



Isolated Inferior Rectus Muscle Rupture and Surgical Repair: A Case Report

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Abstract

We describe the case of a 37-year-old male who experienced an isolated rupture of the inferior rectus muscle in the right eye following a facial impact from a wire. Upon examination, a minor restriction in downward gaze was observed. An orbital computed tomography scan confirmed the integrity of the globe and the absence of an orbital fracture—subsequent surgical exploration involved identifying and suturing together the distal and proximal ends of the affected muscle. Postoperatively, normal eye movements were restored.

Keywords: Inferior rectus, ocular trauma, rupture.

Introduction

The traumatic rupture of the rectus muscle is a common injury and is usually associated with extensive orbital and ocular damage (1,2). Isolated rupture of the inferior rectus (IR) muscle is extremely rare. Our case presents the rupture and repair of the IR without any ocular damage following trauma.

Case Report

A 37-year-old male sought immediate medical attention in the emergency department after sustaining facial trauma from contact with a wire. He was referred to our institution for an ocular examination. During the examination, the right eye demonstrated a visual acuity of 20/20, and the intraocular pressure measured 17 mmHg. While there was a restriction in downward gaze in the right eye, all other movements were normal. Patients complained of diplopia in the primary posi-

tion and downgaze. A biomicroscopic assessment of the right eye disclosed a transparent and unremarkable cornea and lens, coupled with subconjunctival hemorrhage evident in the inferior and nasal conjunctiva. Notably, a substantial subconjunctival laceration associated with hemorrhage was discerned in the inferior conjunctiva. This laceration projected a structure akin to Tenon's capsule and the rectus muscle through the conjunctival disruption (Fig. 1). A dilated fundus examination revealed normalcy in the macula, vasculature, and periphery. The examination of the left eye revealed no pathological findings. Computed tomography affirmed the structural integrity of the ocular globe and the absence of orbital fractures.

Operative exploration elucidated a complete transection of the IR muscle (Fig. 2). The proximal segment of the IR muscle was identified in situ just beneath 6.5 mm from the lower limbus, whereas the distal portion remained elusive initially due to its retraction into the orbit (Fig. 3). Thorough

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Figure 1. Tenon and inferior rectus muscle protruding from the conjunctiva.

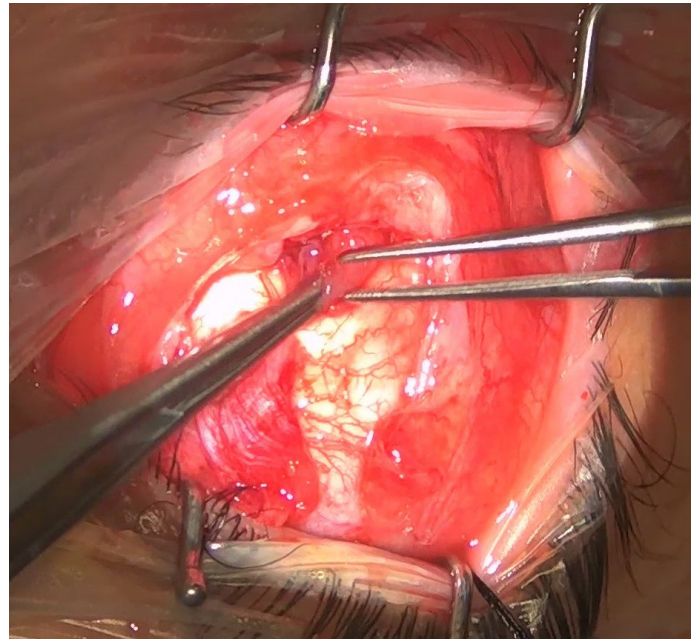


Figure 3. Distal end of the inferior rectus muscle.

