as cerebrospinal fluid fistula, meningitis and brain abscess may also be seen [2-4].

In the diagnosis of mucocoeles, CT and MRI are very useful. An isoattenuating mass that causes thinning and bending in the bone tissue with a smooth surface is detected in CT. In MRI, although mucocoeles are seen hyperintense in T2-weighted images, they vary in T1-weighted images according to the protein concentrations. They expand towards the neighborhood structures by thinning the bone tissues surrounding the sinuses. Mucopyocoeles or neoplasms should be considered if there is no thinning in the bone tissue and there is a nodular enlargement [6]. Especially, MRI is indicative of the differential diagnosis of other sinus pathologies. Because of the poor clinical picture of the SSM, the differentiating diagnosis of it from other malignancy, cystic and vascular pathologies should be performed. These pathologies include pituitary tumors, craniopharyngioma, epidermoid and dermoid tumors, chordoma, metastatic masses, aneurysms and arachnoid cyst [1].

The treatment of mucocoeles is surgical. Additionally, steroid therapy must be started before surgery. Different surgical approaches can be used according to localization. Endoscopic sinus surgery, craniotomy, craniofacial approaches and marsupialisation or total excision of the mucocoele with or without obliteration can be performed [7,8]. Endoscopically, transnasal sphenoidotomy and marsupialisation can be easily applied in the treatment of SSM and are often preferred due to the risk of minimal recurrence [1,9]. In our case, we preferred transnasal endoscopic approach.

Expanded sinus wall may oppress optic nerve or reduce or block its blood supply leading to optic atrophy or direct spread of suppuration to optic nerve may cause optic neuritis or visual loss. Although a regression in the post-surgical complaints is expected, especially patients with loss of vision may develop permanent visual loss [10]. All the disorders in our case were recovered in a year.

Conclusion

Sphenoid sinus mucocoeles can cause permanent damage to vital structures around them, even though they are very rare and benign lesions. Therefore, after excluding intracranial pathologies, in cases of cranial nerve pathologies accompanied with headache should be suspected of SSM and those who are diagnosed with mucocoele should be treated as soon as possible. Transnasal endoscopic approach can be preferred in case of SSM with usefulness and low morbidity and recurrence rates when compared to other approaches. Early surgical intervention will prevent the damages and downgrade the patient's complaints as much as possible.

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