

A patient with levator dysfunction resulting from slight blunt trauma

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Abstract

In clinical practice of plastic surgery, patients with palpebral/orbital swelling/hematoma due to facial bruise/fracture who can not open their eyelids are often encountered. However, most patients can open their eyelids after a few days with improvement in swelling/hematoma, and few develop blepharoptosis as a sequela. We reported a very rare patient with

blepharoptosis due to slight blunt trauma without an open wound of the eyelid who did not show recovery in levator function. In this patient, paralytic blepharoptosis due to oculomotor injury caused by blunt trauma in a very localized area was considered.

Key words : traumatic blepharoptosis, oculomotor nerve, levator function

Introduction

Traumatic blepharoptosis often results from injury to the levator or levator aponeurosis due to palpebral laceration or orbital fracture.^{1,2} We report a rare patient with levator dysfunction resulting from slight blunt trauma without an open wound of the eyelid.

Case report

The patient was a 79-year-old female with a history of hypertension but no family history of note. On January 27, 2007, she fell, sustained a bruise to the left side of her face, and was transported to a local hospital by an ambulance. She was conscious and had a stable general condition without nausea or vomiting. There were no generalized injuries. Locally, eyelid opening dysfunction associated with swelling of the left upper eyelid was observed. CT showed no abnormal findings in the brain or facial fracture. Since left eyelid opening dysfunction persisted even about 1 month after injury, she visited our department on March 16, 2007 (Figure 1a). The initial examination showed the absence of left

levator function. Eyelid opening was impossible even though eyebrow raising by frontal muscle contraction was attempted. Visual acuity was 0.4 in the left eye and 0.2 in the right, and the visual field was normal. There were no limitations in ocular movements or diplopia. The course was observed on an outpatient basis for about 5 month, but no improvement was observed in left eyelid opening dysfunction. Therefore, on July 31, 2007, an operation was performed under local anesthesia. A skin incision was made 6 mm cranial to the gray line, and a skin portion (width, 5 mm) was resected. When the orbital fat was cranially moved, the levator and levator aponeurosis were observed, but no injury was present. After partial resection of the orbital fat, she was instructed to open the eyelids in the supine position. Levator contraction and gliding of the levator aponeurosis were completely absent. For confirmation, the levator aponeurosis was fixed at the tarsal plate with nylon, and eyelid opening was attempted. However, it was impossible. Therefore, sling operation by fascia lata grafting was performed. A skin incision (about 1 cm) was made in the middle of the upper end of the eyebrow, and the muscular

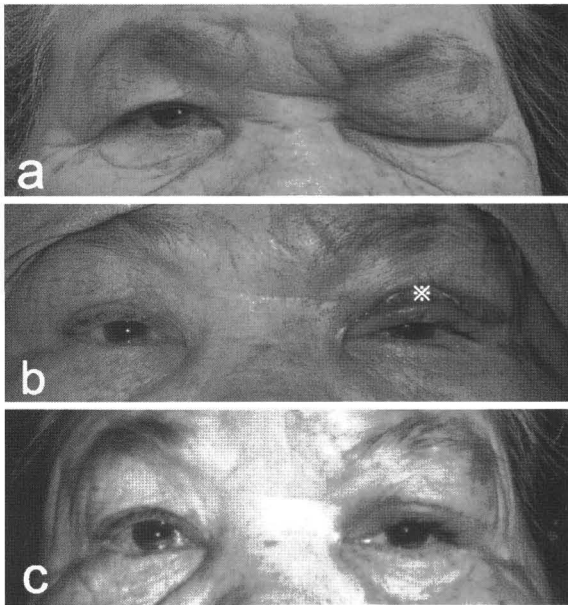


Fig. 1 a The initial examination. Eyelid opening was impossible.
 b Operative findings. Sling operation by fascia lata grafting(*).
 c 6 months after the operation. Eyelid opening was possible.

tunics was reached, where a tunnel beneath the orbicularis muscle was constructed and extended to the tarsal plate. The collected fascia lata graft was passed from the tarsal plate to the upper end of the eyebrow. The fascia lata graft was sutured with nylon to 3 sites of the upper end of the tarsal plate and 2 sites of the frontal fascia at the upper end of the eyebrow. Finally, eyelid opening by frontal muscle contraction was confirmed, and the operation was concluded (Figure 1b). At present, 6 months after the operation, the patient is satisfied with the results (Figure 1c).

