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# A GIANT MUCOCELE OF THE ETHMOIDAL SINUS WITH ORBITAL COMPLICATIONS ON THE SAME SIDE: A CASE REPORT

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## ABSTRACT

A giant ethmoidal mucocele causing orbital compression with vision loss is extremely rare. This article reports a case of a 62-year-old female with a giant mucocele in the ethmoidal sinus, presenting with progressive bulging and blurred vision in the left eye for three months. The patient underwent endonasal endoscopic surgery, resulting in successful recovery of vision and normal eye movement without proptosis.

***Key words:*** Mucocele, orbit, ethmoid sinus, bulging eye, blurred vision, endoscopic sinus surgery.

## 1. INTRODUCTION

The etiology of mucocele is not clear; it is a retention cyst caused by obstruction of normal sinus drainage [1]. A paranasal mucocele is usually defined as an accumulation of mucosal secretions into a paranasal sinus with obstruction caused by inflammation, fibrosis, trauma, previous surgery, anatomical abnormality, or a mass lesion. This is a benign and expansive cystic lesion lined with respiratory mucosa, characterized by pseudostratified columnar epithelium [2]. Any paranasal sinus can develop a mucocele, but it frequently occurs in the frontal sinus, ethmoid sinus, and rarely happens in the sphenoid and maxillary sinuses [1]. The occurrence of paranasal sinus mucoceles ranges from 0.4% to 0.8% in the general population [3]. The enlargement of the mucocele of the paranasal sinuses can persist for several months or years [4]. However, in some cases, it can extend rapidly and erode the surrounding bony walls, potentially expanding beyond the affected paranasal sinus cavity, which can lead to complications in the orbit and intracranial space. As the mucocele enlarges, the orbital globe may be displaced, leading to visual disturbances, ptosis, and limitation of the eyeball's mobility [5].

This case has been reported due to the rarity of a giant mucocele in the nearly total ethmoidal sinus, which extends into the orbit and presents with bulging eyes (exophthalmos) and blurred vision on the same side. The patient came to Can Tho University Hospital of Medicine and Pharmacy in Vietnam for examination after visiting other hospitals for over three months without any recovery.

## 2. CASE PRESENTATION

### 2.1. History

A 62-year-old female attended the Department of Ophthalmology with complaints of progressive bulging and blurred vision of the left eye for 3 months. Clinical examination showed that her left bulging eye and oculomotor paralysis (Figure 1). Her ophthalmologic exam showed the left visual level was 3/50 and papilledema. She had no complaints of nasal obstruction, rhinorrhea, epistaxis, or headache.

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Figure 1. Patient presenting with the left eye proptosis

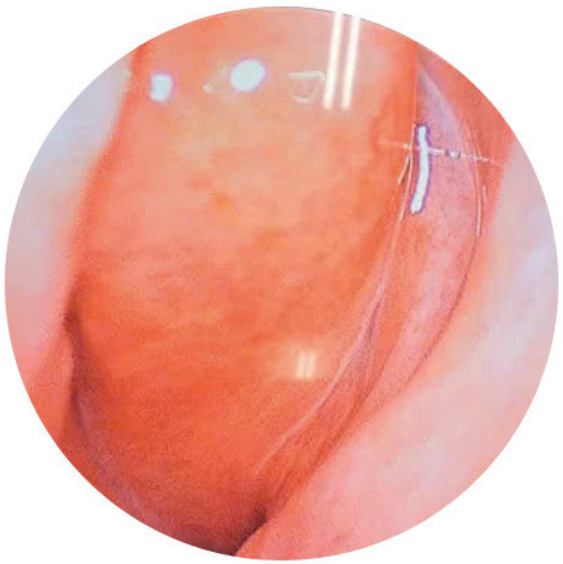

Figure 2. Anterior rhinoscopy showed blockage at the left middle meatus

There was no relevant medical history of sinusitis, orbital surgery, or trauma before. Anterior rhinoscopy revealed a blockage at the left middle meatus and a bulging ostiomeatal complex region.

### 2.2. Radiographic Features

Magnetic resonance images (MRI) showed a 3.3 cm × 3.4 cm × 3.8 cm well-circumscribed expansile mass in the left ethmoid sinus. It expanded with thinning and resorption of the lamina papyracea on the left side of protrusion in the region of the left orbit, compressing the left medial rectus and producing proptosis. The medial orbital wall was expanded with evidence of mass effect upon the medial rectus muscle and optic nerve. This lesion involved nearly the entire ethmoidal sinus, which extended to the medial part of the left orbit.

