



Orbital Abscess in a Child: A Dangerous Complication of Rhinosinusitis

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A 7-year-old boy was referred because of swelling on the left orbit and visual loss. He had these symptoms for five days. He had 39.4°C fever and purulent rhinorrhea. There were exophthalmos, chemosis, and conjunctival hyperemia on the left eye (Fig. 1). There was no eye movement to any direction. The left pupil was unresponsive to direct and undirect light stimuli. Visual acuity was evaluated as 4/10. Nasal mucosa was edematous and hyperemic. There was purulent discharge in the middle meatus endoscopically. The computed tomography (CT) imaging revealed the left orbital abscess along with pansinusitis on the left side (Fig. 2a, b). Endoscopic sinus surgery and external drainage by Lynch incision were performed urgently. Cefotaxime, vancomycin, and metronidazole were given empirically. Because of persistent swelling, he was operated on post-operative 3rd day. Another external drainage was done. *Eikenella corrodens* produced in abscess culture. *E. corrodens* was sensitive to amoxicillin/clavulanate, levofloxacin, trimethoprim/sulfamethoxazole, ceftriaxone, cefotaxime, and tetracycline. Metronidazole was terminated and the others were continued for 14 days. There was only light feeling on the left eye 6 months after the surgery. The reason of visual loss was increasing of intraorbital pressure because of abscess formation and the optic nerve atrophy secondary to block arterial flow.



Figure 1. The left orbital abscess during admittance

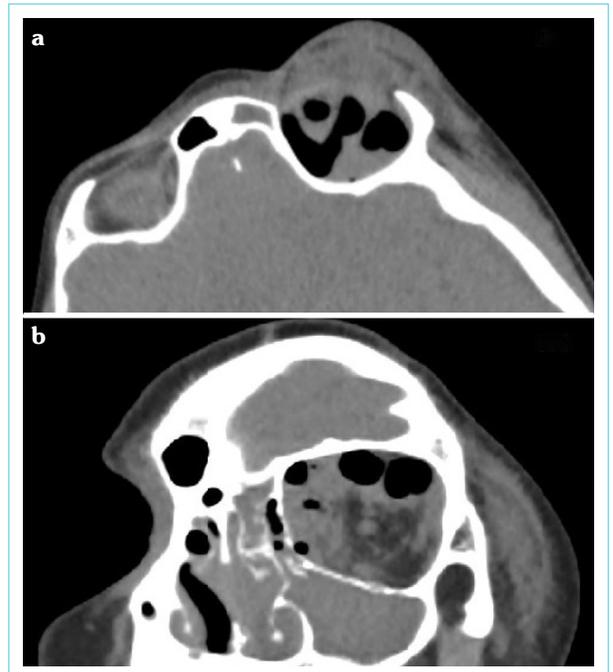


Figure 2. (a, b) Computed tomography sections show air density in the left orbit

DISCUSSION

Orbital complications of sinusitis are generally seen in children and young adults. Chandler classified orbital complications of sinusitis in five groups. In Type I, also known as pre-septal cellulitis, there is edema of the eyelid with no limitation and visual loss. If an infection spreads beyond orbital septum, orbital complications begin and they are named as post-septal complications. In Type II or subperiosteal edema, there is diffuse edema in orbital contents that infiltrated by inflammatory cells and bacteria, with or without reduction of visual acuity. In Type III, there is a pus collection between periorbital area and bony walls, subperiosteal abscess. The globe is usually displaced. In Type IV, this case

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was also in this group, there is pus collection in orbital structures with evident proptosis, chemosis, ophthalmoplegia, and visual loss. Type V is cavernous sinus thrombosis and infection spreads posteriorly and affects bilateral eyes and cranial nerves. Intra-orbital abscess is a rare complication of sinusitis and blindness, cavernous sinus thrombosis, meningitis, subdural empyema, and brain abscess can develop if it is not treated appropriately (1). CT helps to evaluate bone integrity, sinusitis, abscess location, and differentiate pre-septal or post-septal infection. It is also helpful for operation decision in patients who are not responding to antibiotic treatment for 24–48 h (2). *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Moraxella catarrhalis*, *Streptococcus pyogenes*, *Staphylococcus aureus*, and *E. corrodens* are the most common pathogens isolated in cultures. *Peptostreptococcus*, *Prevotella*, and *Fusobacterium* are isolated anaerobic microorganism as well (3). While beta-lactam and beta-lactamase inhibitor combination is the first-line treatment option for orbital infections; the third-generation cephalosporin, carbapenem, fluoroquinolones, metronidazole, and clindamycin can also be used (3). Surgical intervention is needed in patients who have blindness, visual acuity loss, ophthalmoplegia, and weakness of light reflex in the first examination or not responding to antibiotic treatment for 24–48 h in the follow-up. Because of orbital abscess is originated from ethmoid sinusitis mainly, endoscopic sinus surgery can be added to external drainage as well (1). Orbit is affected in 85% of complicated acute sinusitis. Meticulous distinction between the pre-septal cellulitis and post-septal infection including

orbital cellulitis/abscess is mandatory due to the latter one's risk of irreversible optic neuropathy, intracranial spread, and death.

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