**Case Report**

# 'A down and out eye' - A case report of unilateral eccentric proptosis secondary to frontoethmoidal mucocele

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## Abstract

Proptosis, the forward protrusion of the eyeball, is a common manifestation of a wide variety of diseases inside the orbit and its spaces. The causes of unilateral proptosis are innumerable and its evaluation requires a multidisciplinary approach. Paranasal sinus mucoceles are epithelium-lined cystic masses usually resulting from obstruction of sinus ostia. The close proximity of paranasal sinus mucoceles to the orbit and skull base predispose patients to significant morbidity. Primary ethmoid mucocele is an uncommon entity, especially in the absence of prior ear, nose and throat complaints, and therefore should remain an important differential when a patient presents with a unilateral swelling causing proptosis. Herein, we report an unusual case of a primary frontoethmoid mucocele in a 35 years old woman who presented with a painless swelling with an obvious displacement of the left eye since 1 year, associated with restriction of ocular movements, thus prompting radio imaging of orbits. The results showed a large well-defined expansile lesion suggestive of Left Eye frontoethmoidal mucocele, prompting an immediate surgical referral.

## Key words

Proptosis, Expansile lesion, Frontoethmoidal mucocele.

## Introduction

Proptosis, the forward protrusion of the eyeball, is a common manifestation of a wide variety of diseases inside the orbit and its spaces [1]. Primary ethmoid mucocele is an uncommon entity, especially in the absence of prior ear, nose and throat complaints, and therefore should remain an important differential when a patient presents with a unilateral swelling causing proptosis [2].

The causes of unilateral proptosis are innumerable and are usually a multidisciplinary problem requiring collaboration of ophthalmology with various branches. The eye is a major crossroad for all the structures around it which help in its support and functioning, which when affected extend into the orbit causing proptosis. It can be the most dramatic of the orbital symptoms, especially if it has an acute onset. A clear knowledge of the etiologies will help the ophthalmologist to suspect, diagnose early, and provide treatment.

A mucocele of paranasal sinus is an accumulation of mucoid secretion and desquamated epithelium within the sinus with distention of its walls. It is considered as a cyst-like expansile and destructive lesion. If the cyst invades the adjacent orbit and continues to expand within the orbital cavity, the mass may mimic the behaviour of many benign growths arising primarily in the orbit. Frontoethmoidal area is more susceptible to mucocele formation due to complexity of its drainage as compared to other sinuses. Frontoethmoidal mucocele usually presents with outward and downward displacement of orbital globe and is associated with palpable mass in the superonasal and medial canthal region [3] while ophthalmologic symptoms are the most frequent presentation, patients also report rhinological or neurological complaints. The close proximity of paranasal sinus mucoceles to the orbit and skull base predisposes the patient to significant morbidity [4, 7].

## Case report

A previously healthy 35 years old woman presented to the Ophthalmology OPD, SVS Medical College and Hospital, with a gradual, painless swelling, protrusion and downward and outward displacement of the Left Eye since 1 year (**Figure – 1**).

**Figure – 1:** showing patient's condition at the time of presentation to OPD.

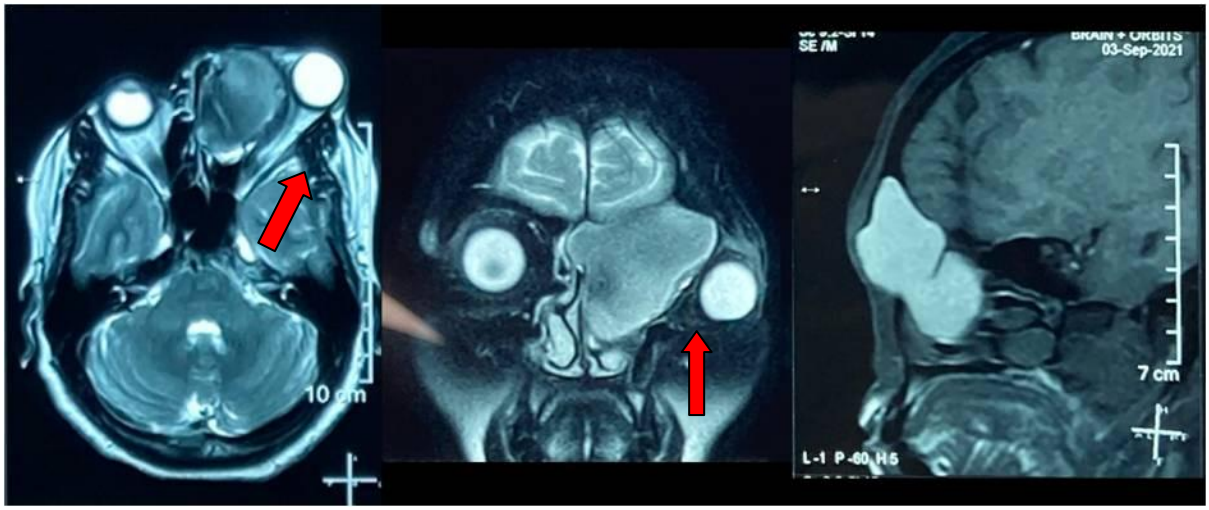
On further questioning, the patient had been complaining of worsening blurred vision, but no symptoms of nasal congestion, rhinorrhoea or hyposmia. She was systemically well and did not report nausea, vomiting, fevers or anorexia. There was also no history of trauma or prior surgery.

