

LIFE THREATENING SECONDARY FACIAL SPACE INFECTION DUE TO CARIOUS PRIMARY TEETH - A CASE REPORT

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Abstract

Periorbital cellulitis due to carious tooth is not an uncommon sequel. Especially in children due to bone anatomy, mixed dentition and proximity to vital structure the infection tends to spread quickly through primary facial spaces. It has the tendency to cause severe ophthalmic complications if remains undetected. In maxilla the presence of sinus, loose areolar tissue at the lower eyelid region makes them an easy route through which an infection can spread towards the orbital cavity. Here we report successful management of a pediatric case with odontogenic infection involving the orbital cavity endangering the vision and prevention of possible meningitis with extension towards the central nervous system.

Conclusions: Periorbital cellulitis is an emergency situation that requires prompt recognition and immediate management. However facial space infection secondary to dental infections rarely cause OC but they should not be managed with levity. Multidisciplinary approach is essential in managing such juvenile diabetic patients successfully. Moreover, patients reported with OC should thoroughly evaluated for dental condition to rule out this rare cause of OC.

Key words: odontogenic infections, Periorbital cellulitis, primary teeth infection.

Introduction

Orbital cellulitis is a inflammatory condition of tissues around the orbit. Various causes are involved in development of this fatal condition which includes trauma, foreign body retention in orbital tissue, fungal infection, odontogenic infection and infection of sinuses.¹ Infections travels to the orbit along four possible routes. The first route is the spreading of infections from molars or premolar root into the maxillary sinus. The second involves soft tissues between the buccal cortical plate and periorbital tissues. In the third pathway, infections travel initially to the infratemporal or pterygopalatine fossa and then reach the orbital cavity through the inferior orbital fissure. Another route involves facial as well ophthalmic veins by hematogenous route and results in septic embolization as well thrombophlebitis.² Postseptal cellulitis has more fatal sequel as compared to its preseptal counterpart, which includes proptosis, ophthalmoplegia, restricted eye movement and altered visual acuity.^{1,2,3} Prompt recognition and treatment of OC is crucial because of its capability for devastating complications.^{4,5}

Case Report

A 8yrs old female patient reported to the department of OMFS with the chief complaint of pain and swelling around right eye since 8 days. The patient had a history of persistent dental pain since 4 months from the upper right quadrant. Swelling over right periorbital area was diffuse. Swelling demonstrated the sign of differential warmth and which was also tender on palpation. The swelling was firm to fluctuant in consistency with the fluctuant areas mainly located around the infraorbital region.

On examination of right eye showed severe chemosis, proptosis (3 mm), restricted eye movement, opacification of the cornea, purulent discharge noticed near the medial canthus. The left eye had a normal ocular mobility and visual acuity, no obvious signs of infection but oedema present at infraorbital region (Figure 1). The mouth opening was 26 mm, and oral hygiene status was compromised. The upper right primary molars were decayed, grade I mobile, tender over percussion. A diagnosis of orbital cellulitis was made secondary to buccal space abscess. Patient was febrile blood pressure, respiratory rate and pulse rate were within normal limit. Investigations included full blood count [Hb- 12.5 gm/dl, WBC 11.6 cells/cumm, platelet count – 294 K/cumm, neutrophil – 69%; lymphocyte – 37%]. The serum protein (total), albumin, urea as well as creatinine gave results that were within normal range, but random plasma glucose evaluations depicted that patient was diabetic from childhood and RBS recorded was 380 mg/dl. Patient was on insulin therapy. The gold standard for determining the exact extent of tissue involvement in OC is CT scan and MRI. But, patient could not procure these investigations because of economic constraints.

The patient was immediately hospitalized, incision and drainage was performed in order to drain buccal and infraorbital abscess by giving vestibular stab incision, drain was placed and secured with suture. Patient was subjected to megadoses of i.v medications, Cefixime 1g 12 hourly, Metronidazole 500 mg 8-hourly, Chloramphenicol eye-ointment and topical Ofloxacin eye drop 1–2 drops 4 hourly. All these medications were continued until the condition resolved. Extraction of the upper primary molars were carried out under local-

anaesthesia and irrigation with saline and betadine was done at regular interval. At the time of discharge proptosis and limitation in eyeball movement had resolved. The patient is followed up with no residual complications.



Figure 1: Periorbital oedema



Figure 2: Chemosis of right eye



Figure 3: Periapical radiolucency near right first primary molar and opacification in maxillary sinus



Figure 4: Incision and drainage along with drain placement followed by extraction of right side primary molars.



Figure 5: 4th post interventional day



Figure 6: Resolved chemosis



Figure 7: Follow up after 7 days

Discussion

Postseptal periorbital cellulitis is known to be the rare complication of dental infection. Only 2–5% reported

cases of orbital cellulitis are from odontogenic cause.⁶ Infection from periapical region of premolars and molars communicates with the floor of maxillary sinus directly, giving direct passage for microorganisms. Patients having periorbital cellulitis frequently reported with the history of recurrent odontogenic pain and recent dental extraction.^{7,8} OC demonstrate no gender predilection and affects all the age groups, however it is frequently seen in the paediatric patients.¹ Infection of paranasal sinuses, trauma, foreign body entrapment, and odontogenic infection are frequently associated in its etiology.^{2,4} Present reported patient had history of long term recurrent dental pain which was recognized as one of the predisposing factor. There may be strong correlation of pain around orbit, periorbital swelling, ophthalmoplegia and proptosis.^{1,4} These above signs and symptoms were noticed in present patient also. In addition to this soft tissue inflammation is also seen over maxillary sinus, which indicating the possible route of infection.⁹ Infections may travel from maxillary sinus via periapical region of the maxillary posterior teeth because of the proximity of roots to the maxillary sinus.¹⁰ Associated risk factors include compromised immune status, metabolic disorders, pregnancy, diabetes, i.v drug use, and nephrotic syndrome. Present reported case is also diabetic since last 2 years which probably one of the risk factor in developing this fatal condition. Surgical drainage is indicated if there is abscess, altered vision on initial presentation, or disease progression with antibiotics. If dental component is suspected, extraction along with drainage of abscess should be executed.² Cefixime and Metronidazole combination regime was given in this patient and was proved to be effective as evidence based medicine.^{1,5} Insulin therapy is given to the patient according to the insulin sliding scale. Long-acting insulin (glargine), once or twice a day with short acting insulin (aspart) before meals and at bedtime.

Conclusion

Periorbital cellulitis is an emergency situation that requires prompt recognition and immediate management. However facial space infection secondary to dental infections rarely cause OC but they should not be managed with levity. Multidisciplinary approach is essential in managing such juvenile diabetic patients successfully. Moreover, patients reported with OC should thoroughly evaluated for dental condition to rule out this rare cause of OC.

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