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ANTERIOR CLINOID MUCOCELE CAUSING SUDDEN UNILATERAL VISUAL IMPAIRMENT TREATED WITH TRANSNASAL ENDOSCOPIC DECOMPRESSION.

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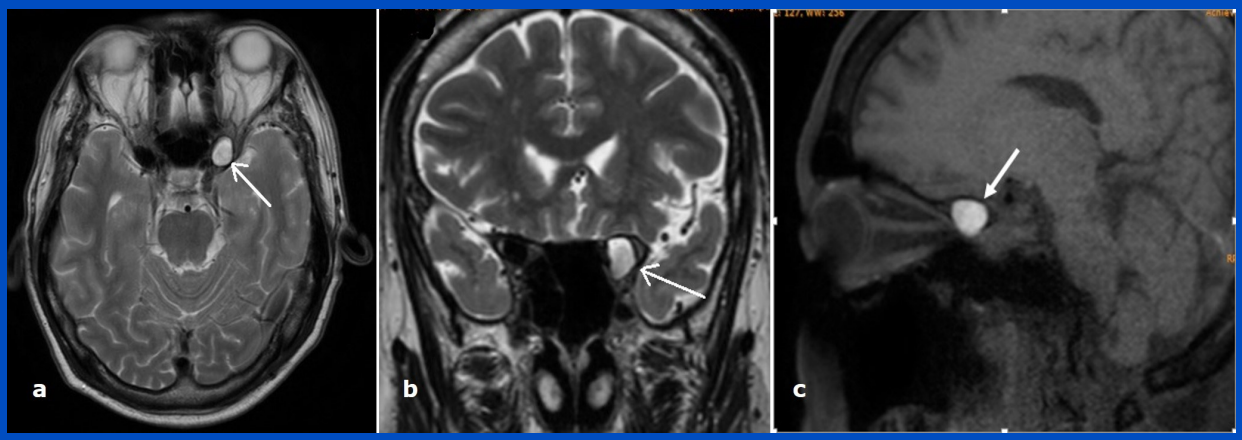

ABSTRACT

Mucoceles of the anterior clinoid process are very rare (1%). Enlarging mucoceles of the anterior clinoid process can cause pressure symptoms of surrounding structures. We reported a case of a 53 years old gentleman who presented with acute spontaneous progressive monocular vision loss and left frontal headache. His left eye had only light perception at initial presentation. Magnetic resonance imaging revealed an anterior clinoid process mucocele impinging the left optic nerve. The mucocele was successfully decompressed via a transnasal endoscopic approach. However, his left eye vision remained poor despite the surgical decompression of the optic nerve. Delayed detection and advanced age are inaugurally identified as poor prognostic features for this pathology.

KEYWORDS: Mucocele; Optic Neuritis; Transanal Endoscopic Surgery; Vision, Monocular.

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ABSTRACT

Mucoceles of the anterior clinoid process are very rare (1%). Enlarging mucoceles of the anterior clinoid process can cause pressure symptoms of surrounding structures. We reported a case of a 53 years old gentleman who presented with acute spontaneous progressive monocular vision loss and left frontal headache. His left eye had only light perception at initial presentation. Magnetic resonance imaging revealed an anterior clinoid process mucocele impinging the left optic nerve. The mucocele was successfully decompressed via a transnasal endoscopic approach. However, his left eye vision remained poor despite the surgical decompression of the optic nerve. Delayed detection and advanced age are inaugurally identified as poor prognostic features for this pathology.

KEYWORDS: Mucocele; Optic Neuritis; Transanal Endoscopic Surgery; Vision, Monocular.

INTRODUCTION

Mucocele are benign cystic lesions that are lined by respiratory epithelium that produces mucoid secretion. It is commonly seen in paranasal sinuses secondary to obstructed drainage pathway. It is seen in adults between 20 to 70 years old.[1] Incidence involving frontal sinus is the highest at 65% followed by anterior ethmoid sinus (30%), maxillary sinus (3-10%) and sphenoid sinus (1%).[1]

Anterior clinoid process (ACP) mucocele cases reported in literature are mostly arising from sphenoid sinus or other paranasal sinuses and extending to involve the ACP. Isolated ACP mucocele is extremely rare and are only sporadically reported in literature.[2-9] By virtue of its size and location, it can cause significant compression symptoms on nearby structures and is a valid reversible cause of sudden rapid progressive unilateral visual impairment as highlighted by this case. ACP can be managed successfully via less invasive transnasal endoscopic approach resulting in less post-operative morbidity. However, outcome is highly dependent on the duration of compression on the structures, in this case optic nerve and prolonged compression may result in permanent visual loss. Thus early diagnosis and treatment is the emphasis.

