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SHORT COMMUNICATION

Epidural empyema secondary to orbital cellulitis: A case report

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PURPOSE. *To report a case of epidural empyema, a rare complication of orbital cellulitis, underlining the importance of early diagnosis and appropriate therapy to avoid severe complications often associated with this disease.*
METHODS. *The treatment was initiated with extended spectrum antibiotics such as third generation cephalosporins along with aminoglycoside or metronidazole for anaerobes.*
RESULTS. *The patient responded well and was asymptomatic after 15 days. Radiologic investigations (computed tomography/magnetic resonance imaging) should be done on an emergency basis. Treatment should be aggressive with parenteral use of extended spectrum antibiotics. The role of steroid is when proptosis is causing lagophthalmos with exposure keratitis and/or optic nerve compression. Judicious surgical intervention can be life saving in this emergency. Peribulbar antibiotic injection has no role in the therapy.*
CONCLUSIONS. *The authors present a unique case of epidural empyema secondary to orbital cellulitis associated with an episode of epileptic seizure. (Eur J Ophthalmol 2007; 17: 841-3)*

KEY WORDS. *Orbital cellulitis, CT scan, Epidural empyema*

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INTRODUCTION

Orbital cellulitis, defined as eyelid erythema and edema, proptosis, and/or ophthalmoplegia, with or without visual acuity loss, is a life-threatening infection of the soft tissue behind the orbital septum. Orbital cellulitis is an emergency. It may cause blindness and progress to life-threatening sequelae such as brain abscess, meningitis, and cavernous sinus thrombosis. Successful management is dependent upon urgent referral and immediate treatment.
This report describes a rare case of epidural empyema secondary to orbital cellulitis and underlines the importance of early diagnosis and appropriate therapy to avoid the severe complications often associated with this disease. Computed tomography (CT) should be used as an ancillary guide to the need for surgical exploration in patients who do not rapidly respond to medical management or have associated toxic signs.

Case report

A 12-year-old boy presented with a 5-day history of fever and right orbital swelling, painful decrease in vision, and diplopia. This was associated with throbbing headache, projectile vomiting, and an epileptic seizure. He was taking oral ofloxacin and had received peribulbar cefotaxime injection.
The patient had significant proptosis on the right side with lagophthalmos. Hertel exophthalmometer readings were 21 mm in the right eye (OD) and 16 mm in the left (OS). No discharge was present but the eye was tender with restricted movement in all directions.
Conjunctival chemosis and hyperemia were present. The patient had exposure keratitis. Corneal and lid sensations were unaltered. Visual acuity was 20/120 OD and 20/20 OS. IOP was 18 mmHg in both eyes. The right eye had optic nerve head swelling; the left eye was normal. B-

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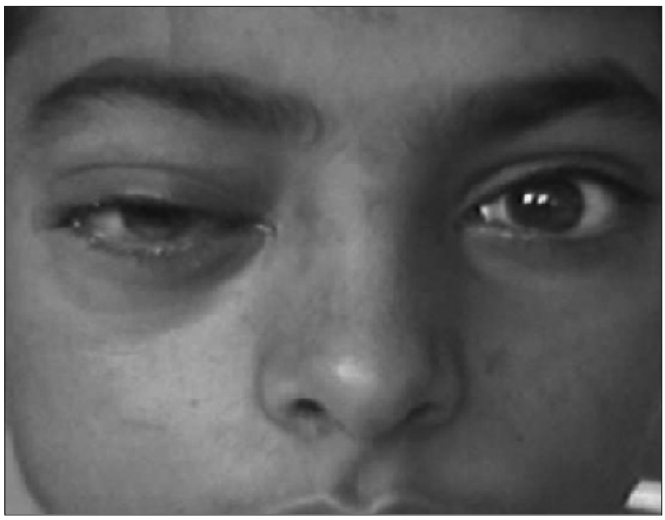

Fig. 1 - (A) *The patient on day of admission showing proptosis in the right eye along with exposure keratitis.*

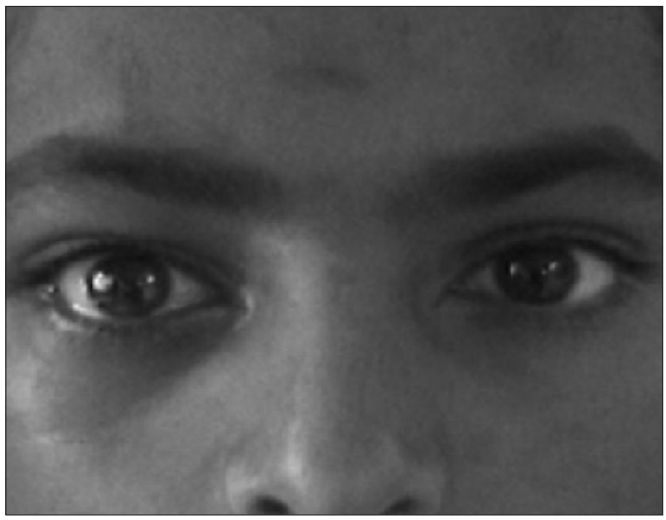

Fig. 1 - (B) *Right eye proptosis. Contrast enhanced computed tomography scan of head showing the axial section at the level of orbit with evident proptosis of the right eye.*

