

(CASE REPORT)



## Age no bar! Marsupialize frontal sinus mucopyocele to save the vision: A case report

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### Abstract

**Title:** Age No Bar! Marsupialize Frontal Sinus Mucopyocele To Save The Vision: A Case Report.

**Introduction:** Mucopyocele of the paranasal sinus is an accumulation of mucoïd secretion covered by desquamated sinus epithelium with pus in the sinus with distension of its walls. It is an expansile, destructive lesion and can cause bone erosion along with the displacement of surrounding structures.

**Case Presentation:** A 83 year old female patient came to the ENT Out Patient Department with chief complaints of right eye diminished vision, proptosis and swelling over the right side forehead since one year which resulted in obvious cosmetic deformity. On examination of face, there was a boggy swelling approximately 5 \* 5 cm over right side forehead extending laterally to the lateral orbital wall with proptosis. Patient's preoperative vision was 2.5 meters finger counting for the right eye and normal for the left. Non Contrast Computed Tomography of the Nose and Paranasal Sinuses revealed right sided frontal sinus mucocele extending to the right orbit. Magnetic Resonance Imaging of brain with orbit was done to confirm the diagnosis. Transnasal Endoscopic marsupialization of the mucocele was done under General Anaesthesia. There was a drastic improvement in right eye vision immediately from finger counting 2.5 meters to 6/12 with complete reduction of the boggy swelling and proptosis.

**Conclusion:** We should always attempt endoscopic marsupialization of frontal sinus mucocele which is compromising vision irrespective of age to give back the patient his/her vision, confidence and happiness.

**Keywords:** Mucopyocele; Paranasal sinus; Orbit; Proptosis; Transnasal; Endoscopic

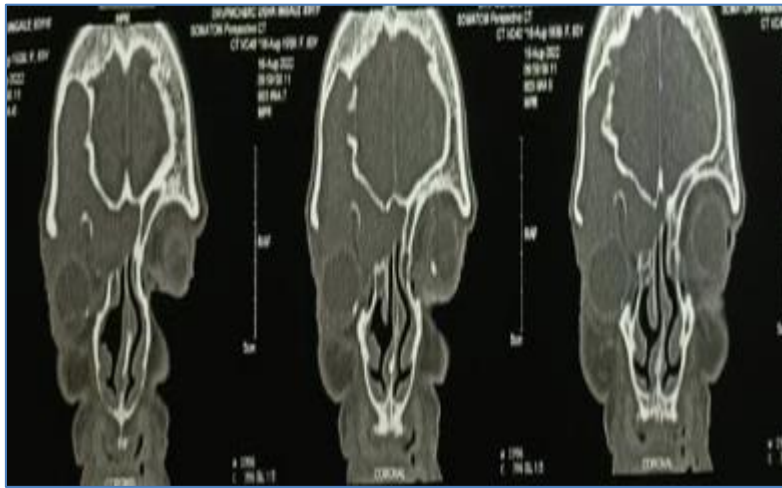
### 1. Introduction

Mucopyocele of the paranasal sinus is an accumulation of mucoïd secretion covered by desquamated sinus epithelium with pus in the sinus with distension of its walls. It is an expansile, destructive lesion and can cause bone erosion along with the displacement of surrounding structures. The most commonly involved sinus is frontal, followed by ethmoid, sphenoid. The maxillary mucoceles are very rare. The etiology of mucocele is multifactorial, and involves rhinosinusitis, sinonasal polyposis, craniofacial trauma, anatomic abnormality, previous surgery, fibrous dysplasia, osteoma, ossifying fibroma and malignant tumors which lead to obstruction of natural ostia which impairs the drainage of the sinus [1]. As sinuses are in close relation to the orbit and the brain, hence mucocele can spread intraorbitally and intracranially [2]. The mainstay of management of mucocele is surgery, which ranges from Transnasal Functional Endoscopic Sinus Surgery (FESS) with mucocele marsupialization, TransOrbital Endoscopic Approach (TOEA), to craniotomy and craniofacial exposure, osteoplastic flap reconstruction, with or without obliteration of the sinus.

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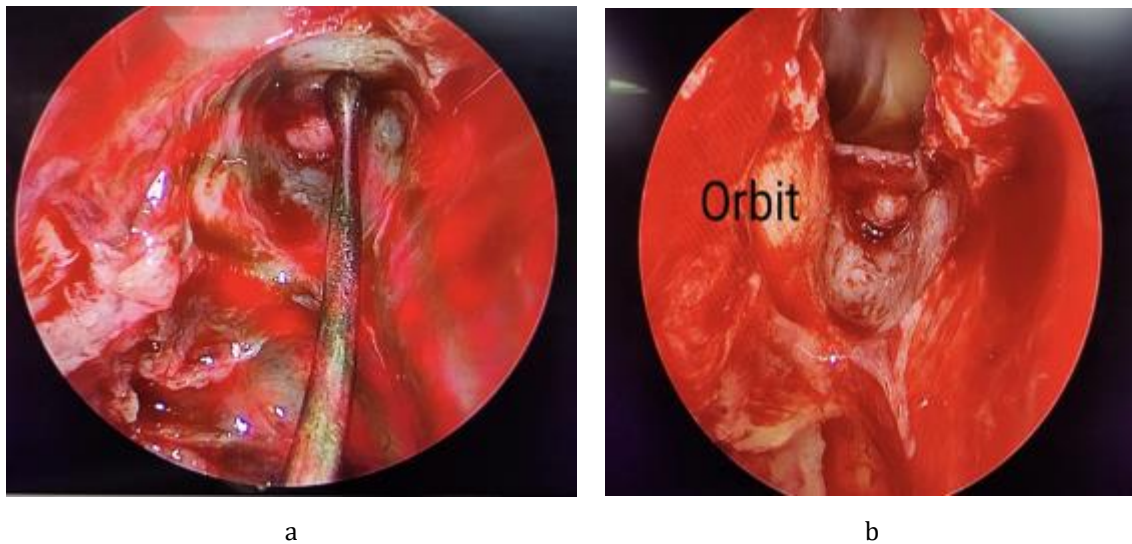
## 2. Case Presentation

