Optic neuropathy secondary to a sphenoid-ethmoidal mucocele: Case report

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\textbf{A R T I C L E   I N F O}

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\textbf{A B S T R A C T}

Case report: The case is presented of a 51-year old male patient with a history of blunt trauma in the frontal region and a one-year history of vision loss, proptosis and paresis of the lateral rectus muscle of the right eye. A right ethmoid and bilateral sphenoid mucocele was diagnosed. Drainage was performed using an external and endoscopic approach with improvement in symptoms without recurrence at 10 months.

Discussion: Sphenoid mucoceles represent 1% of all mucoceles and may present with different clinical manifestations. Surgical excision is the treatment of choice, and early intervention is indicated to prevent complications.

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\textbf{Neuropatía óptica secundaria a mucocele esfen-etmoidal: caso clínico}

\textbf{R E S U M E N}

Caso clínico: Describimos el caso de un paciente varón de 51 años de edad, con antecedente de trauma contuso en la región frontal y desde hace 1 año con disminución de la agudeza visual, proptosis y paresia del músculo recto lateral del ojo derecho. Se le diagnosticó de un mucocele etmoidal derecho y esfenoidal bilateral, drenándose por abordaje externo y endoscópico, con mejoría de los síntomas y sin recurrencias a los 10 meses.

Discusión: Los mucoceles esfenoidales representan el 1\% de todos los mucoceles y pueden presentarse con diferentes manifestaciones clínicas. La escisión quirúrgica es el tratamiento de elección y una intervención temprana está indicada para prevenir complicaciones.

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Introduction

Sphenoid mucocele is a rare condition which accounts for 1–2% of all mucocele involving paranasal sinuses.\textsuperscript{1–3}

Paranasal sinus mucocele is formed by the accumulation of mucous secretion and flaked epithelium, which causes distention of its walls. This mucocele is considered to be a cystic, expansive and destructive lesion. However, it behaves as a benign space-occupying lesion which produces a displacement of the surrounding structures as well as osteolysis of bone walls due to the production of prostaglandins and collagenase.\textsuperscript{3,4}

Case report

Male patient, 51, with a history of concussion traumatism in the front right region caused by a metal bar 8 years back. The patient referred diminished vision in right eye (RE) with onset one year earlier, associated to proptosis and intermittent retro-ocular pain on the same side.

Upon exploration, the right eye exhibited proptosis, inferolateral ocular globe displacement (Fig. 1), lateral rectus muscle palsy and pupil non-reactive to light. Visual acuity was of light perception. Intraocular pressure exhibited values within normal limits. Funduscopic examination evidenced pale papilla (Fig. 2). LE exploration was entirely normal.

Orbital tomographic examination was carried out, evidencing a space occupying lesion in the right ethmoidal sinus, with bone wall erosion and intraorbital extension. An additional lesion was observed in the right sphenoid sinus with contralateral extension (Fig. 3).

Through superior medial sulcus approach the ethmoidal mucocele was drained, together with ENT for transethmoidal endoscopic drainage of sphenoid mucocele and marsupialization of both sinuses, leaving the urinary drainage probe (Nelaton 10 Fr) in the ethmoidal sinus, anchored to the wing of the nose to maintain patency. The probe was withdrawn after one month. After 10 months follow-up, no recurrence had been observed, RE visual acuity was of finger counting at 30 cm, the ocular globe was in ortho position, extraocular movements were normal and exophthalmometry was of 17 mm in both eyes. Nasal endoscopic examination

Fig. 1 – Proptosis with lateral RE displacement.

Fig. 2 – RE funduscopic examination shows papillary atrophy secondary to compressive optic neuropathy.

Fig. 3 – Orbit tomography: axial section, lesion in right ethmoidal sinus producing expansion and erosion of bone walls, 5 × 3 cm with intraorbital extension (coronal section). Another lesion observed in the sphenoidal sinus with contralateral extension (axial section).
observed permeable ethmoidal sinus drainage ostium and the sinus covered by mucosa (Fig. 4).

Discussion

Paranasal mucocele generally affect adults between 30 and 60 years of age, with slight preference for males. The frontal sinus is involved with greater frequency (65%), followed by the anterior ethmoidal (30%) and maxillary sinus (3–10%). Involvement of the posterior ethmoidal and particularly the sphenoid sinus is extremely rare (1%).

Depending on the location, paranasal mucocele could exhibit different clinical expressions. Typically, frontal-ethmoidal mucocele exhibit mass effect signs such as proptosis, downwards displacement of the ocular globe, palpable mass in the superior-internal quadrant, intraocular pressure increase or choroidal folds. However, vision alteration is more common in the posterior ethmoidal and sphenoidal mucocele due to compressive optic neuropathy. As symptoms are nonspecific, diagnostic could be delayed.

A 2001 review by Hejazi et al. on 130 cases of sphenoidal mucocele found that the duration of symptoms ranged between 3 days and 38 years prior to diagnostic, with a mean value of 3.7 years. In 87% of cases the main finding was frontal-orbital pain. Other observed signs were ophthalmological alterations (85%), amaurosis (58%), oculomotor palsy (55%), nasal symptoms (38%) and endocrine disorders (3%).

Surgical drainage of mucocele is the treatment of choice, with early intervention being indicated to prevent complications. One of the surgical options for ethmoidal mucocele is external approach, while in sphenoid mucocele a transnasal-transsphenoidal approach is appropriate. However, at present endoscopy is the treatment of choice for the majority of cases due to the short recovery time, low incidence of post-surgery complications and extremely low percentage of recurrence. In the case of broad intra-orbital extension, both approaches can be combined. Visual diagnostic depends on early diagnostic and drainage.

In the present case, the possible cause of mucocele was obstruction of the drainage ostium of the sinus secondary to previous traumatism. The main symptoms were retro-ocular pain, diminished vision due to optic nerve compression by sphenoidal mucocele and proptosis due to the mass effect of the ethmoidal mucocele, as described in the literature. A combined approach was carried out, i.e., external approach for ethmoidal mucocele drainage due to its large size and intra-orbital extension, and endoscopic approach for draining the sphenoid mucocele, obtaining good results and no recurrence after 10 months of post-surgery follow-up.

Conflict of interests

No conflict of interests was declared by the authors.

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