*Indian Journal of Medical Case Reports ISSN: 2319–3832*
*Online, International Journal, Available at http://www.cibtech.org/jcr.htm*
*2024 Vol.13, pp. 21-24/Deepalakshmi et al.*
***Case Report (Open Access)***

# ENDOSCOPIC APPROACH TOWARDS MANAGEMENT OF MUCOCELE ARISING FROM THE FRONTO ETHMOIDAL SINUSES – A CASE REPORT

**Deepalakshmi Tanthry[1], Gururaj Tanthry[2], *Shivaprasad Karanth[1], Chitra RS[1], Basavaprakash M[1]**
[1]*Department of Otorhinolaryngology, AJ institute of Medical Sciences, Mangalore, Karnataka, India*
[2]*Department of Anesthesiology, AJ institute of Medical sciences, Mangalore, Karnataka, India*
**Author for Correspondence: shivapkaranth@gamil.com*

## ABSTRACT
Mucoceles are chronic, slow growing, mucous lined pathology of the paranasal sinuses. Frontoethmoidal mucoceles are usually present with visual complaints such as visual field defects, diplopia, orbital swelling, diminution of vision, displacement of the eyeball, proptosis, and retro-orbital pain. Rarely presents as a subcutaneous swelling. Here is a 35-year-old male patient presenting with swelling over the right Medial canthus for 6 months, associated with pain over the swelling since 2 months, and also complained of diplopia since 1 and ½ months durations. Surgical excision was done. Because of the close proximity of these spaces to the orbit, may initially manifest with visual and ocular signs and symptoms. Postoperatively, the patient was asymptomatic and was referred to the Department of oncology for further management. Diplopia and swelling may be the presenting complaint of a frontoethmoidal mucocele. Thorough examination and investigations of the swelling may suggest the diagnosis of sinus-related disease and therefore directs toward the treatment measures.

***Keywords:*** *Mucocele, Frontoethmoidal Mucocele, Diplopia, Excision*

## INTRODUCTION
A mucocele is a persistent, fluid filled cystic lesions in the paranasal sinuses filled with sterile mucoid secretions. It is covered with a layer of tissue made up of pseudostratified cells or low columnar epithelium, and these cells may have goblet-shaped cells (Gupta *et al.,* 2013). They are characterized by the development of a continuous or intermittent blockage of the sinus ostium, which results in the dilatation of the sinus cavity as a consequence of the accumulation of mucoid materials (Carmichael *et al.,* 2015). This lesion gradually enlarges due to inflammation and pressure, which trigger the production of cytokines from monocytes and lymphocytes. Fibroblasts are then stimulated to produce prostaglandins and collagenases, which lead to bone resorption. (Gupta *et al.,* 2013). The mucocele has a tendency to grow in the direction of least resistance and may invade the orbit, nasal cavity, skin, or even extend into the cerebral area (Mohan *et al.,* 2012). Frontoethmoidal mucocele usually causes ophthalmologic complaints, which are periorbital swelling, pain, exophthalmos, displacement of orbit leading to limited ocular mobility and visual disturbances.

## CASE
A 35-year-old male patient came to our Outpatient department with swelling over the right Medial canthus since 6 months, associated with pain over the swelling since 2 months. The swelling was insidious, initially small in size, and gradually progressed to the current size. Pain over the swelling was intermittent. The patient also complained of diplopia since 1 and ½ months. Range of motion of the eyes in all 4 directions was normal, with no h/o conjunctivitis, periorbital pain or oedema, retro-orbital pain, proptosis, and any other eye complaints. There is no h/o chronic nasal obstruction, loss of smell, or any

other ophthalmic complaints. There is no h/o trauma and no previous ENT surgeries. No other known co-morbidities. The patient had no significant personal and family history.

On inspection, the swelling was about 2 x 1 cm, single in number, smooth surface, non-pulsatile, no scars, ulcerations, or discharging sinus, and does not move with blinking of the eye. And on palpation, the swelling was single, 2 x 1.5cm, soft, tenderness present, free from the overlying skin.

A physical examination of the patient on admission revealed no abnormalities. On ophthalmic examination, his visual acuity was normal in both eyes. The eyeball movements were normal. The rest of the neurological examination was within normal limits. Hematological and biochemical parameters were normal.

Both plain and contrast computed tomography (CT) scans of the OMC revealed non enhancing well defined thin-walled hypo dense lesion involving frontal and anterior ethmoidal air cells on the right side, indenting on the right orbit could suggest the possibility of fronto – ethmoidal mucocele.

Endoscopic mucocele excision surgery was planned. A middle meatal antrostomy was done to identify the frontal recess. The mucocele sac was identified here and punctured and pus was drained and sent for culture sensitivity. The postoperative period was uneventful. The patient was followed up postoperatively for 6 months. Every visit patient's symptoms of diplopia reduced gradually and at present no complaints.

