Grampian experience of Silent sinus syndrome: A case series

A Gomati¹, N Youakim¹, R Bannon, V Vallamkondu, S K Maini

Otolaryngology Department, Aberdeen Royal Infirmary

INTRODUCTION

Silent sinus syndrome (SSS) is a rare condition that can pose a diagnostic challenge.

Characterised by spontaneous progressive enophthalmos and hypoglobus due to collapse of the orbital floor resulting from chronic subclinical maxillary sinusitis. This constellation of symptoms was termed silent sinus syndrome in 1994 by Soparker et al, but was first described by Montgomery in 1964.^{1,2}

Obstruction of the osteomeatal complex is thought to lead to maxillary hypoventilation, which in turn causes resorption of gases into the surrounding capillaries, thereby leading to an increased negative pressure gradient in the sinuses.^{3,4} This results in a progressive accumulation of secretions and mucus, leading to overall pressure-induced collapse of the orbital floor. This can occur over the course of weeks to months. Interestingly, most patients do not have a history of prior sinus-related symptoms and they all deny any past history of orbito-facial trauma.

One of the eliminates to diagnosing silent sinus syndrome is usually the lack of nasal symptoms prior to the onset of enophthalmos and hypoglobus. Treatment consists of decompressing the maxillary sinus and removing the ostial occlusion. Orbital floor reconstruction is often performed at the time of antrostomy, but there have been reports of restoration of the orbital floor following sinus surgery.⁵

METHODS

The Grampian experience. A case series of three patients, who have undergone treatment for silent sinus syndrome in our department.

PATIENT SUMMARY

We present 3 patients who presented to our department (48M-51M-62F), referred from general practice with a minimum 1 year history of unilateral nasal congestion, facial pressure sensation and one patient in particular had recurrent cough as a main symptom. Despite all 3 patients being on nasal steroid spray for over 6 month, there was no symptomatic relief. Naso-endoscopic examination revealed evidence of rhinitis unilaterally with clear middle meati and no polyps. It wasn't until further investigations were carried out in the form of CT sinuses that we were able to identify unilateral maxillary atelectasis with complete opacification of the sinus associated with hypoglobus. This is a rare entity of presenting symptoms and if not for imaging this diagnosis wouldn't have come to light. All 3 patients underwent Unilateral FESS and made a remarkable recovery post operatively with symptom resolution.

CT FINDINGS

Radiographic appearance of silent sinus syndrome. Coronal CT showing typical features of silent sinus syndrome. Maxillary sinus is opacified with hypoglobus (double arrow). Oblique line represents expected anatomical orbital floor landmark.

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LITERATURE REVIEW

Spontaneous unilateral maxillary atelectasis with complete or partial opacification of the sinus, Rose, *et al.*, reported 14 patients suffering from SSS who all had 1-4 mm enophthalmos and up to 4 mm hypoglobus. Sánchez-Dalmau, *et al.*, and Montserrat Borràs Perera, *et al.* had reported some cases with SSS, presenting enophthalmos and hypoglobus.⁶

Despite several proposed theories, absolute pathophysiological development of SSS is not specified. The most acceptable theory is that the complete obstruction of the ostium is the main reason of the prolonged negative pressure in the maxillary sinus, which leads in hypoventilation and the accumulation of secretions. The gas resorption causes negative pressure, which in its turn may lead in osteopenia, bone remodelling, and sinus wall retraction.

IMAGING

Both computed tomography (CT) and MRI can be diagnostic for SSS, as they both include adequate views of the orbits and maxillary sinuses.

Imaging often demonstrates an opacified and hypoplastic maxillary sinus, a lateralized uncinate process +/- depression of the orbital floor, and a blocked osteomeatal complex

CONCLUSION

Surgeons should recognise that an overlapping spectrum of disease exists among different organ systems. The eye has long been considered a window for finding disease occurring elsewhere in the body. In the case of SSS, disease in the eyes intersects with disease in the nasal cavity.

All our patients where diagnosed before onset of ocular symptoms, CT para-nasal sinuses in our cohort was the diagnostic test and functional endoscopic sinus surgery was therapeutic.