Graded Full Thickness Anterior Blepharotomy for Correction of Upper Eyelid Retraction: Case Report

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ABSTRACT Upper eyelid retraction is a common sign of Graves’ ophthalmopathy and less frequently congenital or caused by overcorrected ptosis, trauma, burn injury or weakness of the orbicularis oculi muscle from facial nerve paralysis. Upper eyelid retraction may cause photophobia, foreign body sensation, superficial punctate keratopathy, corneal ulceration and cosmetic deformity. Conservative treatment options for management of upper eyelid retraction are topical administration of artificial tears, eyelid taping, and downward massage of the upper eyelid in mild cases. Surgical treatment procedures are usually reserved for moderate and severe cases. Various surgical treatment modalities have been described for the treatment of upper eyelid retraction such as weakening of the Muller’s muscle/levator complex, placement of autologous or synthetic spacer grafts between the tarsal plate and Muller’s muscle/levator complex and upper eyelid loading with various materials. We present two cases that underwent graded full-thickness anterior blepharotomy surgeries for upper eyelid retraction. The first case was a 46 year old man who had had a ptosis surgery two months ago and complained of overcorrection. The second case was a 48 year old woman who had a left upper eyelid retraction due to Graves’ ophthalmopathy. Successful results were obtained in both cases after graded full-thickness anterior blepharotomy for correction of upper eyelid retraction was performed.

Key Words: Graves ophthalmopathy; eyelids


Anahtar Kelimeler: Graves oftalmoparisi; göz kapakları

Upper eyelid retraction is mostly associated with Graves’ eye disease (GED) and it may be congenital or caused by overcorrected ptosis, trauma, burn injury, or weakness of the orbicularis oculi muscle from facial nerve paralysis.1 Upper eyelid retraction may result in ocular symptoms including photophobia, foreign body sensation, superficial punctate keratopathy, corneal ulceration and cosmetic deformity.2 Several treatment modalities have previously been described for the management of upper eyelid retraction, such as conservative treatment with artificial tears, eyelid taping, and downward massage of the upper eyelid in mild cases.2-5 Surgical interventions are usually needed to avoid complications and obtain cosmetic rehabilitation. Various surgical methods have already been described, including Muller’s muscle and levator palpebrae superioris muscle recession or excision via anterior or posterior approach, marginal myotomy, and placement of autologous or synthetic spacer grafts between the tarsal plate and Muller’s muscle and the levator palpebrae superioris muscle, and upper eyelid loading with various materials.3-7 In recent years, most oculoplastic surgeons have preferred the full-thickness blepharotomy procedure for upper eyelid retraction due to its easy implementation and satisfying and predictable results.5-7

In this study, we present two cases who underwent graded full-thickness anterior blepharotomy surgery for the correction of upper eyelid retraction. Written informed consent forms were obtained from both patients.

CASE REPORTS

CASE 1
A 46 year old man with aponeurotic ptosis who had undergone ptosis correction surgery in our clinic (Figure 1A) developed right upper eyelid retraction due to overcorrection of the ptosis (Figure 1B). At the first weekly visit, vertically interpalpebral distance was 10 mm in the right eye and 7 mm in the left eye. Artificial tears, eyelid taping, and downward massage of the upper eyelid were recommended. When there was no improvement at the second month, surgical intervention was planned.

Graded full thickness anterior blepharotomy was performed as previously described by Elner et al.8 After marking the upper eyelid crease, anesthesia was accomplished by means of local infiltration with 0.5% bupivacaine mixed in equal parts with 1% lidocaine, with epinephrine supplementation. The incision was initiated at the junction of the lateral and central thirds of the upper eyelid. Then all layers were incised including skin, orbicular muscle, levator aponeurosis, muller muscle and conjunctiva respectively at the superior border of the tarsal plate creating a full thickness blepharotomy. After performing approximately a 1 cm length incision, the patient was seated during the surgery in order to check whether the eyelid had reached the targeted level or not in the primary position of gaze (Figure 1C). If it did not reach a symmetrical level, the incision was extended symmetrically nasally and temporally in a full thickness fashion. When the desired upper eyelid symmetry and contour were obtained, the surgery was finalized with only the suturing of the skin with 6-0 polyglactin suture. In the follow-up visits, it was observed that the upper eyelid retraction had regressed and the surgical result was ‘perfect’ according to the classification system of Mourits et al.9 The upper 1.5 mm of the cornea in the 12 o’clock position was covered by the eyelid, the difference in the lid aperture between the left and right side was less than 1 mm, and the patient was completely satisfied and requested no further surgery (Figure 1D).

