CASE REPORT

Successful Repair of a Traumatic Medial Rectus Laceration with the Aid of Computed Tomography

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ABSTRACT

A 79-year-old woman suffered ocular trauma from an umbrella. Exotropia of the left eye was observed, and the left eye could not adduct to the midline. Both edges of the lacerated medial rectus were sutured together with the aid of preoperative computed tomography (CT), which showed posterior muscle belly widening due to posterior slippage toward the equator. The alignment and ocular movement were improved postoperatively. Repairing a lacerated medial rectus is difficult because its edge slips into the muscle cone posteriorly. Preoperative CT was useful in identifying the posterior portion of the lacerated muscle, enabling successful repair.

Keywords: Computed tomography, extraocular muscle, strabismus, strabismus surgery, trauma

CASE REPORT

A 79-year-old woman suffered left ocular trauma from an umbrella. Her visual acuity was 30/20 and the intraocular pressure was 11 mmHg in the left eye. The bulbar conjunctiva of the left eye was lacerated, and the anterior portion of the lacerated left medial rectus muscle was exposed. There were no pathological findings in the right eye. The patient had remarkable left exotropia, and her left eye could not adduct to the midline. An orbital computed tomography (CT) was performed to locate the extraocular muscle. The orbital CT showed widening of the posterior muscle belly, which suggested that the medial rectus was recessed and that the posterior portion of the medial rectus had slipped posteriorly toward the equator. The CT did not show a blowout fracture or any type of metal in the orbit (Figure 1a). On the same day, the lacerated medial rectus was surgically repaired. We searched for the posterior portion of medial rectus muscle, in keeping with the location of the posterior lacerated portion on preoperative CT. The posterior portion of the medial

rectus muscle was successfully located, and both edges of the lacerated medial rectus were sutured together. Postoperatively, the patient's ocular alignment was improved and her left eye was able to adduct beyond the midline. Although slight exotropia remained, she had no diplopia with her face turned to the right. Three months postoperatively, CT showed that the muscle belly of the medial rectus had normalized in width (Figure 1b). Six months after the surgery, the alignment was maintained and the left eye continued to be able to adduct beyond the midline.

DISCUSSION

We have described a successful surgical repair of a traumatic medial rectus laceration with aid of CT. Traumatic medial rectus muscle lacerations are clinically rare. It is difficult to locate a lacerated medial rectus muscle because the medial rectus does not share the common fascia connected with the oblique muscles and because the posterior portion of the

FIGURE 1 Preoperative and postoperative orbital CT. (a) Preoperative: although the left eye was abducted, the posterior muscle belly was widened, suggesting slippage of the posterior portion of the lacerated left medial rectus muscle. The arrow shows the end of the posterior portion of the medial rectus muscle. (b) Postoperative: normal muscle belly width.

medial rectus tends to slip into the muscle cone when torn.¹ Therefore, it is important to preoperatively localize the posterior portion of the lacerated muscle using imaging. In previous reports, both CT and magnetic resonance imaging (MRI) have been useful for preoperatively evaluating lacerated muscles.^{2–7} In the current case, we were able to find the posterior portion of the lacerated medial rectus muscle with the aid of preoperative CT and repair it. MRI may be more useful for characterizing the shape of a muscle than CT. However, we recommend CT as the first-choice modality for assessing traumatic medial rectus lacerations for the following reasons. First, CT can be performed even when metal of various types is present, whereas MRI cannot be performed on these patients. Because of the bleeding in our case of umbrella-induced trauma, we could not determine whether metal was present in the orbit. Second, CT

can be performed more quickly than MRI because patients must maintain a certain head position during MRI, which may not be initially possible in some patients because of the pain; CT may be more useful than MRI for these patients. Finally, CT may be sufficient for ascertaining the shape of the muscle in many cases of traumatic rectus laceration. Kim *et al.* reported that CT was able to show the longitudinal flap tear of an extraocular muscle that occurred after orbital trauma; these authors recommended that this modality be the first choice for evaluating traumatic medial rectus lacerations.⁶ In conclusion, preoperative CT findings help surgeons to locate the posterior portion of a lacerated medial rectus muscle intraoperatively, enabling successful surgical repair.

Declaration of interest. The authors report no conflicts of interest. The authors alone are responsible for the writing and content of the paper.

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