Case Report

Silent sinus syndrome

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ABSTRACT

Silent sinus syndrome (SSS) is a rare clinical condition. In this report, we are presenting a 58 years old woman with chief complain of right global pain. All ophthalmic examinations were normal. In CT-scan of paranasal sinuses right maxillary sinus volume was decreased but she had no sinonasal symptoms.

SILENT SINUS SYNDROME (SSS) is a rare clinical presentation in both fields of otolaryngology & ophthalmology. This is characterized by enophthalmos, ipsilateral aelectasis maxillary sinus, and no positive history referable to the nose and paranasal sinuses. Since “silent sinus syndrome” is a very rare finding, it seems wise to present this case.

Case report

The patient, a 58 years old female was initially referred to an ophthalmologist with the chief complain of right global pain, exacerbated by upper respiratory tract infections. In the ophthalmic exam, nothing was found except of a moderate enophthalmos in the right globe (Figure 1).

 Movements of the globe, visual acuity, slit lamp exam, and fundoscopy were all normal.

The remarkable point elicited from coronal CT-scan of paranasal sinuses was decreased volume of right maxillary sinus to almost half of the left one (Figure 2), while there was no declaration of sinonasal symptoms by the patient. She had not also mentioned any positive history of facial trauma, surgery, or any other sinus disease. Diagnostic nasal endoscopy, was unremarkable.

Discussion

The entity of “Silent sinus syndrome” is attributed to those patients with enophthalmos and ipsilateral aelectasis of maxillary sinus, despite of any sinonasal symptoms. Although elusive, based on pathophysiologic point of view, obstruction of ostiomeatal complex of the involved sinus leads to an increasing negative pressure within the sinus cavity which will remodel the floor of the orbit after a while by pulling it downward. So it provides more room in the orbit for the globe, which presents as “enophthalmos”.

The main etiologic factors for ostiomeatal complex (OMC) occlusion are:

1- The presence of infra orbital halar cell (a variation in anterior ethmoidal cells), which can occlude the
Figure 2. Axial sinonasal view, showing enophthalmia in left side.

sinus ostium.
2- Congenital hypoplasia of maxillary sinus, that makes the sinus ostium more prone to occlusion.
3- Occlusion by inspissated mucous or polyp in the middle meatus.
4- Altered middle turbinate, which exerts a compressible effect on the OMC.

In an experimental study, the maxillary sinus ostia of white rabbits were intentionally occluded.

Initially, after 4-12 minutes, the intrasinus pressure increased, while, by more time (20-50 minutes), a negative pressure was determined within the sinus cavity. The initial positive pressure has been due to fast penetration of CO2 from the vessels into the sinus space, but the secondary negative pressure, has been the result of more slow absorption of intrasinus air by the mucosal lining.

A durable negative pressure within the sinus cavity activate the osteoclasts which in turn will lead to thinning of the sinus walls. Therefore, the prominent effect of this mechanism would be on the thinnest sinus wall (the orbital floor), via downward traction of it. This, eventually, will reposition the orbital floor, which, not only enhance the OMC obstruction, but also, as mentioned earlier, it will enlarge the orbital room for the globe that will presents as “enophthalmos”.

To counteract the pathophysiologic mechanism of the defect, it is essential to aerate the sinus cavity. This is now available by endoscopic procedures to eliminate the occlusion of OMC.

Another method is fenestration of the maxillary sinus through inferior meatus.

In the case of severe enophthalmos, reconstruction of orbital floor is also mandatory by titanium micro-mesh or conchal cartilage.

References