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Clinical Record

Spontaneous maxillary sinus rupture in the absence of pre-existing sinus disease: case report

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Abstract

Introduction: Spontaneous fracture of the maxillary sinus is usually associated with enophthalmos and pre-existing sinus disease.

Case report: We present a case of spontaneous maxillary sinus fracture without enophthalmos and with no preceding history of trauma or evidence of sinusitis.

Discussion: The closest condition to that presented is silent sinus syndrome. The differences between our case and this syndrome are reviewed. There are no previously reported cases of lateral wall maxillary fracture and associated facial surgical emphysema following nose-blowing.

Key words: Maxillary Sinus; Facial Bones; Fracture

Introduction

Chronic sinusitis of the maxillary sinus is thought to be the causative factor in silent sinus syndrome (also known as imploding antrum syndrome), which leads to progressive collapse of the orbital floor and subsequent progressive enophthalmos and hypoglobus.[1,2]

In the world literature, there has been only one previously reported case of spontaneous rupture of the maxillary sinus in the absence of subclinical maxillary sinusitis.[3] In this individual, the presenting symptom was spontaneous, unilateral enophthalmos. Our case highlights the fact that spontaneous rupture can occur without eye signs in an otherwise healthy individual, with no preceding history of sinus disease or anatomical abnormality.

Case report

A 17-year-old man presented to the accident and emergency department complaining of sudden onset, painful swelling of the right cheek after blowing his nose. He had blown his nose a second time, resulting in worsened swelling and pain involving more of his right face as well as his right lower eyelid. He did not report any difficulty breathing. There was no history of trauma or surgery to the face in his lifetime. There was no previous history of ENT or medical problems. He consumed minimal alcohol, and there was no history of recreational drug use.

Clinical examination revealed swelling and surgical emphysema of the right side of the face (Figure 1). The remainder of the ENT examination was unremarkable. Nasal endoscopic examination was normal. Vision was normal, there was no enophthalmos, and the range of eye movements was full, with no nystagmus or diplopia. However, there was reduced sensation in the distribution of the right infraorbital nerve.

A computed tomography scan showed a depressed fracture of the lateral wall of the right maxilla (Figure 2). Surgical emphysema was noted in relation to the abnormality and along the soft tissues of the skull, cervical area and masticator space on the right, tracking up towards the right eye. The other paranasal sinuses were normal, and there was a mild septal deviation to the left.

The patient was treated with a course of antibiotics and steroids. He was advised to sit upright, and not to blow his nose. The emphysema and numbness over the right cheek resolved after five days, with no complications.

At a follow-up appointment three months later, there had been no recurrence or further problems.

Discussion

Silent sinus syndrome is the closest condition we could find to that presented by our patient. This syndrome was first described in 1994 as being characterised by bone resorption of the orbital floor in the presence of asymptomatic maxillary sinus disease associated with maxillary sinus hypoplasia.[2] A 2005 review of all reported cases of the condition proposed that the collapse of the sinus occurred as a result of maxillary sinus hypoventilation due to obstruction of the osteomeatal complex.[4] It has also been associated with naso-gastric and naso-tracheal intubation.[5,6]

The classical presentation of silent sinus syndrome is spontaneous, unilateral enophthalmos and hypoglobus.[1,4,7] The usual age range is the third to fifth decade, with an equal sex distribution.[2]

Radiologically, there is an inward bowing of the walls of the maxillary antrum on the affected side, with secondary enophthalmos and hypoglobus. The orbital floor is drawn downwards, and the medial and posterolateral walls are