Discussion

In clinical practice of plastic surgery, patients with palpebral/orbital swelling/hematoma due to facial bruise/fracture who can not open their eyelids are often encountered. However, most patients can open their eyelids after a few days with improvement in swelling/hematoma, and few develop blepharoptosis as a sequela. Berke³ et al. reported that trauma was the cause in only 11 (1.6%) of 672 blepharoptosis patients.

Traumatic blepharoptosis is classified into 3 types: (1) paralytic blepharoptosis, (2) mechanical blepharoptosis, and (3) blepharoptosis due to direct injury to the levator or its aponeurosis.^{4,5,6}

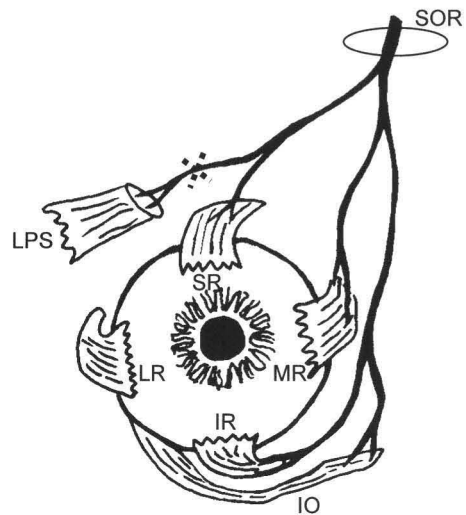


Fig. 2 Arrangement of the oculomotor nerve.
 The oculomotor nerve enters the orbit via the superior orbital fissure and bifurcates into the superior and inferior branches. The superior branch reaches the superior rectus muscle and the levator. X: Area where injury was expected. SOF: Superior Orbital Fissure, LPS: Levator palpebrae superioris, SR: Superior Rectus, IR: Inferior Rectus, MR: Medial Rectus, LR: Lateral Rectus, IO: Inferior Oblique

Paralytic blepharoptosis results from blunt trauma such as on sustaining bruises, and is often associated with oculomotor nerve injury. In general, this type tends to induce oculomotor impairment, particularly elevation impairment. In mechanical blepharoptosis, the levator itself is normal, and eyelid elevation is poor due to marked swelling caused by bleeding/inflammation as a result of trauma or a palpebral subcutaneous scar. This type mostly heals spontaneously after observation of the course for a few months. In this patient, since neither external ophthalmoplegia nor light reflex abnormality was observed, paralytic blepharoptosis was unlikely. In addition, since eyelid levator function did not improve even after observation for 6 months, mechanical blepharoptosis was also unlikely. Therefore, blepharoptosis due to rupture of the levator or levator aponeurosis was expected, and surgery was performed.

Unexpectedly, no injury in the eyelid levator or levator aponeurosis was observed. During the operation, though the patient was instructed to open her eyelids, neither levator contraction nor gliding of the levator aponeurosis was observed. Therefore, the area of injury was evaluated. In this patient, injury was expected to be present in a very localized area between the branching site

of the superior branch of the oculomotor nerve to the superior rectus muscle and its passage to the levator (Figure 2). McCulley⁷ et al. reported a patient with transient blepharoptosis developing after strong anterior pulling of the eyelid, and speculated that dehiscence at the junction of the oculomotor nerve and levator was the cause of the disease. In this patient, paralytic blepharoptosis due to oculomotor injury caused by blunt trauma in a very localized area was considered.

We reported a very rare patient with blepharoptosis due to slight blunt trauma without an open wound of the eyelid who did not show recovery in levator function.

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