Post-traumatic vision-threatening orbital haematoma managed with needle aspiration

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DESCRIPTION

A 14-year-old male patient presented to eye casualty of a tertiary care centre in northern India with a history of rapidly outward protrusion of the left eye (LE) following a blunt trauma to the same side 10 days ago ([figure 1](#)). The patient was playing cricket with his friends when he was hit with a ball on his face. There was no history of loss of consciousness, vomiting or bleeding from nose and ear.

On examination, visual acuity was 20/20 in the right eye (RE) and finger counting with accurate projection of rays in the LE. There was a severe restriction in the extraocular motility of the LE, the globe was proptosed and Hertel's exophthalmometry readings were 15 mm in the right eye and 21 mm in the left eye at Base of 102. There was an inferior dystopia of 5 mm. The left upper eyelid was swollen, chemosed and there was lagophthalmos of 3 mm. The conjunctival surface of the LE was hyperaemic, and the cornea was hazy and oedematous with evidence of exposure keratopathy. The anterior chamber was deep with no evidence of hyphema, iridodialysis or cataract. There were choroidal folds on fundus examination. The RE was within normal limits. Ultrasonography B scan of the orbit revealed a superior orbital subperiosteal collection of fluid ([video 1](#)). Contrast-enhanced CT (CECT) scan of the head and orbit revealed superior orbital haematoma ([figure 2](#)). A 23 G needle was passed at the superior sulcus in between the globe and orbital rim and 12 mL of haematoma was drained ([video 2](#)). There was an immediate decrease in LE proptosis and the correction of lagophthalmos ([figure 3](#)). The patient was started on topical moxifloxacin eyedrops and carboxymethyl cellulose. There was a remarkable improvement in 3 days and the vision recovered to 20/40 ([figure 4](#)).

A traumatic subperiosteal haematoma occurs more commonly in the younger age group.¹ It is almost

Figure 2 Contrast-enhanced CT sagittal scan revealing haematoma in the superior subperiosteal space.

always located in the superior orbit. A subperiosteal haematoma occurs due to the rupture of subperiosteal vessels or as an extension of subgaleal haematomas. Clinical features depend on the amount of blood collected and the location of the haematoma. Orbital subperiosteal haematoma involving the superior orbit typically presents with proptosis and hypoglobus. Vision is affected either due to optic nerve compression in the orbit or because of corneal involvement as a consequence of lagophthalmos and exposure keratopathy. At times, there can also be severe pain due to corneal nerve stimulation. The patient may also report diplopia due to extraocular muscle movement restriction.²

CECT scan of the head and orbit is the preferred initial investigation to determine the presence of any haematoma and its size. It also aids in picking up

Video 1 Ultrasonography B scan of the left eye orbit showing the collection of fluid in the subperiosteal space.

Figure 1 Clinical photograph of patient at presentation showing proptosis of the left eye, conjunctival chemosis and corneal exposure keratopathy.

Video 2 Surgical procedure of aspiration of haematoma.

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Figure 3 Clinical photograph of the patient immediately after aspiration of haematoma, showing a remarkable decrease in proptosis.

Figure 4 Clinical photograph of the patient 4 days after aspiration, showing healing keratopathy.

associated orbital wall fractures. Typical signs in a CT scan may include a well-defined, high-attenuation lesion with a broad base abutting the orbital roof, inferiorly displaced orbital content and a stretched optic nerve.³

As an adjunctive investigation, MRI can also be used. MRI in a typical case of subperiosteal will reveal a biconvex, sharply demarcated lesion of varied signal intensity. In the hyperacute stage, T1-weighted images may show a relatively low signal (fresh blood), whereas in the subacute stage, a high signal (3–7 days, before lysis of red blood cells). However, in T2-weighted images, a high signal will be seen in the hyperacute stage and a low signal in the subacute stage.⁴

Management options of post-traumatic subperiosteal haematoma include observation, needle aspiration and surgical evacuation. Gillum and Anderson first reported the reversal of complete vision loss, following orbital decompression in a case of

Patient's perspective

I thought my son is going to lose his vision after 4 days of the trauma as the situation was progressing very badly. Luckily, we reached All India Institute of Medical Sciences and the needle aspiration was performed.

Learning points

- Post-traumatic orbital subperiosteal haematoma can lead to permanent visual loss and requires immediate intervention.
- An immediate drainage of the haematoma can potentially nullify the risk of vision loss in this situation.

subperiosteal haematoma.⁵ A conservative approach with observation and intravenous pulse steroids is usually employed in cases without visual impairment at the time of presentation. Although needle aspiration is performed in all vision-threatening and early cases. Surgical exploration with drainage is to be performed, if it is vision threatening with a dry tap on needle aspiration.⁶

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