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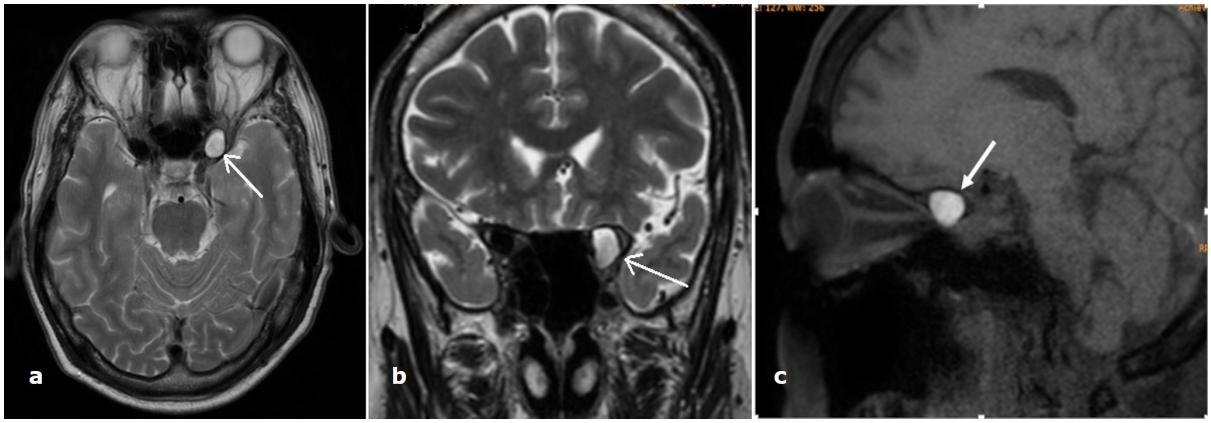

Figure 1: MRI brain depicting the left ACP mucocele (White arrows), a) T2W axial view, b) T2W coronal view, and c) T1W sagittal view.

CASE REPORT:

A 53-year-old gentleman presented to emergency department with spontaneous progressive blurring of his left visual field associated with left frontal headache for 1 week, which was preceded by an episode of upper respiratory tract infection. He denies any nasal symptoms. He has a past medical history of hypertension which was very well controlled. Visual acuity of his left eye was light perception only while his right eye vision was 6/6 OD. No other neurological deficit was detected. Initial impression was left optic neuritis and he was admitted to ophthalmology ward for intravenous methylprednisolone 250 mg 6 hourly but his vision did not improve. Computed Tomography (CT) demonstrated an expansile soft tissue lesion in left Onodi cell resembling mucocele which was compressing on the intracanalicular segment of left optic nerve.

He was referred to Otorhinolaryngology for review. Nasal endoscopy revealed no abnormal findings. Routine blood investigation was normal. Intravenous ceftriaxone was administered empirically. Magnetic Resonance Imaging (MRI) was done which demonstrated fluid filled expanded Onodi cell measuring 1.5 x 1.5 x 1.3 cm abutting left optic nerve and left cavernous sinus at the region of the optic canal without intracranial extension (Figure 1).

On day 7 of admission, patient agreed and proceeded to left endoscopic sinus surgery and optic nerve decompression. Intraoperatively, left paranasal sinuses were normal. Left lamina papyricae was breached to gain entry into left orbital cavity. A subcentimeter mucocele was seen superior and lateral to the optic nerve near to orbital apex compressing the optic nerve in the inferior-medial direction (Figure 2). During dissection, the mucocele ruptured and mucoid material were drained. The mucocele opening was widened to prevent recollection. Prednisolone was tapered over the following 2 weeks. Unfortunately, when reviewed at 2 months post-surgery, his left vision was still only to light

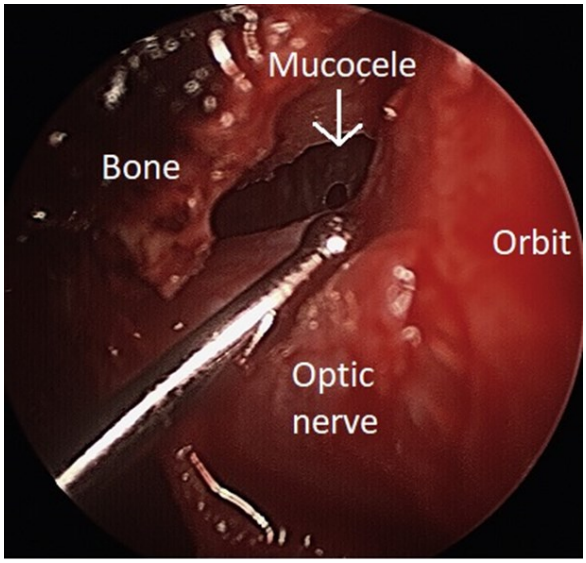

Figure 2: Intraoperative endoscopic view after medial orbital wall removed depicting the ruptured mucocele.

