CASE REPORT

Silent sinus syndrome: an underdiagnosed entity

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Accepted 14 August 2015

SUMMARY

We describe a case of a 33-year-old Caucasian woman with right facial asymmetry and no sinonasal symptoms. She was referred to the ophthalmology department as having right palpebral ptosis. On physical examination, she presented painless enophthalmos and hypoglobus of the right eye. The MRI of the brain only showed sinonasal inflammatory signs of the right maxillary sinus. The CT scan revealed opacification of the right maxillary sinus, with retraction of the sinus walls. We confirmed the diagnosis of silent sinus syndrome. The patient underwent functional endoscopic sinus surgery. One year after surgery, despite clinical and aesthetic improvement, slight enophthalmos remained, but there were no other complications. In our case, the diagnosis of facial asymmetry as ptosis led to an initial imaging investigation to exclude neurological causes. Silent sinus syndrome should be included in the differential diagnosis of facial asymmetry. Despite the clinical suspicion, the diagnosis can only be confirmed by imaging studies.

BACKGROUND

Silent sinus syndrome is an underdiagnosed entity. The aim of this case report is to alert clinicians to this entity, which should be included in the differential diagnosis of facial asymmetry, and also to briefly describe its clinical and imaging characteristics.

CASE PRESENTATION

A 33-year-old Caucasian woman presented to the ENT (ear, nose and throat) department of our hospital, with right facial asymmetry that had evolved over the past 8 months and no sinonasal symptoms. She was referred to the ophthalmology department, as having right palpebral ptosis. On physical examination, she presented painless enophthalmos and hypoglobus of the right eye (figure 1). A slight septal deviation to the right was documented in the anterior rhinoscopy.

INVESTIGATIONS

MRI of the brain only showed sinonasal inflammatory signs of the right maxillary sinus.

CT scan revealed obliteration of the right osteomeatal complex with opacification of the maxillary, anterior ethmoid and frontal sinus, with maxillary sinus volume loss due to inward retraction of the sinus walls (figure 2). A right middle turbinate retraction was also observed, along with right hypoglobus and orbital asymmetry. The CT scan confirmed silent sinus syndrome.

DIFFERENTIAL DIAGNOSIS

Our case was diagnosed as ptosis of the affected eye, leading first to an evaluation with MRI of the brain to exclude a neurological cause. So, we must include pseudoenophthalmos, which may be interpreted as facial asymmetry, as well as contralateral proptosis or exophthalmos, microphthalmos and ptosis, in the differential diagnoses.

But after examining the causes of enophthalmos, we have to exclude trauma or previous surgery and include structural abnormalities of the maxillary sinus, such as chronic maxillary sinusitis, silent sinus syndrome or maxillary hypoplasia. We also have to include bony defects of congenital or iatrogenic aetiology, fat atrophy (sign of age, systemic diseases, pressure effect, radiation or unknown causes) and retraction (metastasis, restrictive myopathy or postinflammatory causes).¹

TREATMENT

Right functional sinonasal endoscopic surgery, which consisted of unciformectomy, maxillary antrostomy with mucus removed, partial anterior ethmoidectomy and opening of frontal recess, was performed.

OUTCOME AND FOLLOW-UP

One year after surgery, despite clinical and aesthetic improvement, slight enophthalmos has remained, but there are no other complications.

DISCUSSION

Silent sinus syndrome was first reported by Soparkar *et al*² in 1994, and Montgomery³ described it as chronic maxillary atelectasis defined by a persistent decrease in sinus volume from the centripetal retraction of the maxillary sinus walls. It is a rare entity, but probably underdiagnosed as a result of lack of knowledge.²

In spontaneous enophthalmos, silent sinus syndrome diagnosis is confirmed by imaging studies. Most commonly, patients present to an ophthalmologist for evaluation of eye asymmetry; enophthalmos may be interpreted as facial

Figure 1 Patient photograph showing enophthalmos and hypoglobus of the right eye.

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To cite: Magalhães C, Baptista M, Lopes G, *et al*. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2015-210548

Figure 2 Axial CT of the paranasal sinuses at the level of the maxillary sinuses (A–C; A—arrows showing retraction of the right sinus walls); coronal CT (D and E; D—arrow showing the right middle turbinate retraction and obstruction of osteomeatal complex) and coronal section of brain MRI—T2 with fat saturation.

asymmetry, exophthalmos or proptosis of the contralateral eye, or microphthalmos or ptosis of the affected eye. In our case, it was interpreted as ptosis of the affected eye, leading to a first evaluation with MRI of the brain to exclude a neurological cause. The imaging findings of silent sinus syndrome are characteristic.⁴ In our case, the CT showed typical findings of the syndrome: obliteration, opacification and volume loss of maxillary sinus with an inward retraction of the walls, which causes hypoglobus and orbital asymmetry. These findings make the diagnosis possible. The lack of significant sinus symptoms or history of rhinosinusitis make this syndrome unique.⁵ In fact, most of the patients do not have sinonasal symptoms. The aetiology remains uncertain, although it is consensual that the osteomeatal complex obstruction plays an important role as a trigger mechanism, which probably causes gradual air reabsorption, negative

sinonasal pressure and the typical CT features of inward wall retraction and volume loss.⁵

The treatment comprises of two surgeries: sinonasal and orbital. The syndrome progression is interrupted with removal of the osteomeatal complex obstruction employing functional sinonasal endoscopic surgery. The correction of the orbital floor can be achieved at the same time or at a second surgery, but because of clinical improvement and minor aesthetic enophthalmos, this second surgery is rarely performed.

In summary, this case shows a rare and underdiagnosed entity that is infrequently included in the differential diagnosis of facial asymmetry. Although the clinical suspicion is essential for the correct investigation of the patient, the diagnosis of silent sinus syndrome can only be confirmed by imaging studies.

Contributors All the authors were responsible for conception and design, acquisition of the data or analysis and interpretation of the data, drafting of the article or revising it critically for important intellectual content and final approval of the version published.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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Learning points

- ▶ Silent sinus syndrome is a rare and underdiagnosed entity.
- ▶ Silent sinus syndrome should be included in the differential diagnosis of facial asymmetry.
- ▶ Enophthalmos may be interpreted as facial asymmetry, exophthalmos or proptosis of the contralateral eye, or microphthalmos or ptosis of the affected eye.
- ▶ Despite clinical suspicion, the diagnosis of silent sinus syndrome can only be confirmed by imaging studies.
- ▶ The treatment comprises of two surgeries: sinonasal and orbital.

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