

## Upper eyelid abscess as a late complication of frontal sinus trauma

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### Abstract

The authors report a case of upper eyelid abscess in a 30 year old male that presented in the ophthalmology department with complains of recurrent eyelid pyosis, hyperaemia and swelling that started 2 months earlier and that did not ease to repeated courses of antibiotic therapy. The reported history of the patient revealed frontal sinus trauma that occurred 5 years before and that required surgical treatment (fixation with titan plaque and screws) with total healing and giving no further complains over the next years. The present cranial CT imaging showed intraorbital fat infiltration with displacement of one orbital arcade screw. Clinical findings showed normal ocular mobility. Antibiotic treatment and screw extraction through eyelid fistula improved the outcome but did not resolve the fistulous communication. Final management involved surgical removal of orbital arcade plaque and remaining screw and excision of fistula tract. The postoperative outcome was very good and the fistula remained closed but left the patient with an upper eyelid retraction which will require oculoplastic surgery in the future.

**Keywords:** eyelid abscess, frontal sinus trauma, orbital cellulitis, eyelid retraction

### Introduction

Eyelid abscess and preseptal cellulitis are infections that originate from eyelid lesions (chalazia, hordeola), sinuses, retained foreign bodies, skin infections, trauma, eyelid and oral procedures hematogenous and other sources [1]. A common cause for eyelid abscess can be extension of infection from sinuses [2]. There have been reported cases of persistent eyelid abscess as a sign of occult sinusitis [3] [4]. Eyelid fistulas associated with sinus disease can remain

undiagnosed for long periods of time [5]. Also in rare cases post-traumatic events can induce preseptal cellulitis and orbital abscess as a late complication [6]. Despite significant advances in antibiotic treatment, the management of eyelid abscess can be challenging. It is very important to make the distinction from orbital cellulitis which is a sight and life threatening condition. Occasionally an eyelid abscess or preseptal cellulitis can progress into the orbit and lead to significant visual loss or central nervous system complications [7].

## Case report

Patient, 30 year old male, presented in the ophthalmology department with complains of pyosis after left superior palpebral abscess fistulisation, that started 2 months earlier and that did not ease to repeated courses of antibiotic and anti-inflammatory therapy.

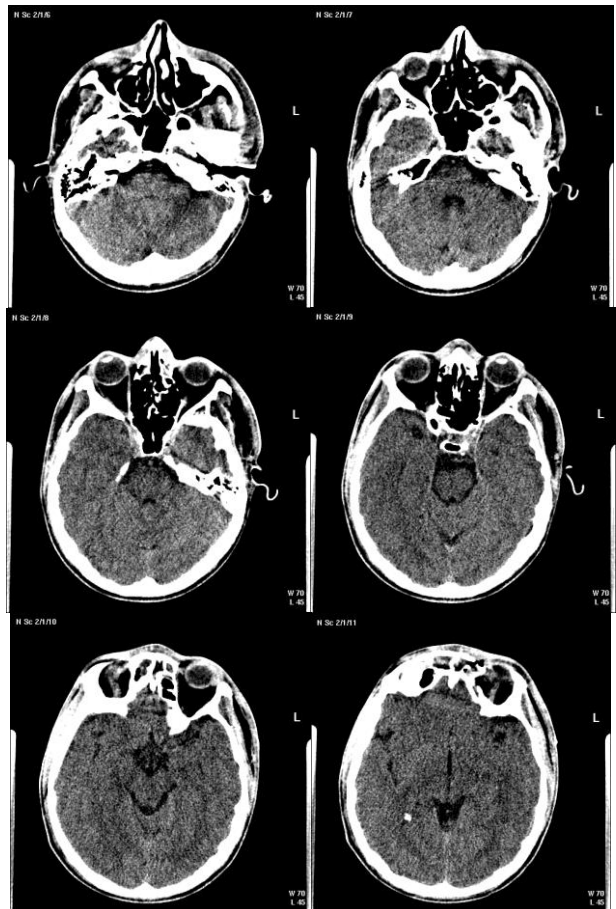
Objective signs on admission: hyperaemia and tender swelling of the left eyelid with pyosis in the 1/3 lateral extremity over the supraorbital margin (**Fig.1**). The swelling was fluctuating, little painful and with puss exposure under finger pressure. The patient also presented with upper eyelid retraction and lagophthalmos (**Fig.1**). Ocular motility was unaffected. Ophthalmologic examination: visual acuity in both eye was 20/20 without correction, fundus examination, oculo-orbital ultrasound were without abnormal findings and intraocular tension was within regular values.