A 83 year old female patient came to the ENT Out Patient Department with chief complaints of right eye diminished vision with right eye proptosis since one year. The patient also had swelling over the right side forehead with obvious cosmetic deformity. This swelling was also present since one year. There was no history of diplopia, reduced extraocular movements, headache, ocular pain, or altered sensorium. On examination of face, there was a boggy swelling which was of approximately 5 \* 5 cm over right side forehead, along with proptosis. The proptosis pushed the globe in a downward and lateral direction. On consultation with an Ophthalmologist, the vision was 2.5 meters finger counting for the right eye, and 6/9 for the left eye. The extraocular movements were not restricted. On diagnostic nasal endoscopy there was a mucosa-covered bulge in right middle meatus with a spur on the left side except this there were no significant findings. We have done Non-Contrast Computed Tomography (NCCT) of the Nose and Paranasal Sinuses which revealed an ill-defined homogenous soft tissue lesion arising from right-sided frontal sinus showing loss of scalloping of its anterior, posterior, and medial walls with expansion of the sinus cavity with erosion of superior and inferior frontal sinus walls extending inferiorly to right ethmoidal air cells and right orbital cavity (Fig. 1.).



**Figure 1** NCCT of Nose and PNS showing extent and location of Frontal Mucocele

It was causing inferomedial and anterior displacement of the globe abutting the right lateral rectus, superior rectus, and right optic nerve (2.0\*2.2\*1.5 cm in right orbit). There was no enhancing septae or calcification after in contrast study. We also did Magnetic Resonance Imaging (MRI) of the Orbit and Brain to see any intraorbital or intracranial extension. It showed an ill-defined expansile T1 hyperintense and T2/Flair hyperintense soft tissue density with frontal sinus cavity expansion and erosions, extending extraconally to right orbit (2.0\*2.2\*1.5cm) with the anteroinferior displacement of right globe. As the patient was 83 years old we got some difficulty in getting the fitness for general anesthesia. We did Transnasal Endoscopic Marsupialization of the frontal sinus mucocele. Mucocele was seen bulging between right bulla ethmoidalis and middle turbinate. Anterior ethmoidectomy was done and Frontal recess was cleared. Mucocele was seen as a bone-covered bulge in the frontal recess area between the middle turbinate and orbit (Fig. 2 a). An incision was taken on inferior margin of the mucocele after uncovering mucosa and eggshell bone and about 30 to 40 ml pus was drained and all its mucosa was exteriorized and marsupialized. Because of the pus in mucocele, we labelled it as mucopyocele. The frontal sinus was irrigated with saline to remove the remaining debris (Fig. 2 b).



**Figure 2 a, b** Endoscopic location of Frontal Mucocele in frontal recess area, Widened frontal sinus ostia after marsupialisation of mucocele

One-half mucocele kept in middle meatus and Full mucocele kept in the nasal floor. The patient was shifted to ward in stable condition and mucocele were removed on postoperative day 1.

The swelling which was present over the forehead reduced completely immediately after drainage of mucopycele. There was a drastic improvement in right eye vision immediately from finger counting 2.5 meters to 6/12 on postoperative day one. The proptosis was also gone completely (Fig. 3 a, b).



**Figure 3 a, b-** Preoperative and Postoperative comparison of patient's face.

In our case, because of endoscopic marsupialization of frontal sinus mucopycele we could save the vision along with a complete reduction of proptosis. We discharged the patient after 2 days and followed her after a week and then after 3 months. On both follow ups there was a wide and patent frontal sinus opening with normal vision and no proptosis or swelling. The patient was happy and doing fine till the last follow-up.

### 3. Discussion

Differential diagnosis of mucopyceles includes encephaloceles, cholesterol granuloma, epidermoid cyst, meningioma, chordoma, neurofibroma, salivary adenoma, paraganglioma, nasoangiofibroma, and malignant neoplasms. Treatment of mucopyceles is surgical either external or endonasal based on its size, location, extent, and anatomical variations. The external approach is made through frontoethmoidectomy (Lynch's procedure) or by osteoplastic flaps with or

without frontal sinus obliteration and total excision of the mucosa [4]. In our case, we successfully performed endonasal endoscopic marsupialization of the frontal sinus mucopyocele without frontal sinus obliteration.

Endonasal Endoscopic marsupialization and drainage is the preferred surgical treatment of choice for mucopyoceles due to the Less morbidity, Less invasive surgery, No facial scarring, Preservation of sinus architecture, Shorter hospital stay, Optimal outcome, and Less recurrence. For larger, lateral, complex mucopyoceles external or combined external with endoscopic endonasal approach may be considered [5].

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#### 4. Conclusion

We should always attempt endoscopic marsupialization of frontal sinus mucopyocele which is compromising the vision and causing cosmetic deformity irrespective of the age to give back the patient his/her vision, confidence and happiness.

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#### Compliance with ethical standards

##### *Disclosure of conflict of interest*

All Authors declared that there is no any conflict of interest.

##### *Statement of ethical approval*

The present research work does not contain any studies performed on animals/humans subjects by any of the authors.

##### *Statement of informed consent*

As per the Institute's protocol we are taking patient for surgery only after getting written and informed consent.

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