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Case Report Open Access

How to Repair the Lower Eyelid Retraction, Resulting from the Primary Surgery for Epiblepharon?

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Abstract

A 23 year-old-woman underwent the primary surgery of the bilateral epiblepharon at 5 years of age. She noticed excessive whiteness in the right sclera at 17 years of age. Five years later, she finally decided to go through the corrective surgery as a young mature lady. In the primary position of the gaze, measurement of the distance from the lower limbus of the right cornea was approximately 2 mm. We experienced a corrective procedure of the right lower eyelid retraction after the primary surgery for epiblepharon. The incision in the lower eyelid was made along the scar of the previous surgery. Subsequently connection between the tarsus and the lower eyelid retractors were set free. The harvested auricular cartilage was placed between the lower edge of the tarsus and the lower eyelid retractors. The cartilage was fixed to edge of the tarsus and the posterior layer of the lower eyelid retractors with nylon sutures, respectively. One year after the repair, there was no gross difference of the distance between the lower margin of the cornea limbus and eyelid in the either side. She appeared to extremely happy with the result. In our surgical technique, the lengthening the posterior layer of the lower eyelidretractors with the small amount of auricular cartilage was accomplished functionally and cosmetically nice outcomes.

Keywords: Epiblepharon; Lower eyelid retraction; The posterior layer of the lower eyelid retractors; Auricular cartilage

Introduction

The treatment of eyelid retraction is one of the most challenging fields for the purpose of restoring the eyelid position and cosmetic appearance. Particularly, the lower eyelid retraction can be results iatrogenically from a number of previous surgeries [1].

When the surgical strategy of the reparative surgery for epiblepharon is planned, it is obvious to consider both the functional and cosmetic sequelae. There are numerous reports which introduced the new reparative surgery and their recurrence [2-5], however, none of them described the mechanism about how the surgical technique resulted in the lower eyelid retraction or detailed explanation how to repair this complication.

We experienced a successful corrective procedure of the lower eyelid retraction in the last 2 decades after the primary surgery for epiblepharon.

Case Report

A 23 year-old-woman, she underwent the primary reparative surgery of the bilateral epiblepharon at 5 years of age. Postoperatively there was no serious complication in one year. She noticed excessive whiteness in the right sclera at 17 years of age. Five years later, she finally decided to go through the corrective surgery as a young mature lady (Figure 1A).

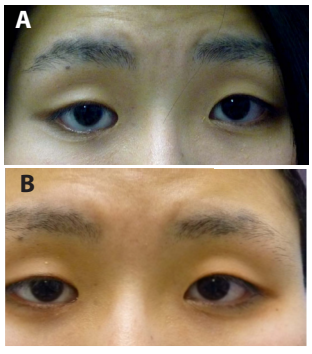

Figure 1: (A) Preoperative view. In the primary position of the gaze, measurement of the distance from the lower limbus of the right cornea was approximately 2 mm. (B) Postoperative view. Sufficient elevation of the lower eyelid is shown.

The initial physical examination affirmed a young healthy woman other than the eye cosmetic problem. In the primary position of the gaze, measurement of the distance from the lower limbus of the right cornea was approximately 2 mm, however, it was almost proximate to the upper margin of the left lower eyelid.

For a retracted right lower eyelid, first, local anaesthesia was performed with 2 ml of 2% lidocaine and epinephrine (1:100,000 dilution). The incision in the lower eyelid was made along the scar of the previous surgery (Figure 2A). Even though it was technically difficult to separate the lower eyelid retractors from the palpebral conjunctiva, the separation of the anterior and posterior lower eyelid retractors was successfully achieved. During this process, a certain amount of the scar tissue was also removed. Subsequently the connection between the tarsus and the posterior lower eyelid retractors were set free.

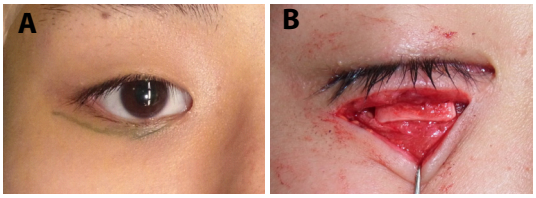

Figure 2. Operative findings. (A) The incision in the lower eyelid was made along the scar of the previous surgery. (B) The harvested auricular cartilage was placed between the lower edge of the tarsus and the posterior layer of the lower eyelid retractors.

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Through the incision made on the backside of the external ear, concha auricular was harvested. The harvested auricular cartilage was placed between the lower edge of the tarsus and the posterior layer of the lower eyelid retractors (Figure 2B). The cartilage was fixed to edge of the tarsus and the posterior layer of the lower eyelid retractors with 6-0 nylon sutures, respectively. The length of the horizontal implanted auricular cartilage was approximately 11 mm, and vertical, 3 mm, respectively. The anterior layer of the lower eyelid retractors was left alone. At the end of the procedure, the pretarsal orbicularis oculi muscle and the lower edge of the tarsus were secured, which were permanently enclosed so that they did not touch the cilia on the ocular surface. The skin was sutured with interrupted 6–0 nylon sutures.

She did not demonstrate exposure keratitis or wound infection throughout the postoperative periods. One year after the repair, there was no gross difference of the distance between the lower margin of the cornea limbus and eyelid in the either side (Figure 1B). The corrective right lower eyelid moves down sufficiently during a downward gaze (Figure 3). She appeared to extremely happy with the result.

