Case Report

Resolution of Posttraumatic Brown Syndrome in a Child Following Treatment with Oral Steroid: A Case Report

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Abstract

Aim: To report a case of acquired Brown syndrome in a child following trauma and its response to oral steroids. **Case Report:** A 4-year-old child was brought to us with complaints of adopting abnormal head posture following a fall while playing and injuring his head. On examination, he had features of the acquired Brown syndrome of the right eye. Magnetic resonance imaging of the brain and orbits was normal. A course of oral steroids was given and the symptoms resolved after a month of treatment. **Conclusion:** Acute onset of abnormal head posture following trauma warrants keen evaluation of ocular movements and cover tests in all gazes to ascertain the cause. Acquired Brown syndrome should be considered in children following head trauma and it responds well to oral steroids.

Keywords: Abnormal head posture, brown syndrome, trauma

Introduction

Brown syndrome with its characteristic limitation of elevation in adduction was first described by Harold W. Brown[1] in 1973, and may present as a congenital or acquired condition. The restricted movement of the superior oblique tendon in its pulley viz. trochlea is the underlying pathogenesis for both congenital and acquired forms. This has been attributed to shortness of the superior oblique tendon or of the anterior sheath of superior oblique muscle in congenital forms.[1-3] With the detailed understanding of congenital cranial dis-innervation disorders, it is classified under these disorders currently.[4]

Acquired Brown syndrome has been reported more commonly in association with inflammatory and idiopathic causes than following trauma,[5-7] and steroids have been the mainstay of treatment in acquired Brown syndrome.[6-8]

Case Report

A 4-year-old boy was brought by his parents with abnormal head posture following a fall one week prior to presentation. Parents had noticed a little amount of nasal bleed following the fall. There was no loss of consciousness or any abnormal behavior following the fall. There was also no history of fever, neck stiffness, seizures, or weakness of limbs prior to the complaints. His past medical history and birth history were normal. On examination his general physical condition was normal.

Ophthalmic examination showed that his best-corrected visual acuity in both eyes was 6/6 with Snellen number chart and N6 with near vision chart. The child adopted a face turn towards the left along with a head tilt to the right. Extraocular movements showed a limitation of elevation in adduction (−3) in the right eye [Figure 1]. Alternate Prism Cover Test (APCT) showed left hypertropia of 8 prism dioptres (PD) in primary gaze, 12 to 14 PD in left gaze, and orthophoria in right gaze. Left hypertropia was also noted in up gaze (approximately 20–25 PD) and left head tilt (14–16 PD). Anterior segment and fundus examinations were found to be within normal limits. No torsion was noted on fundus examination. A provisional diagnosis of right acquired Brown syndrome was made and radiological investigations that

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included magnetic resonance imaging (MRI) of the brain and orbit were carried out to rule out fracture orbit or inferior oblique palsy. MRI reports showed no significant abnormalities.

The patient was started on oral steroids, that is, prednisolone 1 mg/kg body weight that was tapered over 1 month. After 1 week, the child was symptomatically better. There was a reduction in abnormal head posture, the extraocular movement showed only minimal limitation of elevation on adduction (−1) and APCT showed left hypertropia of 3 PD in primary gaze, and 5 PD in left gaze and left head tilt. The dose of steroid was tapered and the patient was asked to come for a follow-up visit after a week. The patient was asymptomatic after a month with complete resolution of abnormal head posture. Extraocular movements were full in all directions of gaze and APCT showed no deviation in primary gaze and all gaze positions [Figure 2].

Discussion

Acquired Brown syndrome can be due to local orbital inflammation from contiguous infection of the paranasal sinuses or the globe, or the result of general inflammation like rheumatoid arthritis, systemic lupus erythematosus, or idiopathic tenosynovitis. It can also be secondary to direct trauma (injury or iatrogenic following excessive superior oblique tucking) in the region of the trochlea of the superior oblique or rarely due to primary and secondary tumors of the orbit.[1-3]

Our case presented with abnormal head posture following trauma with no other systemic associations; suggesting trauma as the etiology. MRI findings may be inconclusive in acquired cases, but neuroimaging was done in our case to rule out other causes of Brown syndrome.