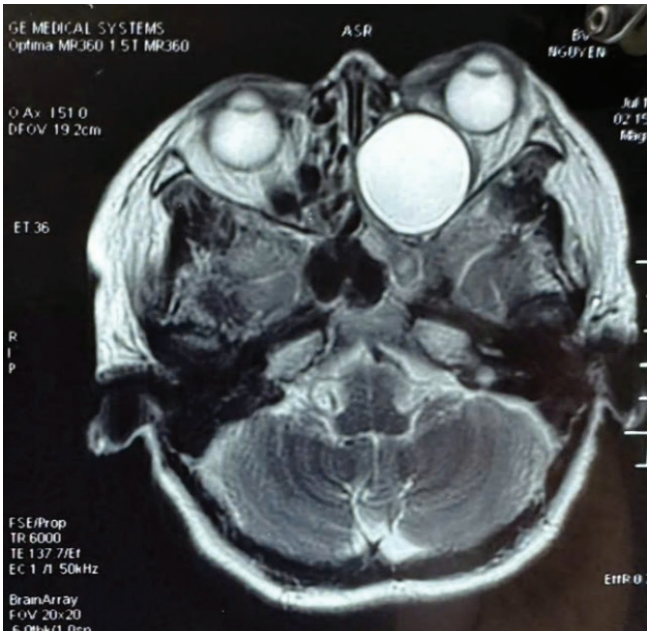


Figure 3. Axial MR imaging of the paranasal sinus and orbital globe with T2WI demonstrating an ethmoid mucocele causing mass effect to the left orbital globe.

### 2.3. Treatment

The patient underwent endonasal endoscopic surgery approaching the middle meatal antrostomy, ethmoidectomy, and drainage of the sac of the mucocele. There were no intraoperative and postoperative complications. The patient was discharged from the hospital after 24 hours following the removal of the nasal pack. On the first postoperative day, proptosis of the left eye completely resolved and returned to normal. The mobility of the eyeball was also improved. The clinical examination showed that the left visual acuity was 7/10 after 4 weeks of surgery.