Discussion

If the lower eyelid retractor resulted, following primary surgery for epiblepharon, it is the most important purpose some tissues should be filled in the defect between the tarsus and edge of the posterior layer of the lower eyelid retractors. In this case, the lengthening the posterior layer of the lower eyelid retractors with the small amount of auricular cartilage was accomplished functionally and cosmetically nice outcomes.

The lower eyelid retraction is excessive whiteness in the sclera between the lower corneal limbus and lower eyelid. In general, the common causative conditions are thyroid associated orbitopathy and complication after the reparative surgery for strabismus [1,6,7]. These basic mechanisms is definitely shortening of the posterior lamella of the lower eyelid due to the contraction of the scar formation following the previous surgery, theoretically the posterior lamella should be lengthened.

The transconjunctival approach has been a main stem of the corrective procedure, which was simply lengthening of the posterior lamella, using mucosa for the spacer [8,9]. The hard palate mucosa and nasal turbinate mucosa are often used as autologous spacers, since they have a mucosal surface of appropriate rigidity [10-12]. Although keratinization can occur, it only irritates the ocular surface [9,12,13]. As an alternative material, auricular cartilage is sometimes used via a transconjunctival approach, and some of this cartilage remains exposed and requires removal [9,14,15]. In many cases, the transconjunctival approach for lengthening of the posterior lamella, is not suitable for maintaining.

Figure 3. Postoperative view. The corrective right lower eyelid moves down sufficiently during a downward gaze.

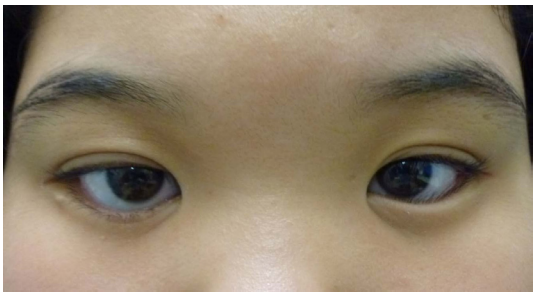

Figure 4: A 9 year-old-woman, she came into the clinic for a reparative treatment of the left epiblepahron and received the primary surgery of the right epiblepahron at 4 years of age. Interestingly, either she or her parents did not noticed the right lower eyelid retraction.

On the other hand, the transcutaneous approach replaced entire length of the lower eyelid with auricular cartilage [16,17]. Even though the lifting up power of the eyelid was very strong, it was very common to observe immobility of the lower eyelid during a down gaze [17,18]. Cosmetically after the cartilage insertion, the lower eyelid appeared to be slightly thicker, compared with the other normal side [17,18]. Since rather large amount of the tissue is harvested from the external ear, it is inevitable to look cosmetically disfigured. We suspected that the cause of this case could be due to excessive surgical manipulation of the posterior lamella, mainly the lower eyelid retractors, which resulted in severe scar formation, subsequently the cicatrical contraction of the lower eyelid retractors were shortened, therefore, the lower eyelid was retracted down.

The lower eyelid retractor was thought to be composed of single layer [19]. Lately it became apparent that they are rather composed of a definite double layer, consisting of anterior and posterior layers [20]. The posterior layer, which is comprised of dense fibers of the capsulopalpebral fascia with scattered smooth muscle fibers and attached to the tarsus, is the main pulling structure of the lower eyelid retractors. We utilised the surgical concept of cleft of the lower eyelid retractors, in which scar rigidity or fibrous contracture are the main causes of retractions [21,22].

In this surgery, as much as possible scar contracture was removed, and then the lower eyelid retractors were visually identified. As the removal of the scar tissue in the posterior lamella is accomplished, inevitably the connection between the tarsus and lower eyelid retractors is broken down. In the defect between the tarsus and the posterior layer of lower eyelid retractors, the harvested auricular cartilage was used to fill it as the spacer. The amount of the cartilage for spacer should be enough to connect between these structures. We think that it is not necessary to fill the defect completely with the harvested cartilage. Cosmetically the incision should be made behind the external ear in order to minimize the visual exposure of the incision. The amount of the cartilage harvested was so small that the deformity of the ear was hardly visual. In order to restore the normal position of the lower eyelid, its upper margin was about 2 mm above the lower corneal limbus in upright position and also important to consider gravity and edema during the surgery.

As for majority of epiblepharons, the primary surgeries were done in childhood, while the facial bone structure has not reached its maturation. However, the postoperative follow-up is usually only a few years after the reparative surgery [2-5]. Quite frequently most of the patients consult a specialist, if they are dissatisfied with the result of the primary surgery particularly when they reach puberty. We suspect that

there must be more potential patient population with unsatisfied result of the primary surgery (Figure 4).

To define eyelid retraction, through knowledge of the normal position the eyelid and the level of the palpebral fissure is required. Age, direction of gaze, and proptosis also affects the eyelid position. Most often the primary surgery is performed, even if the surgery was perfect at the time, however, all of us must realize that the patients is younger and grow older, the anatomic structure can be totally different from the condition at the time of the primary surgery. Therefore, the long term follow-up is definitely necessary to determine the result of the surgery.

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