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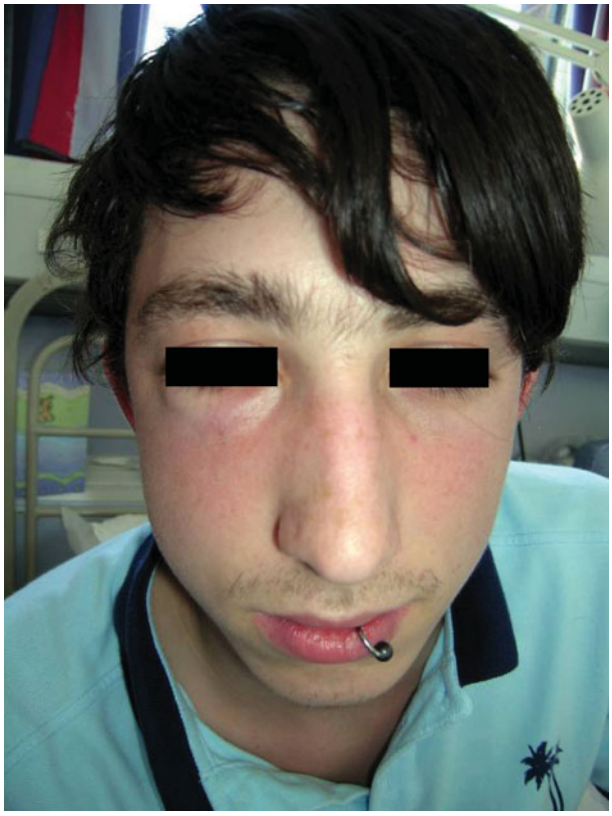

FIG. 1
Right-sided facial swelling.

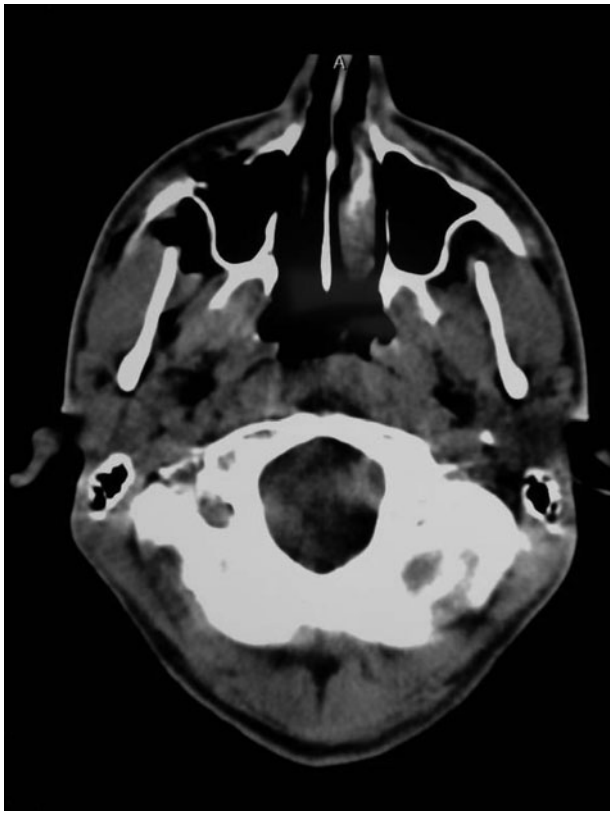

FIG. 2
Axial computed tomography scan showing maxillary defect.

concave.[7] The syndrome can also be associated with collapse of the ipsilateral ethmoid sinus.[8]

- **Spontaneous maxillary fractures are rare**
- **Silent sinus syndrome presents with unilateral enophthalmos in the presence of sinusitis. Neither of these features was present in this case**
- **This is the first report of a case of lateral maxillary wall fracture on nose blowing**

The presentation of our patient differs from reports of silent sinus syndrome in several ways. Our patient was outside the typical age range. Most importantly, there was no evidence of mucosal disease or anatomical variation that would lead to obstruction of the osteomeatal complex. There was also no history of disease involving the paranasal air sinuses. Our case had a spontaneous fracture of the lateral maxillary wall with a depressed segment, and therefore no enophthalmos was present. The septal deviation present in our case was to the contralateral side; all other reported cases associated with septal deviation have been to the affected side.[7] Previous reports have also cited a paradoxical middle turbinate as a precipitating cause; this was not seen in our case.[7]

There have been no other previously reported cases of lateral wall maxillary fracture and associated facial surgical emphysema following nose-blowing.

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