**Fig. 1.** Upper eyelid hyperaemia, swelling, abscess formation and lagophthalmos.

History of the patient: A similar episode of eyelid swelling that formed an abscess had occurred one year earlier and was successfully treated with incision and drainage procedure. Also the patient reported craniofacial injury after adult aggression that occurred 5 years before. The episode resulted in fracture with left frontal compression that affected the left frontal sinus and the medial wall of the left orbit (**Fig.2**). The ophthalmologic exam at that time showed normal visual acuity (20/20 without correction),

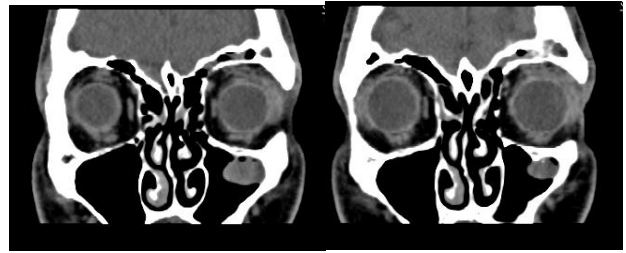
subconjunctival hemorrhage in both eyes, left inferior eyelid hematoma, superior and inferior palpebral ecchymosis in both eyes. The fundus examination was normal in both eyes. Results in blood test were normal. Surgical treatment was undertaken that required reinstatement the orbital arcade and fixation with titan plaque and two screws, frontal sinus cranialization and obliteration with grafted muscle and bone wax. Medical treatment included Ceftriaxone (250 mg inj. x 3/day), Gentamicin (40 mg inj. x 3/day), Etamsylate (125 mg inj. x 2/day), Vitamin K (1 mg inj. X 2/day). Postoperative outcome was favorable. The postoperative CT scan showed left **orbital sinus** fracture properly fixed with metallic plaque and screws and opacification of frontal sinus and anterior ethmoid cells.



**Fig. 2.** Preoperative CT scan in axial view, after craniofacial injury. Comminuted fracture that involves the left orbital roof with intraorbital bone fragment.

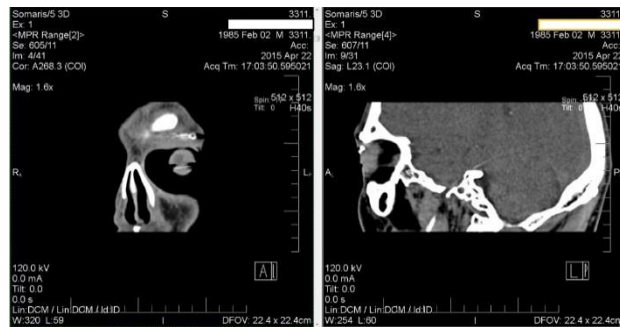
Follow-up and management: At the initial presentation, antibiotic and anti-inflammatory

therapy was established using cefuroxime (500 mg twice daily), ibuprofen (200 mg every 8 hours) and anti-inflammatory ointment (twice daily), for 10 days. Treatment was unsuccessful in the final solving of the palpebral abscess and recurrent ptosis continued after stopping the medication. Cranio-orbital computed tomography was indicated. Results of the CT scans showed infiltration of the intraorbital fat in the upper quadrant, especially the lateral extremity that included the anterior portion of the lateral rectus muscle, the levator palpebrae superioris muscle and the superior rectus muscle (Fig.4). No intraorbital collections were observed. The eyeballs were without any pathologically changes. Cortical, ventricular and other cerebral structures were of normal aspect. Postoperative sequelae of the left frontal sinus and displacement of one screw from the posttraumatic surgery that occurred 5 years before were also noticed (Fig.3).



