Silent sinus syndrome: a cause of enophthalmos

Introduction

Silent sinus syndrome or maxillary sinus atelectasis is a rare cause of acquired enophthalmos and facial asymmetry. Obstructive maxillary sinus disease results in decreased sinus volume causing inferior displacement of the floor of the orbit and enophthalmos. Characteristic imaging findings confirms clinical diagnosis.

Discussion

Silent sinus syndrome is thought to be caused by hypoventilation of the maxillary sinus secondary to maxillary ostial obstruction (Montgomery, 1964; Soparkar et al, 1994). The resultant mucosal accumulation causes inflammatory changes in the sinus wall. The walls of the maxillary sinus subsequently retract into the cavity of the sinus as they are softened by chronic inflammation and drawn inwards by the negative intrasinus pressure. This condition is acquired in a normally pneumatized maxillary sinus rather than sinus inflammation in a hypopneumatized maxillary sinus (Hourany et al, 2005).

Figure 1. The right maxillary sinus is completely opacified with occlusion of the ostium (white arrow). There is downward displacement of the right orbital floor (arrowhead) and the right middle meatus is widened (asterisk). Mucosal thickening is seen in the left maxillary sinus.

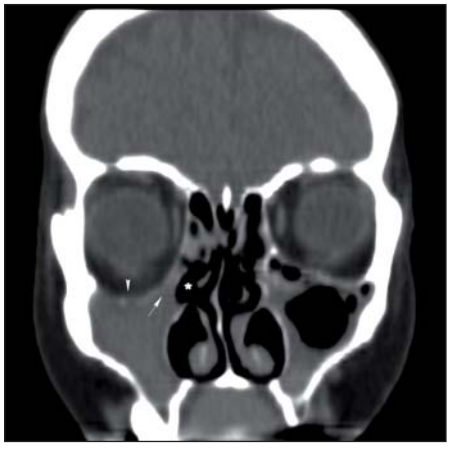

Figure 2. There is inward retraction of the anterior, medial and posterolateral walls of the right maxillary sinus (arrowheads).

Imaging findings of silent sinus syndrome are characteristic (Illner et al, 2002). The maxillary sinus is small and completely opacified. There is lateral displacement of the uncinate process towards the inferomedial orbital wall with occlusion of the maxillary ostium. The depression of the inferior orbital wall is responsible for the enophthalmos and lid retraction.

Treatment is by functional endoscopic sinus surgery creating a route for drainage of the chronically obstructed sinus (Ando and Cruz, 2005). Drainage of the sinus by middle meatal antrostomy stops further antral collapse and can restore the sinus to its original state. This is best performed by an ear, nose and throat surgeon with expertise in endoscopic sinus surgery. In cases of persistent hypoglobus, orbital floor reconstruction can be performed via a transconjunctival approach using a porous polyethylene or titanium micromesh implant. In some institutions sinus drainage and orbital floor repair are performed at the same time.

Conclusions

Silent sinus syndrome is a rare cause of enophthalmos and the imaging findings are sufficiently characteristic to allow confident diagnosis of this condition. BJHM

Case Report

A 66-year-old woman presented to the ophthalmology unit with a 3-month history of a 'receding right eye'. The patient noted occasional drooping of the right upper eyelid but no disturbance of vision. Clinical examination revealed deep right superior sulcus. Hertel ophthalmometry confirmed enophthalmos of 3 mm on the right side. Visual acuities were 6/6 bilaterally, eye movements were normal and visual fields were normal on testing by confrontation. There was no history of previous orbital trauma or significant sinus disease, particularly recurrent acute sinus disease. Computed tomography of the orbits was requested to exclude orbital disease.

Computed tomography findings were complete opacification of the right maxillary sinus with occlusion of the maxillary ostium, downward displacement of the floor of the right orbit and enlargement of the right middle meatus. Mucosal thickening is noted in the left maxillary sinus (*Figure 1*). The right maxillary sinus volume was reduced with inward bowing of its walls (*Figure 2*).

Thre patient underwent a right middle meatal antrostomy. Three months after surgery the patient's symptoms had improved and hence an orbital floor repair was not considered.

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Dr R Vaidhyanath *is Consultant Radiologist and* **Dr R Kenningham** *is Specialist Registrar in Radiology in the Department of Radiology, University Hospitals of Leicester, Leicester Royal Infirmary, Leicester LE1 5WW*

Correspondence to: Dr R Vaidhyanath