Inflammatory etiology such as post febrile illness or idiopathic conditions have been reported as causes of the acquired Brown syndrome in children.[5-7] Our case is unique in being of posttraumatic etiology in a young child.

Steroids in various routes of administration viz., oral, intramuscular, and intra-trochlear routes have been shown to be useful in treating acquired Brown syndrome.[6-8] Intra-trochlear steroids were used by Ravilla *et al*.,[7] in children not responding to oral steroids while oral steroids were used by Chhablani *et al*.,[6] similar to our case. Treatment of systemic inflammatory conditions is needed when acquired Brown syndrome is caused by such conditions. Our case, which was secondary to trauma, responded promptly to oral steroids.

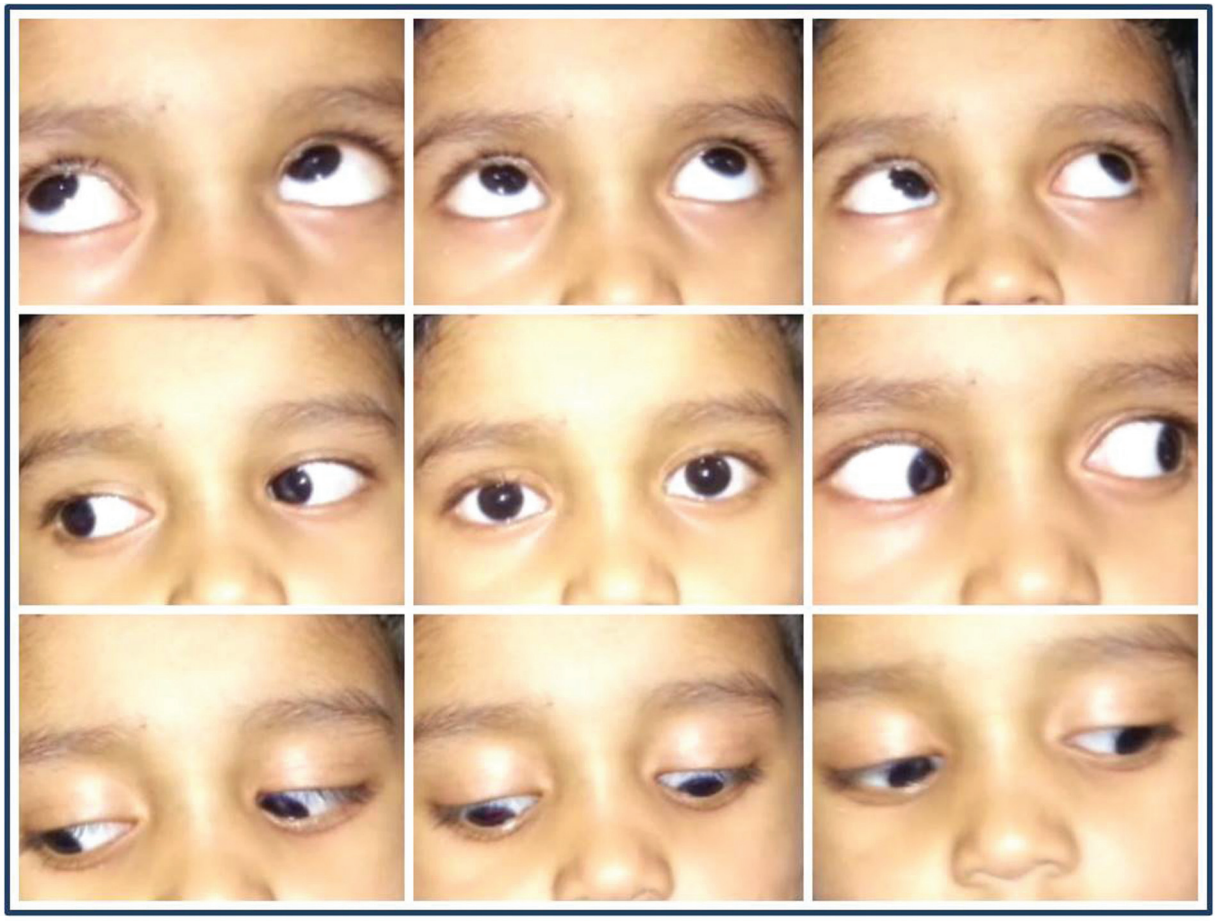

Figure 1: Nine gaze photographs showing primary gaze left hypertropia and limitation of elevation in adduction in the right eye at presentation.

