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A case of surgically treated traumatic ptosis caused by scratching by human hand

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Abstract:

The patient was a 49-year-old woman. She had worked at a child welfare facility where she sustained a wound to the left side of her upper eyelid after it was scratched by a child facility resident's finger. One month had passed since the injury when she visited our hospital. The initial treatment was not appropriate, and her left eyelid could not be lifted at all. A secondary surgery was performed 2 months after the injury when the scar contracture was most strong. Such corrective surgery for posttraumatic eyelid is typically scheduled after at least 6 months when the scar tissue softens from the viewpoint of wound healing. However, this case indicated the importance of determining the appropriate timing of surgery in consideration of the patient's background and the scientific basis. Reports of sharp traumatic ptosis are rare, and this is the first reported case of traumatic ptosis resulting from a scratch caused by human hand.

Keywords:

Blepharoptosis, trauma, wound healing

Introduction

The outcomes of traumatic ptosis often range from injury to levator dysfunction due to palpebral laceration or orbital fracture caused by traffic accident, falling, and so on.^[1,2] Blunt injuries are most common, whereas sharp injuries are rare.^[1-4] In cases where >3 weeks have passed since the onset of the sharp injury of the skin or subcutaneous tissue, in terms of wound healing, the timing of the operation is usually secondary and performed after around 6 months.^[5] We report a rare case of levator aponeurotic defects resulting from a scratch caused by human hand that was treated with secondary surgery 2 months after the onset of injury, which is considered an inappropriate time.

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Case Report

The patient was a 49-year-old woman with no family history of note. She had worked at a child welfare facility where she sustained a wound to the left side of her upper eyelid after it was scratched by a child facility resident's finger. She was conscious and had a stable general condition without nausea or vomiting when she was transported to a local hospital by an ambulance. Immediately on arrival, only the skin tissue was sutured by a general surgeon.

Five weeks after the injury, she showed upper eyelid drooping and complete left-sided ptosis, so she was referred to our department. Locally, left-side eye-opening dysfunction associated with the fissure and swelling of the left upper eyelid was observed [Figure 1]. Nine weeks after the injury, surgery was performed to restore the eye-opening function.

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The surgical procedure was performed under local anesthesia, and the left side of the upper eyelid area was infiltrated with 0.5% lidocaine with 1:100,000 epinephrine. After the removal of the scar on the inner side of the eyelid, which was the previous sutured part, it was peeled off to expose the front surface of the aponeurotic and levator muscles [Figure 2a]. As the medial canthal band was torn, scar tissue was removed as much as possible [Figure 2b]. Subsequently, the band was sutured with periosteum inside the orbit and 5-0 nylon to return to the original position. Attempts were made to separate the conjunctiva from the Muller muscle, but the scar contracture was so severe that the levator and Muller muscles could not be identified. These two muscles were combined into a lump, with the tissue in front of the levator muscle fixed firmly at approximately half the height of the tarsus with a single 6-0 nylon horizontal mattress suture [Figure 2c]. Fixation for a double fold was made, and the skin was closed with 6-0 nylon interrupted sutures. Six months after the operation, the upper eyelids showed symmetrically appropriate heights. The patient did not demonstrate exposure keratitis, wound infection, lagophthalmos, eye movement disorders, or ptosis in the 6 months following the operation [Figure 3].

Discussion

This case indicated the importance of determining the appropriate timing of surgery in consideration of the patient's background and the scientific basis. Ptosis due to scarring after trauma with lacerations is best managed with levator aponeurotic repair at the time of primary repair of the eyelid injury. Performing an



Figure 1: Five weeks after the injury. There was complete blepharoptosis and swelling in the left eye

immediate repair of the aponeurotic or levator defect of the eyelid is desirable for severe cases. However, if the initial treatment is handled by a nonspecialist physician, only skin suturing is performed, and then the patient is most likely referred to a plastic surgery after a few weeks. Thus, the primary treatment of the injury is highly important [Figure 4].

Wound healing is a complex process in which the skin and the tissues under it repair themselves after an injury. In an undamaged eyelid, the skin, orbicular muscle, and orbital fat form an eyeball-protective barrier against the external environment. When the barrier is broken by a sharp injury, a regulated sequence of biochemical events is activated to repair the damage. This process is divided into predictable phases of blood clotting (hemostasis), inflammation, tissue growth (proliferation), and tissue remodeling (maturation).^[5,6] The maturation phase takes several months to occur. Revision surgery for posttraumatic eyelid is typically performed after at least 6 months to 1 year when the scar tissue softens from the viewpoint of wound healing.^[5] After this period, a levator resection or sling procedure can be performed, depending on the severity of the ptosis and the degree of levator function recovery.^[7]

Surgery was performed 2 months after the injury when the scar contracture was most strong. The surgery took >1 h. Considering the need to relieve the patient of the mental distress caused by the undesirable appearance of her face and to improve her activities of daily living (ADLs), performing the operation as soon as possible was preferable. As a result, the patient's ADL improved, and she could return to work early.

The incidence rates of postoperative lagophthalmos and dry eyes have been reported to increase in patients with severe contractures and limited eyelid movements.^[8] In the present case, to avoid these complications, the intraoperative margin reflex distance 1 mm was adjusted to 3 mm to avoid overcorrection, and the possibility of reoperation was fully explained to the patient. For similar cases in future, whether equivalent functional and cosmetic improvements can be obtained must be



Figure 2: Nine weeks after the injury, surgery was performed. (a) We approached the scar on the inner side of the eyelid, which was the previous sutured part, (b) The scar tissues were peeled off so as to expose the front surface of the aponeurotic and levator muscle. (c) The band was sutured with the periosteum inside the orbit, and the levator resection was performed

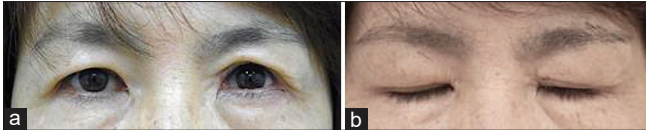


Figure 3: Six months after the operation. (a) Eyelid opening was possible, (b) eyelid closing was possible

examined in comparison with those in patients who underwent surgery after waiting at least 6 months after the onset of the injury.

Acquired ptosis can have a myogenic, neurogenic (peripheral or central lesion of the sympathetic or oculomotor nerve), aponeurotic, mechanical, or traumatic cause.^[1-4,8,9] Reports of sharp traumatic ptosis are rare,^[1,2] and this is the first reported case of traumatic ptosis resulting from a scratch caused by human hand.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the forms, the patient gave her consent for the publication of her images and other clinical information in the journal. The patient understands that her name and initials will not be published and that due efforts will be made to conceal her identity, although anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

The authors declare that there are no conflicts of interests of this paper.

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Figure 4: Immediately after the injury. The initial treatment was only skin suturing

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