

A child with refractory orbital cellulitis after water pipe smoking

Dhabiah S. AlQahtani¹, Mohammed A. Alsaiif², Naif AlSulaiman², Adel H. Alsuhaibani²

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Abstract:

Orbital cellulitis in children rarely occurs secondary to smoking water pipe. A 3-year-old girl who presented with fever, eyelid swelling, pain, and proptosis of the left eye for 4 days after water pipe consumption. The patient was given the usual course of antibiotics for a few days along with subperiosteal abscess drainage however no improvement was noticed for a week. Cultures were positive for methicillin-resistant *Staphylococcus aureus* and *Pseudomonas aeruginosa*. Intravenous dexamethasone was co-administered in three courses for 3 weeks, during which residual symptoms was slowly resolving. In conclusion, attempt of dexamethasone in children can shorten hospital stay and augment full recovery.

Keywords:

Children, orbital cellulitis, refractory, smoking, water pipe

INTRODUCTION

Water pipe smoking, also known by many other names according to the country such as shisha, nargileh, hookah argileh or “hubbly-bubbly,” is a process of smoking through a tobacco-based device. This device has multiple pieces: head, body, and bowl.^[1,2] Most of the water pipes are shared and not sterilized, thus they have different microbacteria in each part. Shisha-related pathogens that can cause respiratory and sinuses infections. The most abundant organisms were gut bacteria, aromatic, and degradations. Among these pathogens were natural water flora such as *Pseudomonas*.^[1] We report a case of refractory orbital cellulitis secondary to water pipe consumption.

CASE REPORT

A 3-year-old medically free girl who presented to King Abdulaziz University Hospital with a history of fever (38.3 C) eyelid swelling, pain and proptosis of the left eye for 4 days. Parents reported that she consumed her father’s water pipe once a few days ago. Examination of the left eye revealed extraocular motility limitation in all directions, severe upper and

lower lid swelling, and high intraocular pressure 18/24 mm Hg [Figure 1a].

The patient was admitted, and laboratory workup was indicative of infectious process. Computed tomography with a contrast of the orbit and paranasal sinuses showed left-sided pan-sinusitis and superior subperiosteal abscess with maximum dimension of 6.6 mm [Figure 2]. The patient underwent subperiosteal abscess drainage and functional endoscopic sinus surgery. She was started on intravenous ceftazidime 625 mg every 8 h, clindamycin 150 mg every 8 h, and topical erythromycin ointment three times a day. The 1st day postoperatively, there was a minimal improvement of the symptoms. Culture result was positive for methicillin-resistant *Staphylococcus aureus* and *Pseudomonas aeruginosa* which were sensitive to clindamycin and ceftazidime. Five days later, there was still no improvement of patient symptoms. Thus, we started a course of intravenous dexamethasone 6 mg every 12 h for 3 days. The next day, our patient was able to open her left eye, and the periorbital swelling started to subside. We continued the same antibiotic regimen alongside cold compressors. Ten days later, eyelid swelling was still significant; hence, a second course of intravenous dexamethasone 6 mg every 12 h was given [Figure 1b]. One week

¹King Khaled Eye Specialist Hospital, ²Department of Ophthalmology, College of Medicine, King Saud University, Riyadh, Saudi Arabia

Address for correspondence:
Prof. Adel H. Alsuhaibani,
Department of Ophthalmology,
College of Medicine, King
Saud University, PO Box 245,
Riyadh 11411, Saudi Arabia.
E-mail: adelsu@yahoo.com

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Figure 1: (a) The clinical picture at presentation, (b) The left eye after the 1st course of intravenous dexamethasone, (c) The left eye after the 2nd course of intravenous dexamethasone, (d) The left eye 1 week after the 3rd course of intravenous dexamethasone

later, extraocular motility improved to full in all directions. There was still a significant residual upper lid swelling with erythema. Therefore, we started a third course of intravenous dexamethasone for 3 days after which dramatic improvement of eyelid swelling was observed. After 26 days of admission, undergoing abscess drainage and FESS surgery, a holistic regimen of antibiotics and three courses of systemic steroids, symptoms resolved, and the patient was discharged home safely [Figure 1].

DISCUSSION

Vision loss is an uncommon yet a serious and devastating sequelae of orbital cellulitis.^[3-5] Thus, it mandates early recognition and rapid management.^[3,4] The pathophysiology of vision loss includes: optic neuropathy, central retinal vein occlusion, or high intraocular pressure.^[3] Multiple studies and reviews have established that sinusitis is the most common predisposing factor in orbital cellulitis.^[3,4,6]

Morgan Yang *et al.* have reported in their study that extraocular motility restriction, chemosis, and proptosis are the presenting signs of the disease for and suggested that they can be used as clinical measures for patients' response to treatment.^[4] Although intravenous corticosteroids use is debatable, studies have shown that steroids have not adversely affected the outcome.^[6,7] On the contrary, it led to faster recovery and shorter hospital stay.^[6,8] This is attributed to their anti-inflammatory properties as they suppress and decrease tissue edema, inflammation and swelling of orbital and paranasal sinuses.^[6,9] Yen *et al.* reported that patients who used intravenous corticosteroids were less likely to require surgical intervention for orbital abscess or another course of intravenous antibiotics after discharge.^[6] To the best of our knowledge, this is the first reported case of refractory orbital cellulitis in a child after

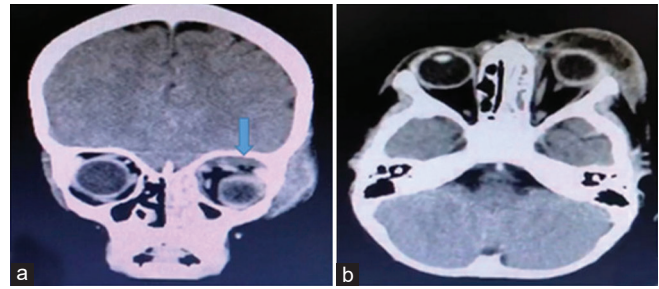


Figure 2: (a) Coronal computed tomography view showing left sinusitis and superior sub-periosteal abscess (arrow) (b) Axial computed tomography view showing left sinusitis and large preseptal abscess

shisha consumption which required multiple steroid courses to improve. Such scenarios of difficult cases might require an unusual, however, effective clinical decision to prevent serious life- and sight-threatening complications.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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