

# Frontal Sinus Mucocoele Causing Headaches and Diplopia

E Smale, V Dhar

## Citation

E Smale, V Dhar. *Frontal Sinus Mucocoele Causing Headaches and Diplopia*. The Internet Journal of Emergency Medicine. 2006 Volume 4 Number 1.

## Abstract

Frontal sinus mucocoeles result from obstruction of the sinus ostium. They can present with orbital and neurological symptoms. We discuss the case of a 27 year-old gentleman who presented to the emergency department with periorbital swelling, diplopia and headaches. His CT scan revealed a large frontal sinus mucocoele encroaching the anterior cranial fossa. The patient required urgent endoscopic sinus drainage.

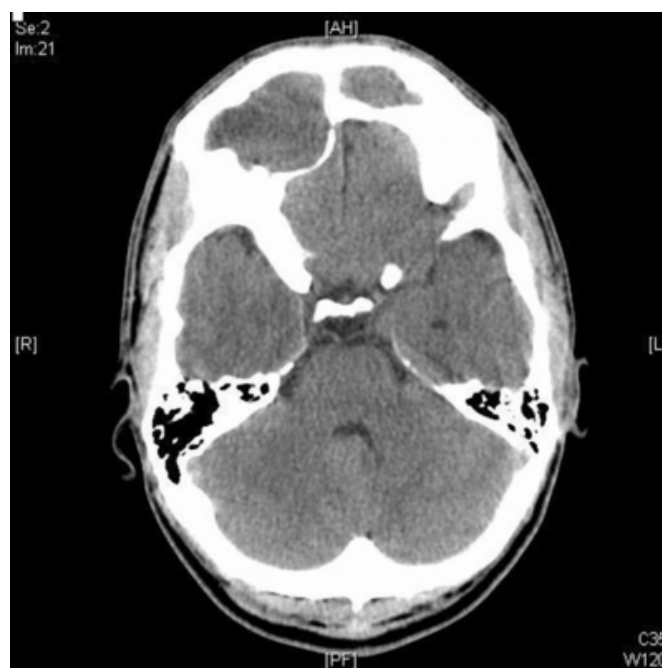
## CASE

A 27 year-old gentleman attended the emergency department complaining of headaches and diplopia. He had initially noticed right periorbital swelling 4-weeks prior to his presentation. This had been followed by a 3-week history of double-vision which he was aware of when looking straight ahead, and which seemed to be worse in the evenings. He had been suffering from right-sided headaches for 2-days. These came on in the mornings and lasted for an hour. He had experienced no vomiting or fits, but had a long history of nasal congestion and a postnasal drip.

On examination the patient had pronounced right-sided proptosis. He had diplopia on upward and bilateral lateral gaze. Fundoscopy revealed right-sided optic disc oedema. The patient had an urgent CT scan. This showed a large right sided frontal sinus mucocoele. The posterior wall of the frontal sinus had expanded into the anterior cranial fossa, and due to the chronic pressure there had been significant deossification of the posterior wall of the sinus. There was also opacification of the left frontal sinus and the remaining paranasal sinuses (Image 1).

## Figure 1

Image 1



The patient was seen immediately by ophthalmology and ENT. The ophthalmologists noted early signs of optic nerve compression. The patient went to theatre the next day for endoscopic drainage of the mucocoele, bilateral ethmoidectomies, and middle meatus anastomies.

## DISCUSSION

A mucocoele is an epithelium-lined sac full of inspissated mucous.<sup>1, 2</sup> They can develop when the ostium of a paranasal sinus becomes obstructed, for example by congenital anomalies, trauma, infection, chronic sinusitis, polyps, malignancy or bony tumours.<sup>1, 2</sup> As mucocoeles increase in

size they can erode through the surrounding bone, spreading both intraorbitally and intracranially.<sup>1, 2</sup> They can also discharge through the skin.<sup>2</sup>

Frontal sinus mucocoeles are the most common (65%) of the paranasal sinus mucocoeles.<sup>1</sup> They are benign, but if they expand they cause problems through pressure effects.

Frontal sinus mucocoeles can present with a variety of symptoms, including reduced visual acuity, field abnormalities, proptosis, ptosis, periorbital swelling, displacement of the globe, restricted ocular movements and forehead pain.<sup>1, 2</sup> Mucocoeles will expand through the line of least resistance, which is often through the thin bone of the superior orbital wall.<sup>1</sup> They can cause additional problems if they become infected, forming a pyocoele.<sup>2</sup> Infective manifestations of mucocoeles include epidural abscesses, meningitis, subdural empyema and intracerebral abscesses.<sup>2</sup>

The preferred method of imaging for paranasal sinus pathology is a CT scan, although MRI may have a role if there is intracranial extension or infection.<sup>1, 2</sup>

Management of mucocoeles is dependent upon their size and the effects they are having. Small mucocoeles may be suitable for medical management, involving decongestants

and steroids. However, large mucocoeles exerting pressure effects are likely to require surgical intervention. This is done with the aim of re-establishing adequate drainage of the sinus without producing cosmetic or functional deformity.<sup>2</sup> This may be achieved through open or endoscopic techniques.<sup>2</sup>

The overall prognosis for frontal sinus mucocoeles is good, with likelihood of cure and low incidence of recurrence.<sup>2</sup>

### **CONCLUSION**

Frontal sinus mucocoeles are one of the differential diagnoses for patients complaining of diplopia and headaches. Emergency physicians should be aware of the presentation of this relatively common problem, and also the occasional extensive disease that can occur, as seen in this case. An awareness of this condition will facilitate prompt diagnosis, hence avoiding potentially devastating sequelae.

### **References**

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**Author Information**

**E. Smale, MA BMBCh MRCSEd**  
Torbay Hospital

**V, Dhar, MBBS MRCS DOHNS**  
Torbay Hospital