perception and right vision was 6/6 OD. Ophthalmology assessment revealed optic nerve atrophy. A repeat MRI reported residual mucocele but it was significantly smaller and was not impinging adjacent structures. He was follow up to 6 months where he reported no new symptoms and was well.

DISCUSSION

Greater and lesser wings of sphenoid bone forms part of the orbital apex. Pneumatization of this bone occurs as part of normal development. This process is the basis of sphenoid sinus formation. ACP pneumatisation is a normal anatomical variant at 9.2% but it is rarely associated with mucocele formation.[2-10] ACP is the anatomical ending of the lesser wing of sphenoid and are aerated by sphenoid sinus proper or sphenoethmoidal cell which is also known as Onodi cell.[11] As mentioned earlier, these sinuses are prone for mucocele formation if the drainage pathway is obstructed. Secretions accumulate in these mucoceles resulting in an expanding mass which cause erosion of adjacent bones. Compression of nerves and vessels occurs once the mucocele expanded beyond its bony architecture. The more common underlying hypothesis of this pathology is the obstruction of the communicating pneumatised tract between ACP and sphenoid sinus secondary to fibrosis, mucosal thickening or bony overgrowth.[7,9] The other postulated hypothesis is the presence of an ectopic seromucinous epithelium during embryonic development of the bone.[12]

Most common presentation of ACP mucocele is progressive monocular vision loss over a few days duration secondary to optic nerve compression.[1-9] Episodic progressive monocular vision lost has been reported.[3] Other ophthalmic manifestations are scotoma, diplopia and photophobia.[5, 6, 9] Associated manifestations are retro-bulbar pain, retro-orbital pain, peri-orbital ache and headache.[1,3 6-9] Expanding ACP mucocele exerts compression on optic canal and superior orbital fissure structures especially third to sixth cranial nerves resulting in diplopia and orbital aches. Episodes of sinusitis 2 months prior to onset of vision loss has also been reported.[5]

MRI is superior to CT in investigating these cases as it involves delineating soft tissue and better visualization but CT is the primary diagnostic imaging modality for investigating acute visual loss. Mucocele is mostly hyperintense in both T1-weighted (T1) and T2 -weighted (T2) MRI.[1, 4, 6, 7] Intravenous gadolinium generally does not enhance mucocele but it may enhance peripheral mucosal or capsular lining.[1, 2, 4-8]

Surgical decompression of optic nerve is achieved via resection or marsupialization of ACP mucocele and it is the main treatment modality. Options are via endoscopic transnasal approach, pterional craniotomy or supraorbital craniotomy.[1-4, 6-9] No studies have been carried out to compare these different approaches but endoscopic approach is a minimally invasive alternative. Majority of the cases reported complete vision recovery by 3 months after surgical intervention while others reported partial vision recovery.[1, 5-9] Only 2 cases reported no vision improvement despite surgical intervention and steroid therapy.[3, 4] One case reported complete visual recovery with only systemic antibiotic on the basis that the visual loss was secondary to sinusitis causing ACP mucocele formation.[5] Steroids were administered as neo-adjuvant and adjuvant therapy to surgical decompression in some cases.[1, 4, 7] Sudden monocular visual impairment of more than 1 week have poorer prognosis.[2] Age of patient being more than 50 years old is associated with poor prognosis in terms of visual recovery.[3, 4]

Mucocele opening was widened in this case instead of complete excision as it was lateral to optic nerve and its close proximity to internal carotid artery rendered it technical-

ly difficult to excise the entire mucocele endoscopically.

CONCLUSION

Compressive optic neuropathy secondary to anterior clinoid process mucocele is rare. It is a reversible cause of painless, rapidly progressive monocular vision loss if detected and managed early. Delayed detection and advanced age reduces prognosis in terms of visual recovery. Timely surgical decompression of the optic nerve is the gold standard. Minimally invasive approach via endoscopic sinus surgery is feasible.

Declaration of interest: The authors declare that they have no competing interests and that all authors have contributed equally to the manuscript. Consent was also obtained from the patient for publication.

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