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Short Communication

Bilateral orbital complications of paediatric rhinosinusitis

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ABSTRACT

Background: The spread of infection from the ethmoid sinuses to the orbit occurs directly through a congenital dehiscence of the lamina papyracea or via haematogenous spread through ophthalmic venous system. Hence orbital complications of paediatric rhinosinusitis are usually unilateral at presentation.

Methods: We describe three children with bilateral orbital cellulitis that occurred as a complication of rhinosinusitis without intracranial spread of the infection. The children ranged in the age group from 4 to 7 years. All these children had a prolonged hospital stay from 14 to 25 days and underwent multiple surgical procedures to drain the subperiosteal abscess. These children presented to the hospital with bilateral orbital cellulitis without significant past history. All of them on radiological evaluation showed subperiosteal abscess involving only one orbit. They were taken up for functional endoscopic sinus surgery and the subperiosteal abscess was drained endoscopically with partial removal of lamina papyracea. One case required second surgery despite good recovery for two days post first surgery.

Result and conclusion: Two cases had severe unilateral visual loss at presentation but both recovered dramatically after the surgery. All cases had uneventful recovery with no residual disability. The purpose of this article is to discuss the reasons for bilateral orbital complications of rhinosinusitis at initial presentation despite the previous hypothesis of unilateral involvement.

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Case 1

A four and half year old child presented with bilateral orbital swelling involving left more than right eye. One week before he developed upper respiratory tract infection for which he was treated but two days before he developed swelling of the

left eye followed by right eye which rapidly increased in next one day. He was unable to open his left eye at the time of presentation, movements of the left eye were absent and pupillary reflex was sluggish. Movement of the right eye and its pupillary reflex was present. Vision was grossly diminished in the left eye, reduced to perception of light. Patient was

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irritable and had a fever of 102 °F. Child was started on parenteral ceftriaxone, vancomycin and metronidazole in addition to ibugesic, paracetamol, triaminic and decongestant nasal drop. CT & MRI scan revealed bilateral ethmoidal sinusitis with evidence of subperiosteal collection in the left orbit which was pushing the eye laterally. There was no evidence of intracranial infection or cavernous sinus thrombosis. Patient was taken up for surgery and endoscopic decompression of the left orbit. Patient responded well and his eye swelling started decreasing. On third post-operative day the swelling in the right eye started increasing again. Immediate CT scan was taken which showed recurrence of subperiosteal collection in the left orbit. Patient was again taken for surgery and endoscopic decompression of left orbit was done with complete removal of lamina papyracea. Partial turbinectomy was also done of the posterior half of middle turbinate to improve ventilation of ethmoid sinuses. There was rapid improvement in the patient condition and patient was discharged after 25 days of admission. On discharge patient had no swelling in both eyes, vision was normal and eye movements recovered completely. Patient responded well and was asymptomatic after 10 days with complete restoration of vision. CT scan was done before discharge to rule out any collection of pus. On subsequent follow up for four months the patient is asymptomatic and there is no residual disability as depicted in the Pre-op and Post-op photos (Figs. 1–4).

Case 2

A 6 years old girl presented with bilateral orbital swelling after 4 days of symptoms of rhinorrhoea, nasal obstruction and headache. She had bilateral painful orbital swelling more on the left side. There was bilateral proptosis with restriction of eye movements. Vision was absent on left side with no perception of light. However, on right side finger counting at 3 m was present. Patient was started on parenteral antibiotics and CT scan of nose, PNS and orbit was sought which revealed features of bilateral orbital cellulitis and subperiosteal abscess on left side with no features of intracranial infection.

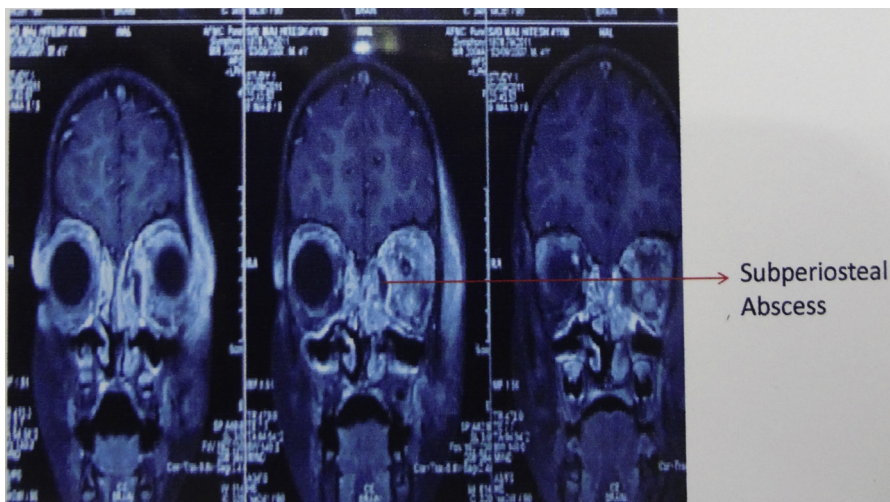


Fig. 1 – MRI pre-op.



Fig. 2 – Bilateral orbital cellulitis.

Bilateral functional endoscopic sinus surgery was done to relieve rhinosinusitis and on left side subperiosteal abscess was drained by breaking through lamina papyracea. Post-operatively patient had relief in symptoms and orbital swelling decreased considerably. Parenteral antibiotics were given for fourteen days postoperatively. Vision was restored to normal within 5 days postoperatively. Patient was discharged on the sixteenth post-operative day.

Case 3

A 7 years old male child initially presented with upper respiratory tract infection. Patient was managed on oral antibiotics and antipyretics. Patient reported at emergency after 3 days with history of sudden onset swelling of both eyes since 3 h. Patient was reviewed and found to have temperature of 102 °F, bilateral periorbital oedema, proptosis and restricted eye movements. On ophthalmic review, vision was found to be normal bilaterally. CT scan revealed bilateral orbital cellulitis with subperiosteal abscess on the right side. Bilateral functional endoscopic sinus surgery was done to relieve rhinosinusitis and on right side subperiosteal abscess was drained by

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