Clinical examination revealed an obvious swelling that was soft, fluctuant, non-tender, and non-pulsatile. It was causing downward, lateral displacement of her left eye. There was no surrounding erythema and no obvious punctum. There was no diplopia or nystagmus noted during her ophthalmological assessment.

Her visual acuity was BCVA RE 6/6 and LE 6/18 with Color vision and Near vision normal in the RE and abnormal color vision (1/17 plates read) in the LE.

**Figure – 2:** showing coronal and axial computed tomography images of frontoethmoid mucocele causing left orbital displacement.


**Figure – 3:** showing magnetic resonance imaging of brain and orbits showing expansile fronto ethmoidal mucocele causing mild lateral displacement of optic nerve and eccentric proptosis of left globe.




The patient had a left adduction and supraduction deficit. BE fundi examination revealed no abnormality. Her routine serological investigations were within normal limits. She underwent a CT Paranasal sinus with orbits, which showed a well-defined thin expansile lesion with extensions suggestive of a frontoethmoidal sinus (**Figure – 2**).

This was confirmed by MRI imaging report in favour of a large well defined expansile iso to hyperintense area involving frontal and ethmoidal sinuses bulging into left orbit causing pressure over left globe resulting in eccentric proptosis of left globe (**Figure – 3**).

The patient was referred to otorhinolaryngology and neurosurgery and she underwent surgical decompression, de-roofing, and marsupialization of the mucocele by a supraorbital approach. Postoperatively, she underwent a successful recovery with complete resolution of the proptosis and had a normal ophthalmological exam (**Figure – 4, 5, 6**)

**Figure – 4:** showing Preoperative Unilateral Eccentric Proptosis of LE.

**Figure – 5:** showing Postoperative Day-2 photograph.

**Figure – 6:** showing patient at discharge with complete resolution post-surgery.

## Discussion

Mucoceles are the most common lesions causing expansion of the paranasal sinuses [4]. There exist multiple etiologies of mucoceles which include chronic infection, allergic sinonasal disease, trauma, and prior sinus surgery; however, in many cases, the cause remains unknown [5]. There is a wide variation of symptoms that patients present with however facial pain, rhinorrhea, headache, and eye symptoms are among the most common. Regarding primary mucoceles, these are less commonly reported however they are most commonly found in the frontal and ethmoidal sinuses [2]. What is unusual about our case is that the patient had no previous ENT issues that being prior surgery or symptoms of chronic rhinosinusitis.

In our case, the presentation of a downwardly, laterally displaced eye is explained by the location of the mucocele. It is not uncommon for an ethmoid mucocele to present with an ophthalmological complaint. One large series reported that over 80% of patients with mucoceles presented with some degree of proptosis, and another found that 70% of patients presented initially to an ophthalmologist for evaluation [6].

## Conclusion

Unilateral proptosis requires a multidisciplinary approach with collaboration of different specialties. Mucoceles are benign lesions of expansive character that may cause severe complications at orbital and intracranial levels and for this reason, they should be diagnosed and treated early. Early diagnosis of the underlying cause and prompt intervention will help in protecting the eyeball and preserving the visual function.

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