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TRAUMATIC OPTIC NEUROPATHY ASSOCIATED WITH FRACTURES OF THE INFERIO MEDIAL WALL OF ORBIT

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Abstract: Traumatic optic neuropathy is one of vision threatening lesion following injuries to orbit. A male patient fell from motor bike and sustained injuries. He reported to hospital for the gross reduction in vision following the accidental fall from motor bike. His vision improved dramatically following administration of intravenous methyl prednisolone. This case is being reported to highlight the importance of early administration of steroid in indirect optic nerve injury and rare association of optic nerve injury with fracture of inferomedial wall of orbit.

Keywords: Traumatic optic neuropathy, Orbital rim injury, Optic nerve injury, Intra venous methyl prednisolone.



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INTRODUCTION

A male patient aged 44 years accidentally fell from a running motor bike. He presented with a lacerated wound measuring 3 × 4 centimeters just below the left lower eye lid associated with bleeding. Patient was conscious, following injury and there was no bleeding from ear, nose, throat. His vision in left eye was 1/60 and in right eye was 6/6.



Fig.1 showing mild enophthalmos in the left orbit

Ocular movements were normal and mild enophthalmos was noted in left orbit. The diameter of the pupil was 4 millimeters and the direct light reflex was absent. Corneal sensations were normal. Fundus examination was within normal limits. There was anaesthesia in the left infra orbital region. Color vision was abnormal in left eye as per Ishihara color plates.



Fig.2 - Computed tomography (CT) scan showing fracture in the orbit involving left lamina papyracea of ethmoid bone with minimal herniation of orbital fat inferomedially into ethmoidal sinus.



Fig.3 – CT scan showing left ethmoid hem sinus and other paranasal sinuses were normal. There was no obvious fracture involving optic canal.

Lacerated wound was sutured 6-0 vicryl. Intra venous methyl prednisolone 1 gram was given in ringer lactate drip for three consecutive days. It was followed by oral prednisolone 1 mg/ kg body weight in the next ten days. Oral serratiopeptidase and non steroidal inflammatory drugs along with vitamin c and zinc were given. Vision improved dramatically on the 4th day to 6/9. The patient was followed for one month and the visual improvement was maintained to 6/9 level.

Traumatic optic nerve damage after craniofacial injury was first described by Hippocrates. Indirect injury to the intracanalicular part of the optic nerve following head trauma occurs as a result of transection of nerve fibers, interruption of blood supply or secondary hemorrhage and edema following shearing or avulsion of the nutrient vessels or by the pressure transmitted along the bone of the optic canal. In the literature it is reported indirect optic neuropathy is more common following injury to superior temporal orbital rim. Accidental fall in the road from two wheeler, the victim in reflex grips the handle more firmly resulting in unprotected head striking the road surface. The lateral aspect of the forehead over orbital rim is the most vulnerable point of such injury.

Our case had injury over the lateral aspect of eye brow in addition to posterior part of the medial wall of orbit. Similar findings were observed in the International optic nerve trauma study. It has been reported that posterior indirect traumatic optic neuropathy occurs predominantly in young males but can occur in both sexes and in all ages. Cases have been reported where the injury was so minor that there was no external evidence , but the visual loss was upto negative perception of light. Even though the relative risk of superior temporal orbital rim injury to posterior indirect optic neuropathy is more common, in our case visual deterioration has resulted from injury to posterior aspect of medial wall of orbit.

Any orbital rim injury or injury to any part of orbit carries a potential risk for development of indirect posterior traumatic optic neuropathy. Prompt treatment with intravenous methyl prednisolone followed by oral steroids along with anti inflammatory drugs can restore normal vision.

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