Figure 4. Patient on the 1st postoperative day showed normal left eye

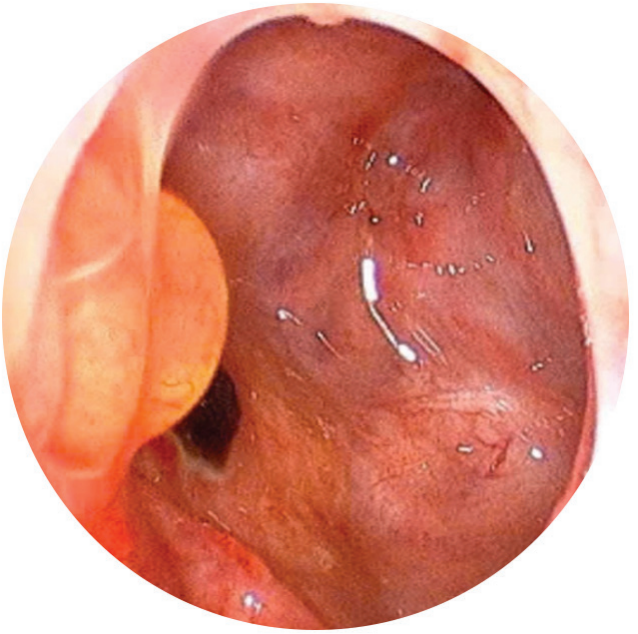

**Figure 5. Post endoscopic decompression showing de-roofing of mucocele**

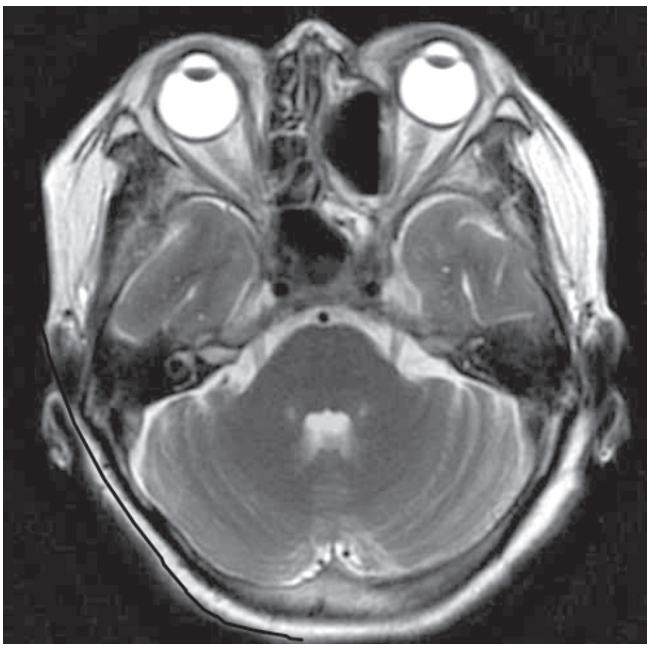

**Figure 6. Postoperative MRI revealed that mucocele had been excised**

## 3. DISCUSSION

Although ethmoidal sinus mucoceles are benign and can be solved by surgery, cases with giant enlargement may result in serious complications by invading the orbit and intracranial [2]. The progress of the mucocele in the paranasal sinus leads to obstruction of the ostia meatal complex [1]. These mucoceles are usually asymptomatic; however, as they enlarge, they can cause the orbital globe to protrude, resulting in visual disturbances and limited ocular mobility [1].

There are several options for treating the sinus mucocele, including the endoscopic approach to relieve sinus obstruction and the external approach in collaboration with a neurosurgeon, who may use a cranial approach in cases of intracranial invasion by the mucocele [1]. Management also needs to address the bony destruction and aberrant reformation that occur when the mucocele invades the orbit. In this case, endoscopic marsupialization was performed, and no complications were associated.

In this case, the endoscopic approach was used to open the mucocele capsule with good results. The orbital wall and lamina papyracea have not been destroyed, so that it keeps the eyeball from dropping into the hole after surgery. The endoscopic approach is recommended in uncomplicated intracranial mucoceles due to the low risk of recurrence.

## 4. CONCLUSION

Ethmoidal sinus mucoceles are rare, especially the giant mucocele, which can compress the optic nerve and adjacent structures. Therefore, we should consider performing surgery for patients with nasal mucoceles as soon as possible. The endonasal endoscopy is a safe and effective treatment for paranasal sinus mucocele, providing adequate drainage with a low recurrent rate and yielding good results in patients with giant mucocele compressed on the optic nerve, causing bulging of the eye.

## 5. AUTHORSHIP CONTRIBUTION STATEMENT

**Nguyen T. Viet:** Methodology, Data curation, Supervision, Writing – original draft.

**Tran M. Hanh:** Conceptualization, Data curation, Writing – review & editing.

**Nguyen Thi Ngoc Lien:** Visualization, Writing – review & editing.

## 6. STATEMENT OF INFORMED CONSENT

Written informed consent was obtained from the patient for their anonymized information to be published in this article.

## 7. FUNDING

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## 8. DECLARATION OF COMPETING INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## 9. FUNDING

None to declare.

Conflicts of interest

The authors declare that they have no conflicts of interest. Acknowledgments

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## 10. INFORMED OF CONSENT

Our patient fully understands the purpose of the case report, the information to be shared, signed the patient agreement, and has provided approval for us to submit and publish this case. No animals were used in this research. All procedures performed in studies involving human participants were conducted following the ethical standards of institutional and/or research committees and the 1975 Declaration of Helsinki, as revised in 2013.

## REFERENCES

[1] Mohammad SR, Najibullah R. Giant ethmoid mucocele presenting as a nasal region mass with intracranial extension, a case report. Radiol Case Rep. 2022;18(1):156-158. https://doi.org/10.1016/j.radcr.2022.09.088

[2] Shyam G, Kala K, Sushritha A. The Clinical Course of Paranasal Sinus Mucoceles-A Retrospective Case Series. J Clin Med. 2024;13(2):397. https://doi.org/10.3390/jcm13020397

[3] Swain SK, Dubey D. A giant mucopyocele of the ethmoidal sinus resulting in impeding orbital complications. Indian Journal of Health Sciences and Biomedical Research kleu. 2023 May 1;16(2):320-3.

[4] Thompson LDR. Paranasal sinus mucocele. EarNoseThroatJ.2012;91(7):276–278.https://doi.org/10.1177/014556131209100704

[5] Shahi S, Devkota A, Bhandari TR, Pantha T, Gautam D. Rare giant maxillay mucocele: A rare case report and literature review. Ann Med Surg (Lond). 2019;43:68-71. Published 2019 Jun 1. https://doi.org/10.1016/j.amsu.2019.05.013