

## Unilateral blindness in a child with acute sinusitis\*

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### SUMMARY

*Orbital infection in association with sinusitis is an emergency. It may cause visual disturbances, and in rare cases even permanent blindness by affecting the optic nerve. We report an unusual case of acute sinusitis that was complicated by irreversible visual loss in a young patient. As there is increasing evidence that respiratory viruses play an important role in the pathogenesis of acute community acquired sinusitis and spontaneous healing with only symptomatic treatment is common, the use of antibiotics in the treatment of acute sinusitis may not be needed in all cases. If the general policy to use antibiotics in acute sinusitis will be changed to more restrained and expectant, we have to be even more aware of these nowadays rare complications.*

*Key words: blindness, child, complication, sinusitis*

### INTRODUCTION

Orbital infection in association with sinusitis is a well recognized complication (Swift and Charlton, 1990; Patt and Manning, 1991; El-Sayed and Al-Muhaimed, 1993) which in rare cases may lead to temporary or permanent visual disturbances (Fearon et al., 1979; Patt and Manning, 1991). However, there are only few reports of a permanent visual loss associated with sinusitis (Fearon et al., 1979; Patt and Manning, 1991). We present a case of acute sinusitis that was complicated by irreversible visual loss in a young patient.

### CASE REPORT

A previously healthy 11-year old patient was referred to the University Hospital of Helsinki because of pansinusitis with orbital involvement. Common colds had started a week before the admission, main symptom being runny nose. Two days earlier the patient had pain in the left upper teeth but the examination of a dentist gave no explanation for the pain. During the next day her left eyelids started to swell and the clinical diagnosis of acute sinusitis was made. The patient was treated with ceftriaxone intramuscularly but the disease progressed. The soft tissues around the left eye became edematous and the vision of the eye weakened.

At admission at the university hospital the vision of the eye was light perception only, the eye had marked proptosis, lagophthalmos and the patient could only slightly and painfully move the eye (Figure 1). There was an afferent pupillary defect on the left



Figure 1. Gross localized swelling and edema around the left eye.

eye already at the admission and it remained constant. The CT-scans from orbital, maxillary and brain regions showed left side pansinusitis with signs of orbital inflammation, but no abscess formation in the orbit (Figure 2). MRI showed, in addition of pansinusitis, stretching of the left optic nerve.

Intravenous rifampicin and meropenem was administered, and surgery was immediately carried out. The surgery included immediate drainage of the maxillary and ethmoid sinuses and



Figure 2. An axial CT of 11-year old patient shows retro-orbital edema and proptosis, but no definite abscess formation.

left orbital drainage by removing the floor and medial wall of the orbit transmaxillary (decompressio orbitae a.m. Ogura-Walsh). In addition of this, bilateral endonasal antrostomies were done. Pus was drained with pressure from the maxillary sinus. No visible abscess was found in the orbital cavity but the tissues were edematous. The bacterial culture from the maxillary sinus was positive for *Staphylococcus aureus* whereas anaerobic and fungal cultures were negative. The strain was oxacillin sensitive and also sensitive to ceftriaxone and rifamycin.

After the first operation the patient's condition turned better but the left eye remained blind. A week after the primary operation the patient started to complain of headaches and the left forehead became swollen. A new CT-scan revealed a frontal sinusitis but the continuity of the left optic nerve as well as symmetry compared with the right optic nerve were unchanged. The frontal sinuses were drilled open (a.m. Beck) and there was pus under pressure beneath the periosteum and in the left frontal sinus. Frontal sinus lavations were carried out twice a day until the saline came out easily through the nasofrontal duct in the nose. The patient was discharged 20 days later but visual function of the left eye did not recover.

#### DISCUSSION

It is well known that complications of sinusitis have reduced remarkably since the advent of antibiotics (Fearon et al., 1979). However, orbital infections due to sinusitis leading to visual disturbances or even blindness, although uncommon, still exists in spite of the use of broad spectrum antibiotics. Orbital infection can be divided into several subgroups, including preseptal (peri-orbital) cellulitis, orbital cellulitis, subperiosteal abscess, intra-orbital abscess, and cavernous sinus thrombosis (Chandler et al., 1970). Our child did not have visible abscess in the orbital cavity but the tissues in the orbital cavity were edematous. The mechanism for loss of vision with orbital inflammation may involve ischemia resulting from thrombophlebitis along valveless orbital veins or optic neuritis as a reaction to adjacent or nearby infection (Chandler et al., 1970). Pressure ischemia possibly resulting in central retinal artery occlusion is relevant to subperiosteal or intraorbital abscesses, which can increase intraocular pressure to high levels (Patt and Manning, 1991).

Orbital complication of sinusitis is an emergency. Intravenous antibiotics treatment should be commenced as soon as the diagnosis is suspected. Surgical drainage of the sinus infection is recommended already in the preseptal cellulitis stage if the disease does not respond to the medical treatment within 24-48 hours. Subperiosteal and intraorbital abscesses should be drained without delay (Patt and Manning, 1991; Wagenmann and Naclerio, 1992). CT-scans should be taken without delay in patients suffering from orbital inflammation (Davis and Stearns, 1994). However, CT-scans can be misleading and clinical examination remains the most important indicator for surgical intervention (Patt and Manning, 1991). Impairment of ocular motility, like our patient had, is a serious sign and indicates surgical intervention (Chandler et al., 1970).

As there is increasing evidence that respiratory viruses play an important role in the pathogenesis of acute community-acquired sinusitis (Gwaltney et al., 1994; Pitkäranta et al., 1997; Puhakka et al., 1998), and spontaneous healing with only symptomatic treatment is common (Buchem et al., 1997), the use of antibiotics in the treatment of acute sinusitis may not be needed in all cases. If the general policy to use antibiotics in acute sinusitis will be changed to more restrained and expectant, we have to be even more aware of these nowadays rare complications.

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