

Medial Rectus Entrapment in Medial Blowout Fracture and its Endoscopic Management: A Case Report

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ABSTRACT

A case of medial rectus entrapment in medial wall fracture is presented following a trivial blunt trauma. The patient presented with slight edema of lids, pain and diplopia in horizontal gaze. The medial orbital wall fracture and medial rectus entrapment was eventually diagnosed by forced duction test and confirmed on CT scan. The patient was managed endoscopically by removal of the fractured lamina bone chip impinging upon medial rectus. Extraocular movements improved postoperatively to normal. Thus, a high suspicion is needed to diagnose medial rectus entrapment following trauma, and such cases can be managed successfully by endoscopic surgery.

KEYWORDS: Medial Rectus entrapment, Medial blow out fracture, Endoscopic surgery

INTRODUCTION

We report an interesting case of isolated blow out fracture of the medial wall of orbit following a trivial blunt trauma in a young male patient, which was managed endoscopically. Only a few cases have been reported in literature till now. Isolated medial wall fractures are not frequent, concomitant medial wall and floor fractures are more frequent.¹

CASE REPORT

An 18 years male referred to us from ophthalmology department with complaints of inability to converge the left eye since 5 days. There was a history of minor trauma, slight pain and some edema in the left eye. There was history of diplopia on horizontal gaze. There was no history of epistaxis or loss of consciousness.

General and systemic examination was within normal limits.

Left eye, there was a limitation of adduction and minimal limitation of abduction. Diplopia was maximum on adduction movement in the horizontal plane [fig 1, 2].

The rest of anterior & posterior segment were normal.

Right Eye was within normal limits.

Forced duction test was negative following which we had a strong suspicion of medial rectus entrapment. We asked for axial & coronal CT scan of orbit for this patient. CT scan showed blowout fracture medial wall with entrapment of medial rectus and orbital fat in the ethmoid sinus [fig 3, 4].



Fig 1

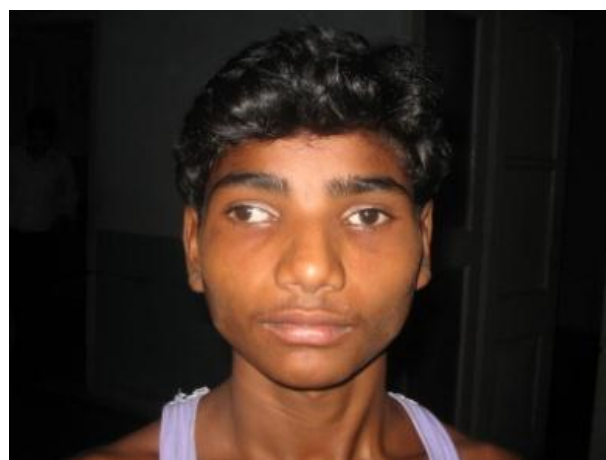


Fig 2

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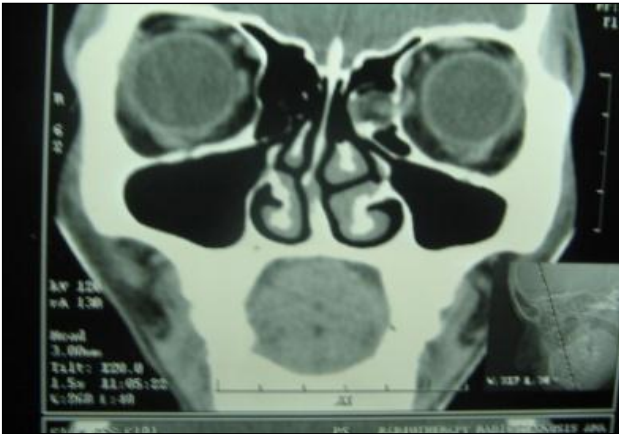


Fig 3



Fig 4



Fig 5

We planned for an endoscopic ethmoidectomy under General Anesthesia and removal of the fractured lamina papyracea bony chip entrapping the medial rectus muscle. We did uncinectomy, middle meatal antrostomy, anterior and posterior ethmoidectomy to completely delineate lamina papyracea. A defect in the lamina papyracea was identified. Part of lamina entrapping the Medial rectus and soft tissue entrapment was removed [fig 5].

Postoperatively patient was put on oral antibiotics and systemic steroids. There was immediate improvement in

the extra ocular movement postoperatively. The patient was orthophoric when reevaluated at the end of 1 week.

DISCUSSION

The isolated medial orbital blow-out fracture is quite rare.² A large study documented that medial wall is involved in 10 percent of facial fractures, and of these 10 percent are isolated medial wall fractures.³

The isolated medial blowout fracture refers to the fracture of lamina papyracea of ethmoids which forms the medial wall of the orbit. Mostly it occurs along with orbital floor fracture. Medial orbital wall is the thinnest orbital wall; paradoxically it is not the most frequent site of fracture. The explanation is that the medial orbital wall is strengthened by perpendicular septa that divide the different ethmoid cells.⁴ In literature, a few articles show the children more commonly than adults present with this injury.⁵ This may be due to more flexibility of bones in children than adults, which acts as trap door for soft tissues of orbit.¹

Medial wall fractures can occur either from direct injuries to the face or indirectly as the blowout fractures.⁶ The medial rectus muscle entrapment in children are mostly due to blunt trauma to orbit. Many patients can be asymptomatic so the diagnosis can be challenging. Patients present with the history of trivial trauma with mild edema and ecchymosis of the eye. Restriction of the medial rectus muscle and/or its surrounding connective tissue may present with horizontal diplopia, pain in adduction, restriction of abduction.¹ There could be a history of orbital emphysema, epistaxis, nausea, and vomiting.

Forced duction Test should be done in cases of suspicion to confirm the medial rectus entrapment in the limitation of passive abduction. A pseudo- Duane retraction syndrome or retraction of the globe and narrowing of palpebral fissure upon attempted abduction may occur with medial wall fractures associated with medial rectus entrapment, and it is pathognomonic of these complications.¹

Direct nasal endoscopy should be done if we are suspecting medial wall fracture. It might show edema and hemorrhage in lateral wall of the nose. The diagnosis of this fracture is best established by orbital CT scan.¹

The treatment is mainly surgical which includes traditional open frontoethmoid and medial canthal methods.⁷ Recently endoscopic endonasal approaches have gained popularity. The goal of surgery is to release the entrapped muscle and its soft tissue.⁸

CONCLUSION

Isolated medial orbital wall fractures with medial rectus muscle incarceration are rare.⁵ A Patient with medial rectus entrapment may present with "white eye".⁵ An extraocular movement disorder, diplopia, enophthalmos could be the only indication of the underlying fracture

and medial rectus muscle entrapment. Early diagnosis and surgical intervention is needed to prevent fibrosis of medial rectus muscle. Before surgical exploration, Forced duction test is recommended to confirm the diagnosis. Currently as more ENT surgeons are getting trained in endoscopic surgery, endoscopic endonasal approach has become the treatment of the choice.

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