**Fig. 4.** CT scan that shows infiltration of the intraorbital fat in the upper quadrant, especially the lateral extremity.

The position of the displaced screw was very close to the external fistula of the left upper eyelid so extraction was made possible with a forceps (Fig.5).



**Fig. 3.** CT scan that shows the displaced screw (arrow)

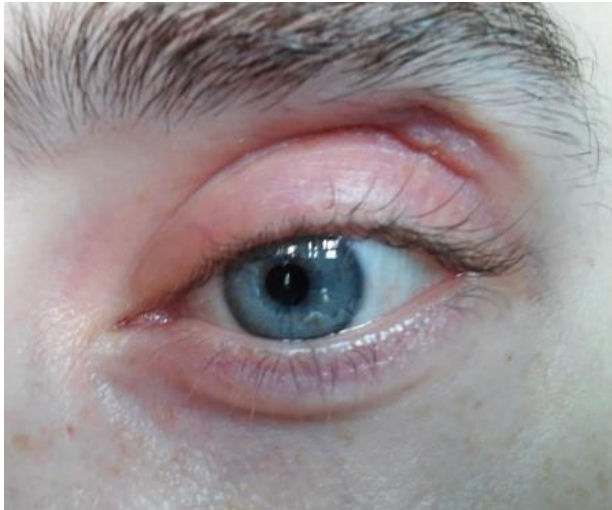


**Fig. 5.** Titan screw extracted from fistular tract of the left upper eyelid.



The diagnosis made following CT imaging was left orbital cellulitis without intraorbital collections. Pus culture from the palpebral abscess made for bacterial detection was negative. Treatment included clindamycin tablets (300 mg x 2 every 8 hours for 7 days) and probiotic therapy. Amendment of symptoms was remarked with decreased upper eyelid swelling but the fistula still remained opened even after extraction of the displaced screw and antibiotic

treatment (Fig.6). A multidisciplinary approach was required.



**Fig. 6.** Reduced eyelid swelling, fistula opening persistence and lagophthalmos, after titan screw extraction.

Significant improvement was achieved only after the patient underwent in the oculoplastic department for surgical extraction of the titan plaque and remaining screw and excision of fistular tract (Fig.6). The postoperative period was uneventful and the fistula remained closed. The patient was left with an upper eyelid retraction that will further require oculoplastic surgery.



**Fig.7.** Radiography of skull after displaced screw extraction. Shows position of the orbital arcade plaque.

**Discussion:** The particularity of the case is represented by the presence of recurrent eyelid abscess as a late complication of frontal sinus trauma, at 5 years after successful surgical treatment and good tolerance of the orbital arcade fixation devices. A number of case-reports have linked upper eyelid fistulas and abscesses to sinus disease, either occult sinusitis or acute events but there are few cases reported to sinus trauma.

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## References

1. Lee S, Yen M. Management of preseptal and orbital cellulitis. *Saudi J Ophthalmol.* 2011 Jan 25(1):21-9
2. Oxford LE, McClay J. Complications of acute sinusitis in children. *Otolaryngol Head Neck Surg.* 2005 Jul;133(1):32-7.
3. Narendran N, Sandramouli S. A Rare Presentation of Occult Sinusitis: Upper Eyelid Fistula. *Ophthalmic Surg Lasers Imaging.* 2010 Mar 9:1-3.
4. Casady DR, Zobel-Ratner JL, Meyer D R. Eyelid abscess as a presenting sign of occult sinusitis. *Ophthalm Plast Reconstr Surg.* 2005 Sep;21(5):368-70.
5. Rossman D, Verity DH, Lund VJ, Rose GE. Eyelid fistula: a feature of occult sinus disease. *Orbit.* 2007 Sep;26(3):159-63.
6. Starska K, Lukomski M, Starska-Dawidowskda D. Preseptal orbital abscess as a post-traumatic late complication--review of the literature and case report. *Otolaryngol Pol.* 200 7;61(3):331-4.
7. Howe L, Jones NS. Guidelines for the management of periorbital cellulitis/abscess. *Clin Otolaryngol Allied Sci.* 2004 Dec;29(6):725-8.