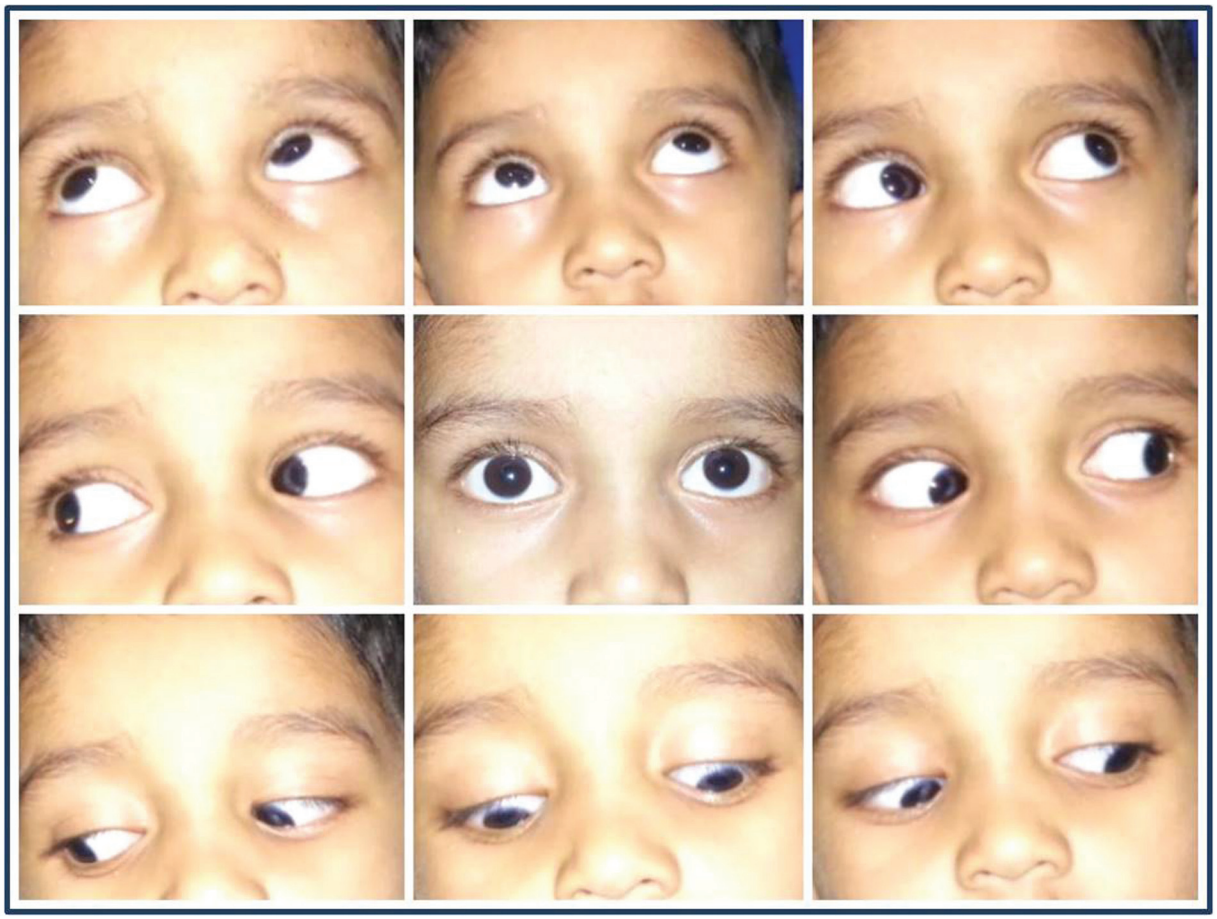

Figure 2: Nine gaze photographs showing primary gaze orthotropia and improvement of elevation in adduction in the right eye after a month of treatment.

Conclusion

In conclusion, the occurrence of acute onset abnormal head posture following trauma warrants detailed oculomotor evaluation to ascertain the cause. Acquired Brown syndrome should be considered in children following trauma and it responds well to oral steroids.

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Conflicts of interest

There are no conflicts of interest.

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