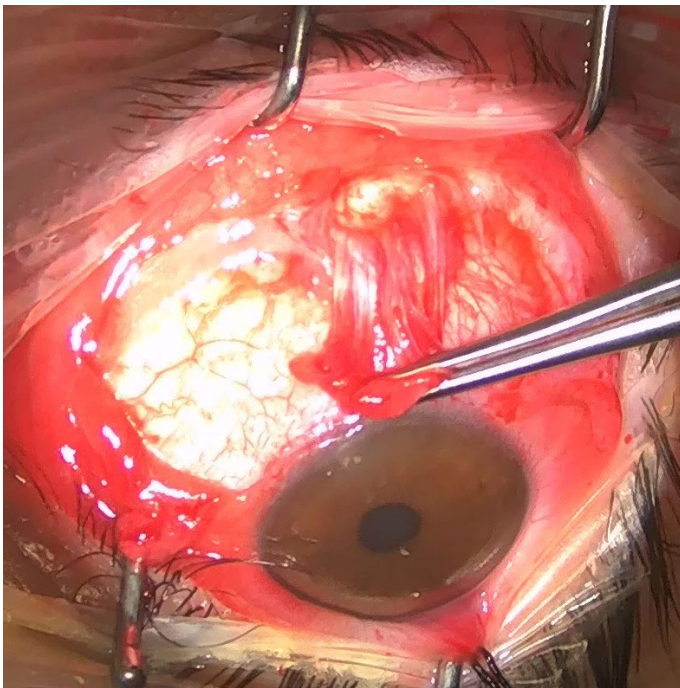


Figure 2. The inferior rectus muscle was completely cut.

surgical scrutiny of the lower quadrants did not reveal any indications of posterior globe trauma or open ocular injury. Inferior oblique and ligament connections were very helpful in finding the IR. The distal portion of the IR muscle was identified with the aid of forceps at the posterior aspect of the globe, and its position was corroborated through the elicitation of the oculocardiac reflex. Suturing of the proximal and distal ends of the IR muscle was executed using 6.0 vicryl (Fig. 4). The conjunctiva was closed, and subconjuncti-

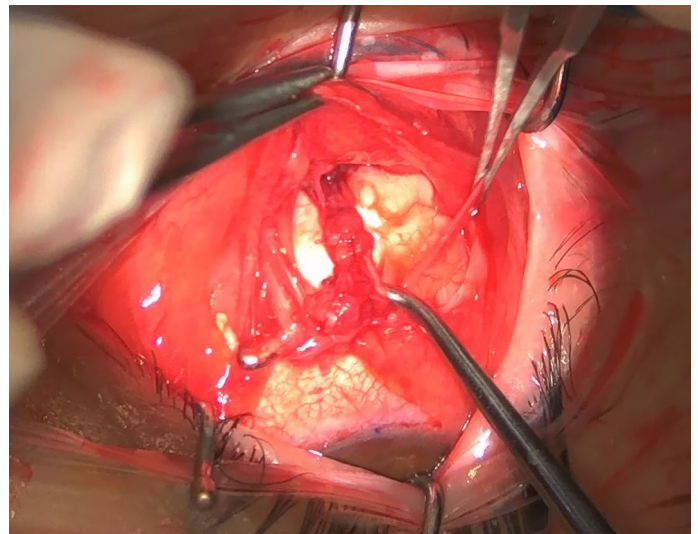


Figure 4. Suturing of the proximal and distal ends of the inferior rectus muscle.

val injections of gentamicin and dexamethasone were administered. After the postoperative period, the patient exhibited unrestricted and physiologically normal ocular movements in all directions during follow-up examinations. Patients had no postoperative diplopia.

Discussion

Damage to extraocular muscles is rarely encountered without accompanying ocular injuries (3). Typically, injuries to extraocular muscles are accompanied by orbital fractures (3,4). Among the extraocular muscles, the most commonly affected muscles are the medial and IR muscles because they

are the closest muscles to the corneoscleral limbus. In addition, the protective upward and outward movement of the eye, known as the Bell phenomenon, increases the exposure of these two muscles (5,6).

For cases of complete IR transection resulting from blunt trauma, the primary surgical approach described in the literature has been the suturing of the distal and proximal ends to each other (6).

In cases of extraocular muscle rupture not involving the eye, the sole means of fully regaining muscle function is through surgical repair. The surgical repair of such injuries is challenging as the posterior orbital muscle belly retracts immediately into the orbit, making the localization of the muscle difficult. Reviewing case reports in the literature, a case presented by Amer et al. involved a 74-year-old patient with a ruptured IR muscle who underwent strabismus surgery for diplopia post-repair (7). Another case reported by Batra et al. described a 42-year-old patient with a traumatic rupture of the IR muscle where the proximal muscle could not be located, and the remaining stump was found to be necrotic (8). In our case, isolated IR rupture was repaired in a single session, achieving both anatomical and functional success.

Conclusion

We have described an unusual and rare case of isolated IR muscle rupture following blunt orbital trauma. It is noteworthy that muscle rupture can occur without concurrent orbital injuries or bone fractures post-trauma, emphasizing the importance of careful examination of patients in such scenarios.

Disclosures

Informed consent: Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

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