**Figure 1: Patient with swelling over the right Medial canthus since 6 months presented to ENT OPD.**

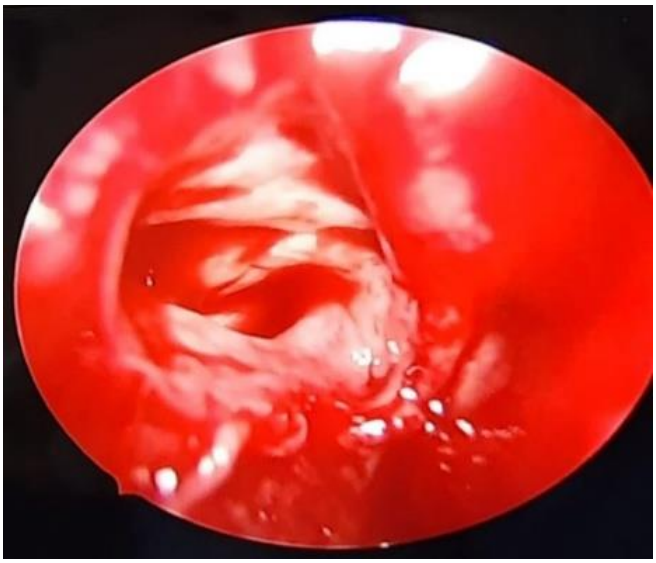

**Figure 2: Intra op, on endoscopy, Frontal recess is identified after doing middle meatal antrostomy, were the mucocele sac was noted.**

**Figure 3: The mucocole sac was identified and punctured. secretion noted along with blood.**

**Figure 4: Follow up of patient after 6 months.**

## DISCUSSION

Mucoceles may develop in any of the paranasal sinuses. The frontal sinus is the most frequent location of their occurrence, accounting for 70-80% of cases. The frontoethmoidal area is implicated in 10-14% of instances. The occurrence of maxillary and spenoid sinuses involvement is rare, accounting for 3% or fewer of cases (Kochhar *et al.,* 1995). Regarding the cause of mucocele, some authors propose that they arise from blockage of the duct of a small salivary gland situated in the lining of the paranasal sinus, while others argue that mucocele creation happens when there is blockage of the opening of the sinus. Mucocele development may occur via one of these mechanisms. Mucocele may therefore be classified as either primary or secondary based on histological findings. The former are cysts that retain mucus, whereas the latter are real mucocele lined with pseudostratified columnar epithelium and developed as a result of a blocked sinus ostium (Gupta *et al.,* 2013).

The symptoms that are seen depend on the location of the extension. The symptoms of orbital extension include pain, proptosis, loss of vision, ocular motility disturbances, and tearing. Cranial extension can lead to meningitis, headaches, epidural abscess, subdural empyema, brain abscess, and cranial nerve palsies. Nasal expansion causes nasal blockage and loss of sense of smell. Skin extension is characterized by a soft or fluctuant swelling over the forehead (Mohan *et al.,* 2012).

Lesions located near the orbital apex cause the eyeball to move forward, whereas lesions originating from the frontoethmoidal complex cause the eyeball to move forwards, laterally, and downwards. (Bakshi *et al.,* 2019). The preferred diagnostic method is computed tomography (CT) scan, since it can evaluate the extent of intracranial and/or orbital involvement and aid in surgical preparation. Magnetic resonance imaging (MRI) scans are necessary just in cases when mucoceles expand into the cranial cavity, and to distinguish mucoceles from malignant growths (Bakshi *et al.,* 2019). It also shows significant bony erosion of the posterior table of the frontal sinus or the orbital lamina papyracea, in delineating the mucocele from adjacent soft tissue.

The degree of extension is a factor that should be considered while selecting the surgical method to be used for the treatment of paranasal sinus mucocele. Surgery is the only efficacious intervention, which may include functional endoscopic sinus surgery or more invasive procedures such as craniotomy and craniofacial exposure, with or without sinus obliteration (Gupta *et al.,* 2013). Treatment of mucoceles involves surgical excision or marsupialization, with or without obliteration of the sinus. The goal of treatment is to drain the mucocele and ventilate the involved sinus, with minimal morbidity and recurrences (Bakshi *et al.,* 2019). The main purpose of our study is early diagnosis and early management of the patient.

## CONCLUSION

As we know Frontoethmoidal mucoceles are a pathology of the paranasal sinuses, which are chronic and slow growing. It usually presents with visual complaints such as visual field defects. Ct scan and Surgical excision are important because of the close proximity of these spaces to the orbit, which may lead to visual and ocular signs and symptoms. Therefore, thorough examination and investigations of the swelling which suggest the diagnosis of sinus-related disease directs towards the treatment measures, and hence follow-ups are essential for knowing the correction of visual defects.

***Funding****: No funding sources.*
***Conflict of interest:*** *None declared.*

## REFERENCES

**Bakshi (2019).** Image Diagnosis: Frontoethmoidal Mococole. *The Permanente Journal*, **23** 18-288.
**Carmichael and Kang (2015).** Frontal Sinus Mucopyoccle presenting as a Subcutaneous Forehead Mass. *Journal of Oral and Maxillofacial Surgery*, **73**(10), 2052-2057.
**Gupta, Chauhan, Gupta (2013).** Large Frontoethmoidal Mucocele: Treatment and Review. *Clinical Rhinology: An International Journal*, **6**(3), 126-128.
**Kochhar,VSM, Chaudry, Kumar (1995).** Frontoethmoidal Mucocele: A Case Report. *Journal of Laryngology and Otology*, **109**(4), 290-291.
**Mohan (2012).** Frontal Sinus Mucocele with Intracranial and Intraorbital Extension: A Case Report *Journal of Oral and Maxillofacial Surgery*, **11**(3) 337-339.