Sphenoid mucocele: a rare cause of ocular dysfunction

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Conflicts of interest: None

Financial disclosure information: None

Word count: 594

Key Words: visual field defect, third nerve palsy, mucocele, sphenoid
Learning point for clinicians:

Sphenoid mucoceles are rare and usually an incidental finding. However, headache and visual symptoms including oculomotor nerve palsy and reduced visual acuity can be due to these benign but expansile lesions. Surgical endoscopic decompression is recommended.
Introduction:

Sphenoid mucoceles are rare clinical conditions, usually presenting with headache but can rarely result in visual defect, diplopia and ptosis.\textsuperscript{1-2}

We present a series of 3 cases and discuss their diagnosis, management and outcome.

Case Series:

Case one

A 66 year old male presented with a 9 day history of pain over the right maxilla. He was initially treated as sinusitis with simple analgesia and a course of antibiotics. However, he re-presented with diplopia, severe right periorbital pain, headache, vomiting and photophobia.

On examination his pupils were equal and reactive to light with normal visual fields and fundi. His acuity 6/6 on the left but 6/24 on the right. The right eye was deviated inferirolaterally in primary position with associated ptosis. It was painful to move the right eye and all movements were limited except for abduction. There was no conjunctival injection. The cranial nerves and peripheral nervous system examination was otherwise normal. There was no facial swelling but he was tender on palpation over the right maxillary sinus. Rhinological examination indicated congestion on the right side but nothing else of note. He was apyrexial and bloods including inflammatory markers normal.

Computed tomography (CT) of the brain and sinuses (Figure 1A) elucidated a right sphenoid mucocele. After multidisciplinary discussion it was decided to proceed with endoscopic right sphenoidotomy and drainage of the mucocele.
This operation was uneventful (Figure 1B). The patient was discharged home with a course of antibiotics. At 3 month follow up he had no pain, and the third nerve palsy had resolved. There was no change in his visual acuity however.

Case two

A 32 year female presented with diminished vision and occipital headache. There were no associated nasal symptoms. She was afebrile on presentation. On ophthalmic examination left temporal hemianopia was identified and CT revealed a right sphenoid mucocele. Urgent endoscopic decompression was performed. She recovered uneventfully with complete restoration of her visual field defect and was asymptomatic at 18 months follow up.

Case three

A 68 year male presented with diplopia, drooping of left eyelid associated with left nasal discharge, nasal obstruction and headache. He was afebrile on presentation but with raised white cell count. Urgent CT and MRI of the brain and sinuses demonstrated a left sphenoid mucocele with erosion of the lateral sphenoid sinus wall. Ophthalmology review elicited left third nerve and sixth nerve paresis. Urgent endoscopic decompression was performed with no postoperative complications. At one year follow up he continues to do well with minimal residual third nerve weakness.
Discussion:

A mucocele of the para-nasal sinuses is a localised, expansile, destructive mucous containing lesion lined by pseudostratified ciliated columnar epithelium. There is no accepted consensus as to why mucoceles form but theories include chronic sinus ostial occlusion, mucous gland degeneration or inflammatory polyps. An association with previous radiotherapy has also been noted.

Less than 3% of all paranasal sinus lesions occur in the sphenoid sinus. An isolated sphenoid sinus mucocele is extremely rare. Most sphenoid mucoceles are clinically silent and discovered incidentally. As in our cases, headache is the commonest presenting feature. Associated oculomotor nerve palsy is rare. The mechanism of injury is thought to be due to the direct compressive effects of the benign, expansible mucocele. In case 1 there was also evidence of persistent visual impairment, most likely due to optic nerve involvement. Such visual involvement and oculomotor paresis is being increasingly recognised.

The benchmark of current treatment is an endoscopic sphenoidotomy and decompression of the mucocele. Rapidly treated disease often allows the return of ocular nerve function, however a deficit in acuity rarely improves (as in case 1). Further potential complications include infection, pyocele formation, bone erosion, meningitis, cavernous sinus thrombosis and cranial nerve palsies. Recurrence of mucoceles in not uncommon and may occur months or years after surgical treatment. Therefore, we recommend these patients are followed up.
Acknowledgements:

Nil

Conflicts of interest:

Nil
References:

Figure I: A. Axial CT image demonstrating erosion and expansion of the right sphenoid sinus

B. Intraoperative view of right sphenoid mucocele
Figure I: A. Axial CT image demonstrating erosion and expansion of the right sphenoid sinus B. Intraoperative view of right sphenoid mucocele.