



Traumatic Posterior Avulsion of Lateral Rectus with Regained Function

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Introduction

Total rupture of extraocular muscles is an infrequent clinical finding.¹ Isolated avulsion injuries of the orbital recti are rare and are at high risk of globe rupture and residual diplopia. Persistent motility defects can be noted even after surgical repair. The most common form of strabismus related to orbital injury results from orbital fractures.² Inadvertent injury to extraocular muscles can also occur secondary to procedures in proximity to the orbit, including otolaryngology surgeries.⁴

Due to the position of the lateral rectus in the orbit relative to common traumas and resulting injuries, total posterior isolated avulsion of the lateral rectus is rarely observed.

We describe a patient with delayed presentation of complete lateral rectus avulsion injury with intact insertion who regained muscle function after intraoperative repair and approximation.

Operative Repair

- Informed consent was obtained, and the patient was taken to the operating room for globe exploration and repair in addition to lateral rectus repair of right eye.
- The lateral rectus was identified, and its proximal tendinous attachment to sclera was confirmed to be intact at its normal insertion.
- The distal end of the avulsed muscle was then carefully identified posteriorly. Using a double armed 6-0 vicryl suture, partial thickness passes were made through the superior and inferior poles of the lacerated end of the distal portion of the avulsed lateral rectus to re-approximate the muscle.

Case Report

A 50-year-old male presented to the emergency department 28 hours after sustaining direct impact to the right orbit from a latched metal gate.

The patient noted tearing and eyelid swelling but denied significant eye pain, blurry vision, or diplopia. On examination, the patient had 20/20 vision with complete loss of abduction of the right eye. Slit lamp examination revealed striated muscle tissue exposed externally on the right lower eyelid. CT showed evidence of soft tissue swelling and emphysematous changes without evidence of globe rupture.

Figure 1. Right Eye Motility Demonstrating Loss of Abduction



Figure 1a. Lateral gaze



Figure 1b. Primary gaze



Figure 1c. Medial gaze

3 Important Steps of Intraoperative Repair¹

1. Identification of the muscle's posterior border
2. Exposure of the muscle fibers
3. Suture of the posterior border to the anterior border of the muscle.

Post-Operative Outcome

- At postoperative week one, the patient noted single vision on primary gaze and regained the ability to abduct the right eye. The patient had a minimal residual motility deficit on abduction and diplopia on extreme right gaze.

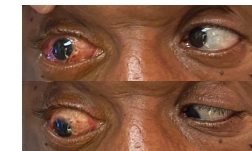


Figure 2. Right eye abduction post-operatively

Discussion

When the presence of an extraocular muscle rupture is suspected, surgical exploration should be considered immediately in order to avoid persistent strabismus and diplopia.² Metal hooks are a frequent etiology of muscle avulsion injuries. The medial and inferior rectus are commonly involved.¹ Trauma is usually located near the insertion site of the tendon.

Many repairs are performed using end-to-end muscle anastomosis with 3-5mm of muscle resection. In most patients the posterior border of the ruptured muscle can be identified, and early surgery can restore function. Partial tendon transposition can be performed when the posterior border of the injured muscle cannot be identified.

Key Points

- Intraoperative globe exploration must be performed to rule out globe injury in cases of avulsion.
- Patients with delayed presentation after rectus avulsion injuries can demonstrate good residual muscle function after intraoperative repair and re-approximation.

References

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