Diplopia secondary to a frontoethmoidal mucocoele

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ABSTRACT

Mucocoele are mucous containing cyst within the paranasal sinus. Although it is considered to be benign, mucocoele has an expansile and destructive behaviour. We report a case of incidental finding of frontoethmoidal mucocoele of a patient with right frontal lobe meningioma during Magnetic Resonance Imaging (MRI) in an elderly lady who presented with lower limb weakness, headache and diplopia.

Keywords: Frontal sinus, diplopia, mucocoele

INTRODUCTION

Mucocoele is a cystic lesion of paranasal sinus which is lined by pseudostratified or low columnar epithelium containing occasional goblet cell. [1] Mucocoele is thought to arise as a consequence of chronic inflammation causing obstruction of frontal recess which leads to stimulation of lymphocytes and monocytes to produce cytokines by the lining fibroblasts to promote bone reabsorption. [2] The lesion may be very aggressive and can extend into intracranial and orbital region. Involvement of orbital region may manifests with pain, swelling, exophthalmos, and diplopia. We report an incidental finding of frontoethmoidal mucocoele in an MRI for a patient with frontal lobe meningioma.

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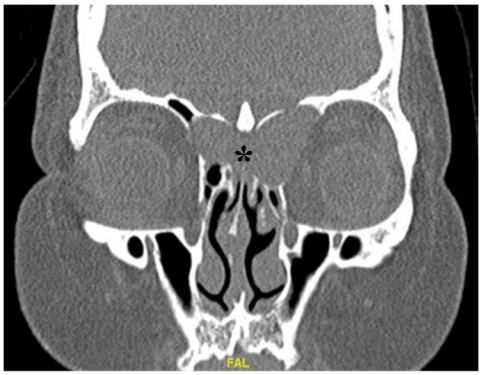
CASE REPORT

A 59-year-old Malay lady with underlying hypertension and diabetes mellitus was referred to Otorhinolaryngology Department for an incidental finding of frontal mucocoele during an MRI. Patient initially presented to Neurosurgical Department with complain of bilateral upper and lower limb weakness and intermittent diplopia. Magnetic resonance imaging (MRI) done revealed right frontal meningioma with findings of left frontal sinus mucocoele.

Further history from patient revealed no history of nose block, rhinorrhoea, facial tenderness or any other symptoms of nasal symptoms. According to patient, her main complaint was bilateral upper and lower limb weakness which had insidious onset, however there were no other associating symptoms of cerebrovascular accident. There was no prior history of trauma, head injury, vomiting, loss of consciousness or seizure. The patient's



Figs. 1: A CT image showing a mass (asterisk) occupying left frontal sinus medially extending to right frontal sinus and laterally extending into left orbit.

past medical history and family history revealed nothing significant.

General physical examination revealed a well patient who was orientated in time, place and person. She showed no signs of pallor or cyanosis. Systemic examination was unremarkable. Her neurological examination demonstrates reduced power over bilateral upper and lower limb. Although sensation over both upper and lower limbs are intact. Her cranial nerves examination was unremarkable.

Ocular examination revealed non tender, no restrictions of eye movement and no proptosis. Anterior rhinoscopy revealed no mass or septal deviation. During paranasal sinus palpation, there was no tenderness over the frontal, ethmoid or maxillary regions. Ear and throat examination was normal.

Nasal endoscopy showed a mass occupying bilateral middle meatus with no pus or discharge, bilateral Fossa of Rosenmuller was clear. The mass appeared pale, smooth and non-vascular.

We proceeded with a computer tomography scan of paranasal sinus which demonstrated presence of a mass occupying the left frontal sinus with medial extension into the right frontal sinus and lateral extension into the left orbit and inferiorly involving bilateral anterior ethmoid complex. The presence of thinning and erosion of lateral wall of left frontal sinus with mass over left superior oblique and medial rectus muscle was also noted (Figure 1).

We decided for conservative management for the patient as she is currently not agreeable for any surgical intervention. For the moment, patient has been started on steroid nasal spray and is under our regular follow up. As for the neurosurgical team, patient was planned for conservative management considering her age and underlying medical condition.

DISCUSION

Mucocoeles of paranasal sinus most commonly involves frontal sinus, followed by ethmoid, maxillary and lastly sphenoid sinus in that order. [3] Mucocoele can occur at any age but most of them occur between fourth and seventh decade. Mucocoeles are classified into idiopathic and postoperative types. [4] Idiopathic frontal mucocoele arises as a consequence of obstruction of duct between paranasal sinus and nasal cavity and entrapment epithelium which continues to secrete mucous. [5] This will lead to expansion of sinus, erosion and thinning of wall into orbit, nasopharynx, cranial cavity and subcutis. [5] The most common complications of mucocoele is expansion into orbit which causes diplopia, restricted eye movement, exophthalmos and eye pain. [5]

Based on the case presented to our centre, frontoethmoidal mucocoele may be of idiopathic origin. Mucocoele usually can be diagnosed based on thorough history, physical examination, and radiological findings. [6] Common presentation of frontal mucocoele is proptosis, mass in upper medial quadrant of orbit, pain, diplopia and bi-frontal headache. [7] As for our patient, her only presenting complaint that may be suggestive of mucocoele is intermittent diplopia.

Imaging remains the main modality of diagnosis. [8] The preferred imaging usually is the CT scan as it enables bone involvement to be evident, enables intracranial or orbital extension to be assessed and this supports surgical planning. Classical mucocoele appearance in CT scan is generalised thinning and expansion of sinus wall with evidence of sinus disease as well as bony erosion. MRI is useful in complicated cases with intracranial extension. As in our patient, paranasal CT scan done showed typical presentation of mucocoele with expansion and erosion of surrounding wall as mentioned above.

Differential diagnosis of such presentation and findings includes encephalocoeles, meningioma, epidermoid cyst, chordoma, cholesterol granuloma, salivary chordoma, neurofibroma, paraganglioma and malignant neoplasms. [9]

Management of mucocele requires a multidisciplinary team approach involving otorhinolaryngology, ophthalmology, and radiology team together with as in this case neurosurgical team. Definitive treatment of mucocoele is primarily surgical mainly to re-establish adequate drainage of sinus without cosmetic or functional deformity. As for our patient, she opted for a conservative management hence, she is under our regular three monthly follow up.

In conclusion, although a benign lesion, mucocoele due to its expansive characteristics may cause severe intracranial and orbital complications. Therefore early recognition and management is of paramount importance. Surgery is the ideal mode of treatment.

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