CASE REPORT

Silent sinus syndrome as a recognised cause of unilateral painless enophthalmos

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SUMMARY

An uncommon case of unilateral painless enophthalmos in a 44-year-old woman is presented. Despite the noticeable orbital asymmetry caused by enophthalmos, the patient has normal visual acuities in both eyes with unremarkable ophthalmic examination. Diagnosis of silent sinus syndrome was confirmed on the CT orbits and paranasal sinuses, showing complete opacification and atelectasis of the maxillary sinus. The patient achieved satisfactory improvements in her nasal symptom and facial appearance following functional endoscopic sinus surgery.

BACKGROUND

Silent sinus syndrome is increasingly regarded as a recognised cause of unilateral painless enophthalmos among ophthalmologists and otolaryngologists in view of its interesting presentations and distinctive radiological findings. Patients typically present with enophthalmos in the absence of trauma and the CT orbits and paranasal sinuses invariably demonstrate collapse of the maxillary sinus with inferior bowing of the orbital floor. With early diagnosis and prompt intervention, excellent cosmetic outcome can be achieved in this condition.

CASE PRESENTATION

A 44-year-old woman was referred by her optician concerning the sunken appearance of her left eye which has become more apparent over the past 3 years. She reported intermittent symptoms of nasal congestion and mild rhinorrhoea but denied any pain or visual symptoms. There was no history suggestive of previous facial injury or surgery of the face. On examination, the visual acuities were 6/6 on the right and 6/5 on the left with normal extraocular movements. There was a considerable 2 mm enophthalmos and 3 mm hypoglobus in the left eye with prominent deepening of the superior sulcus (figure 1). Other ocular examinations were unremarkable.

INVESTIGATIONS

CT of the orbits and paranasal sinuses demonstrated complete opacification of the left maxillary sinus and lateralisation of the uncinate process with osteomeatal complex obstruction. There was also marked thinning and inferior displacement of the orbital floor (figures 2 and 3).

OUTCOME AND FOLLOW-UP

Clinical presentations and radiological findings were consistent with the diagnosis of silent sinus

Figure 1 Frontal view of the patient on presentation, illustrating left enophthalmos and hypoglobus with prominent deepening of the superior sulcus.

syndrome. Left middle meatal antrostomy was performed endoscopically to restore the normal drainage of the maxillary sinus. Satisfactory surgical outcome was achieved with resolution of patient's nasal symptoms and improvement in globe position (figure 4). Orbital floor augmentation surgery was not required in her case.

DISCUSSION

First introduced by Soparkar *et al* in 1994¹ silent sinus syndrome is an acquired atelectasis of the maxillary sinus resulting in enophthalmos and

Figure 2 CT (coronal view) of the orbits and paranasal sinuses demonstrates complete opacification and atelectasis of the left maxillary sinus with lateralisation of uncinate process at the osteomeatal complex.

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Figure 3 CT (coronal view) of the orbits and paranasal sinuses demonstrates inferior displacement and thinning of the left orbital floor.

hypoglobus. It is a rare disorder affecting patients between the third and sixth decades of life with no gender predilection.² It was postulated that chronic hypoventilation of the maxillary sinus secondary to obstruction in the osteomeatal complexes has created a negative pressure effect causing inward retraction of the maxillary walls³ while bone resorption due to increased osteoclastic activity has resulted in thinning of the orbital floor. With the weakening of orbital floor and the loss of sinus volume, the orbital content lacks its support and manifests as enophthalmos.

Clinically, patients present with enophthalmos and hypoglobus measuring up to 4 mm with no visual symptoms.⁴ Prominent superior lid sulcus, upper lid retraction and malar depression are not uncommon on physical examination.⁵ Cases of restricted ocular motility and vertical diplopia have also been reported.^{4 6}

Figure 4 Frontal view of the patient after operation, illustrating marked improvement in the left globe position with less deepening of the superior sulcus.

The diagnosis of silent sinus syndrome is confirmed by CT scan of the orbits and paranasal sinuses, invariably demonstrating unilateral atelectasis and opacification of the maxillary sinus with resultant sinus volume loss.⁷ Lateralisation of uncinate process leading to obstruction of the osteomeatal complex is a common feature. Radiological evidences of orbital floor thinning and inferior bowing are in keeping with the signs of enophthalmos and hypoglobus. The scan can also be helpful to exclude other causes of enophthalmos, such as orbital fracture and tumours.

With the aim of re-establishing optimal aeration in the sinus, normal drainage of the maxillary sinus can be restored by functional endoscopic sinus surgery. Generally, most patients show satisfactory improvements following sinus surgery with lesser degree of enophthalmos and facial asymmetry.⁸ Orbital floor augmentation can be performed either simultaneously or as a second-stage procedure in severe cases of enophthalmos.

Learning points

- ▶ Silent sinus syndrome is a recognised cause of unilateral painless enophthalmos with characteristic radiological findings of maxillary sinus atelectasis and inferior bowing of the orbital floor.
- ▶ CT imaging of the orbits and paranasal sinuses can be helpful in excluding important causes of enophthalmos such as orbital fracture and tumours.
- ▶ Functional endoscopic sinus surgery with or without orbital floor augmentation remains the mainstay treatment for silent sinus syndrome.

Contributors WLJ is involved in retrieving patient information including history, examination findings, imaging as well as writing up of case report and obtaining patient consent.

Competing interests None.

Patient consent Obtained.

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