

What Eyes Behold if Missed can be a Life Taking Event: A Case of Orbital Cellulitis

REZA MQ¹, JOHAR MJ², ISMAIL MS²

¹Department of Emergency and Trauma, General Hospital Malacca, Jalan Mufti Haji Khalil, 75400 Melaka, Malaysia.

²Department of Emergency Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur, Malaysia.

ABSTRAK

Sellulitis orbital merupakan salah satu daripada keadaan yang boleh mengancam nyawa dan tidak seharusnya terlepas pandang. Ianya harus dibezakan dengan sellulitis preseptal. Ini terjadi akibat proses jangkitan yang melibatkan struktur sekitar mata posterior kepada septum orbital. Indeks kecurigaan yang tinggi harus ada bagi mendiagnosa keadaan ini. Kami membentangkan satu kes melibatkan seorang gadis berumur 15 tahun yang datang disebabkan oleh bengkak pada dahi sebelah kanan yang membesar dengan cepat. Beliau juga mengalami demam tinggi, sakit kepala dan nanah pada bengkakan tersebut. Beliau didiagnosa mengalami sepsis yang disebabkan abses dahi dan diberi rawatan dengan antibiotik serta di masukkan ke wad. Walau bagaimanapun, keadaan beliau bertambah tenat dan terpaksa dimasukkan ke unit rawatan rapi. Hasil penyiasatan menunjukkan terdapat koleksi cecair pada ruang retrobulbar dan pembedahan segera dilakukan bagi mengeluarkan nanah. Namun, keadaan beliau bertambah teruk dan akhirnya beliau meninggal pada hari ke-10.

Kata kunci: orbital, sellulitis, sinusitis, Malaysia

ABSTRACT

Orbital cellulitis is one of the life threatening event that should not be missed out and must be distinguished from preseptal cellulitis. It is an infective process involving ocular adnexal structures posterior to the orbital septum. High index of suspicion is the key to its diagnosis as even experienced physician can miss. Here, we present a case of a 15-year-old female who presented with progressive swelling over right forehead associated with high grade fever, headache and purulent discharge of the swelling. She was diagnosed with sepsis due to right forehead abscess and

Address for correspondence and reprint requests: Prof. Dr. Ismail Mohd Saiboon, Department of Emergency Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur, Malaysia. Tel: +603-91455491 Fax: +603-91456577 Email: fadzmail69@yahoo.com.my

was treated with intravenous antibiotics followed with admission. However, she suddenly deteriorated in the ward which required intubation and thereby Intensive Care Unit (ICU) admission. Investigations revealed fluid collection at right retrobulbar space suggestive of an abscess where emergency drainage was carried out. Unfortunately, her condition worsened and patient succumbed at day-10 of admission, despite all efforts.

Keywords: orbital, cellulitis, sinusitis, Malaysia

INTRODUCTION

Orbital cellulitis is an aggressive infective process that affects the orbital adnexal structures posterior to the orbital septum. It should be differentiated from a more benign but common condition known as preseptal cellulitis (Chaudhry et al. 2008). Orbital cellulitis carries high morbidity and mortality between 20% to 40% (Duke-Elder & Macfaul 1974; Maniglia et al. 1989). Early investigations that include imaging modality may greatly assist in its diagnosis and management. Once diagnosed, an aggressive surgical intervention couple with efficient medical therapy may help to improve the outcome.

CASE REPORT

Ms NA, 15-year-old female, was brought by her friend to the Emergency Department (ED) of Hospital Melaka in February 2010 evening for unsettling high grade fever and headache associated with swelling over her right forehead. She was suffering from fever with rigors for four days which partially relieved with paracetamol. However, her right forehead swelling was increasing in size and started to discharge pus. There was also bilateral

eye swelling that was associated with pain especially on movements of the right eye. She also had poor appetite and loose stools for two days with bowel movement of 4-5 times per day, watery in nature but not associated with blood stained. Previously in 2008, she was diagnosed with brain tumour but defaulted her treatment and follow-up. Apart from that, she had no other medical illness.

Upon arrival at ED, she was conscious with Glasgow Coma Scale (GCS) of 15/15 but dehydrated. Her vitals were as follows: blood pressure of 110/70 mmHg, pulse rate of 140 bpm, temperature of 40°C, respiratory rate of 16 breath per minute, and pain score of 3/10. Her capillary blood glucose (CBG) was 6.5mmol/L. Examination of her face was as per diagram shown (Figure 1). Other examination findings was unremarkable.

Patient was triaged to semi-critical area and started with intravenous normal saline therapy at 100 ml/hr. She was given oral paracetamol of 1 gram and intravenous Cloxacillin 1 gm after swab for culture and sensitivity was taken from her forehead.

Her blood investigations revealed elevated TWBC of 20.2% (predominant neutrophils 90%), normal hemoglobin

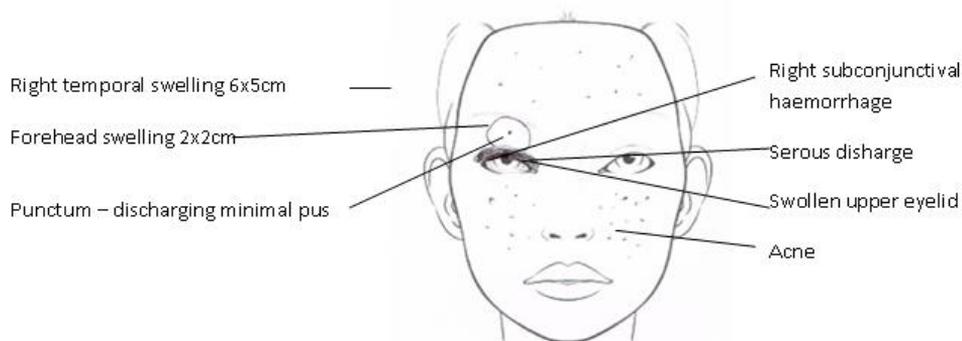


Figure 1: Diagram of face showing the location of the forehead swelling (abscess) with purulent discharge punctum.