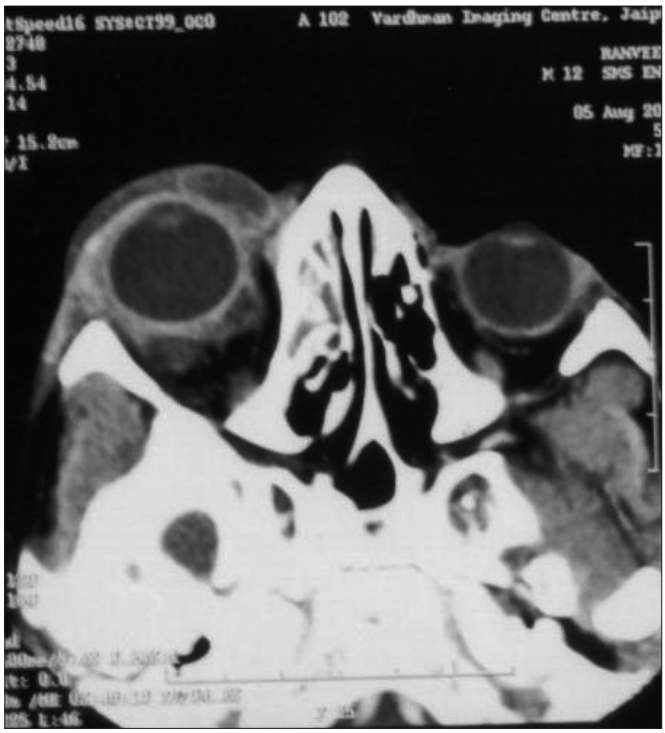

Fig. 2 - (A) *The 15th day post-treatment showing regression.*

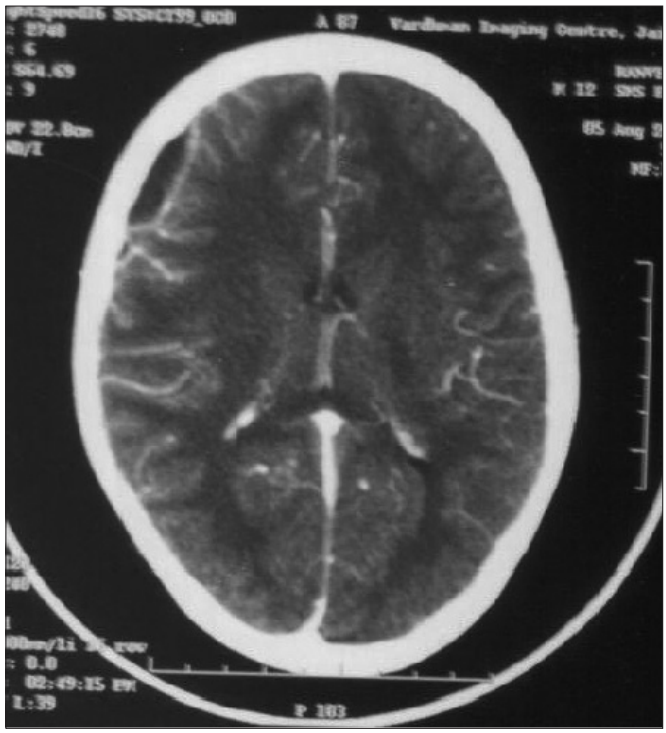

Fig. 2 - (B) *Right frontal epidural empyema. The contrast enhanced computed tomography scan of head showing the axial section at the level of frontal lobe with evident hypodense region overlying the frontal lobe.*

scan showed a nonspecific orbital infiltration with thickening of the extraocular muscles. Blood showed elevated leukocytes and erythrocyte sedimentation rate. Tuberculosis was ruled out. Contrast enhanced CT scan revealed ethmoidal and frontal sinus opacification with right orbital cellulitis (Fig. 2A). There was associated right frontal epidural empyema (Fig. 2B).

A diagnosis of orbital cellulitis with intracranial extension

of infection was made. The patient did not respond to IV antibiotics and thereby underwent FESS. Frontal and ethmoidal sinus were explored but no frank pus was expressed. Histopathology analysis showed chronic inflammation of sinus wall and culture was negative for pathologic organism. IV ceftriaxone 500 mg, amikacin 250 mg, and metrogyl 100 cc 12 hourly each for 5 days along with oral steroid were given. The patient responded well and was shifted from IV to oral amoxicillin with clavulanic acid. Anticonvulsant Dilantin 100 mg 12 hourly with serratiopetidase and anti-inflammatory drugs were started along with lubricating ointment and antibiotic eyedrops for exposure keratitis.

On first follow-up the patient was asymptomatic and his vision was 20/15 with fundus picture reverting to normal and mild lid fullness. Hertel exophthalmometer readings were 17 mm OD and 16 mm OS. There were no restricted movements of the globe. Repeat CT scan of the head revealed limited epidural empyema, requiring no surgical intervention. Anticonvulsants and a long course of ampicillin 250 mg 8 hourly were continued along with nasal decongestant drops.

COMMENT

Orbital cellulitis is an ophthalmologic and systemic emergency (1-3). It is associated with systemic complications, of which epidural empyema is a rare presentation.

The role of steroid is when proptosis is causing lagophthalmos with exposure keratitis and/or optic nerve compression. Radiologic investigations (CT/MRI) should be done on an emergency basis for confirming diagnosis, ruling out intracranial complications, baseline follow-up study, and differential diagnosis.

Usually the treatment of orbital cellulitis requires aggressive parenteral antibiotic therapy and judicious surgical intervention can be life saving (4). Treatment should be with extended spectrum antibiotics (5) such as third generation cephalosporins along with aminoglycoside or metronidazole for anaerobes. Proper follow-up will rule out any complications and an early CT scan will guide through the treatment. Peribulbar antibiotic injection has no role in the therapy.

Intracranial extension of orbital infection is a rare but severe complication and may prove fatal. Epidural empyema following orbital cellulitis and associated with an episode of epileptic seizure is rarely reported.

Proprietary interest: None.

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