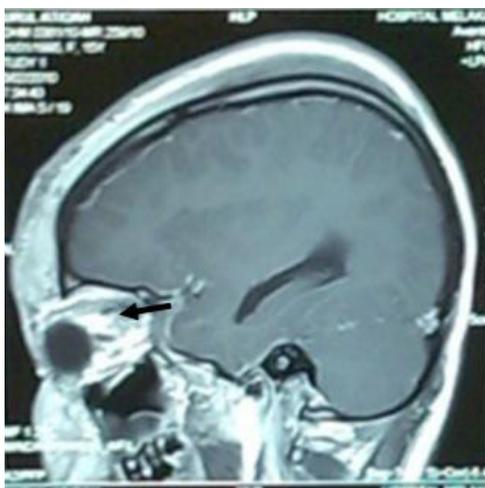


Figure 2: MRI Brain. Sagittal view. Evidence of retro-bulbar collection at right orbit (Arrow: collection at right retro-bulbar area)

(12.6 gm/dl) and platelet of 168. Her renal profiles were as follows; Na⁺ of 123 mmol/l, K⁺ 3.4 mmol/l, urea of 2.3 and creatinine of 43. Her liver panel was within normal limit. Non-contrasted CT head showed hydrocephalus with suspicious lesion in midbrain which raised the possibilities of infection as well as tumour.

Patient's GCS deteriorated to 9/15 (E1/V3/M5) the next day while in the

ward. She was electively intubated in view of inability to protect airway and brought to ICU for further care. Ophthalmology team was called in and lateral canthotomy right eye was done under aseptic technique. MRI of brain was done and reported as oedema at facial and scalp in favour of cellulitis with no focal abscess collection within the tissue. Fluid collection at right retrobulbar space was suggestive of an abscess (Figure 2). Other findings included mild hydrocephalus, tumour in brainstem, left cerebellum and basal ganglia suggestive of glioma. Emergency drainage of abscess was done under general anesthesia (GA). However, the patient succumbed at day-10 of admission despite all efforts.

DISCUSSION

Orbital cellulitis is one of the life threatening event that should not be missed or lightly looked into. It is an infective process involving ocular adnexal structures posterior to the orbital septum and must be distinguished from preseptal cellulitis (sometimes

called periorbital cellulitis), which is an infection of the anterior portion of the eyelid. Neither infection involves the globe itself. Although, preseptal and orbital cellulitis may be confused with one another because both can cause ocular pain and eyelid swelling and erythema, they have very different clinical implications. Preseptal cellulitis is generally a mild condition that rarely leads to serious complications, whereas orbital cellulitis may cause loss of vision and even loss of life.

Orbital cellulitis is not common but can be devastating as highlighted in this case. It primarily affects children and adolescents between the ages of 0–15 years. It spreads to the orbit via three methods which are: (i) direct extension of infection from periorbital structure like paranasal sinuses also from face, the globe and the lacrimal sac (ii) haematogenous spread and (iii) direct inoculation into the orbit as result of trauma or surgery.

In Paediatric age group up to 85% are due to complication of ethmoid sinusitis (Schramm et al. 1978). Therefore, it explains the fact why there is increased incidence in winter because of the increased incidence of sinusitis in cold weather. Suhaili et al. (2010) discovered six cases of orbital cellulitis while conducting a retrospective study for year 1997-2007 as complication of acute sinusitis in patient below 18 years of age in Universiti Kebangsaan Malaysia Hospital, Malaysia (Suhaili et al. 2010). Another earlier study in Universiti Malaya, Malaysia (2008) found that of 1198 patients in their registry with eye problems only one had orbital cellulitis making its prevalence of

0.1% (Reddy et al. 2008). In this patient, the orbital cellulitis was not caused by complication of sinusitis but instead occurred as direct inoculation of orbit as complication of acne that become an abscess at her right forehead. This infection later lead to septic shock as evidenced by clinical deterioration and blood culture that grew *Staphylococcus aureus*.

The challenges remain in diagnosing orbital cellulitis as early treatment play crucial role in improving outcome, reducing morbidity and mortality rate. Prior to availability of antibiotics, the mortality rate was as high as 17%, while blindness rate at 20% (Williams & Carruth 1992). Orbital cellulitis classically presents with ophthalmoplegia, pain with eye movements, proptosis and needs to be confirmed by radiological studies (Mair et al. 2002). In this patient, the CT head was done the next day when she deteriorated clinically and ophthalmology referral was delayed as well. This highlights the need of high index of suspicion in order to reach the diagnosis of orbital cellulitis eventhough patient did not has the classical or typical complaints. Mair et al. in 2002 proposed the use of ultrasound as aid to diagnose and monitor treatment of acute swelling of eyelids in Paediatric age group patients (Chaudhry et al. 2012). Through this research, orbital sonography is recommended in every children with periorbital swelling and erythema as it can detect orbital infection or at least prompt further investigations avoiding delay in treatment and allows disease monitoring on a daily basis.

CONCLUSION

Orbital cellulitis is an eye emergency that requires high index of suspicion in order not to be misdiagnosed. Once suspected, urgent referral is warranted. Radiological imaging is needed in order to confirm this diagnosis and ultrasound can play essential role in differentiation between pre and postseptal infection. Aggressive early medical and surgical treatment is needed in order to save life.

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