CASE 2
A 48 year old woman who had a left upper eyelid retraction because of GED was admitted to our clinic (Figure 2A). A complete ophthalmic examination was done, and best visual acuity was 1.0 according to the Snellen chart in both eyes, corneal epitheliopathy was detected at the down side of the cornea in slit lamp examination in the left eye and dilated fundus examination was unremarkable bilaterally. Vertically interpalpebral distance was 8 mm in the right eye and 11 mm in the left eye. No exophthalmos was detected with a Hertel exophthalmometer. The patient was consulted to the endocrinology department, upon which it was reported that she was euthyroid and there was no
active disease, with all signs and symptoms being stable for the past year. Graded full-thickness anterior blepharotomy was performed as previously described by Elner et al. and above.\(^8\) During the first month of follow-up, upper eyelid retraction was regressed and the surgical result was ‘acceptable’ according to the classification system of Mourits et al (Figure 2B).\(^9\) The upper eyelid margin was within 0.5 mm of the limbus, the difference in the lid aperture between the left and the right sides was less than 2 mm, and the patient was satisfied and requested no further surgery.

**DISCUSSION**

The purpose of correcting upper eyelid retraction is to improve the ocular exposure symptoms such as photophobia, foreign body sensation, superficial punctuate keratopathy and corneal ulceration as well as restoring cosmetic deformity.\(^2,6\) Various surgical methods have been described to correct upper eyelid retraction including partial thickness...
eyelid dissection, full thickness blepharotomy, muscle debilitation with or without spacers, and loading weight on the upper eyelid. Anterior or posterior approaches for Müller’s muscle and levator palpebrae superioris excision or recessions have been described. Elner et al. described the surgical procedure in detail and reported that more than 90% of patients’ preoperative symptoms resolved or improved after graded full thickness blepharotomy, with a very low complication rate. Hintschich et al. obtained ‘perfect’ or ‘acceptable’ results at a rate of 95% of the patients according to the classification system described by Mouritis et al. Demirci et al. applied this procedure to patients with various conditions including overcorrected ptosis, paralytic and cicatricial groups. Although four out of six patients failed in the cicatricial group, they reported successful results in all of the patients in the overcorrected and paralytic groups. In addition, they reported no surgical or postoperative complications.

Autogenous, cadaveric, or synthetic spacer materials inserted between the tarsal plate and upper eyelid retractor muscles were used to correct upper eyelid retraction. Various materials such as deep temporal fascia, fascia lata, auricular cartilage, nasal cartilage, opposite lid tarsus, conjunctiva and mucoperiosteal hard palatal grafts, and Mersilene Vicryl mesh have been used for this procedure. Extrusion, contraction, increased eyelid bulk, displacement of the graft, donor site morbidity and unpredictable long term results were the main disadvantages of these spacer materials.

Upper eyelid loading is an alternative method for lowering the eyelid, especially in facial nerve palsy. Acting as an upper eyelid load, hyaluronic acid filler is injected to the upper eyelid and it has been shown that it physically stents and inhibits the levator muscle. Mancini et al. reported immediate results with minimal transient complications in a pilot study that involved 8 patients. In the previously published literature, retinal artery occlusions, brain infarctions and phthisis bulbi were reported after autologous fat and hyaluronic acid fillers were injected into the facial region of the patients. Ozturk et al. reviewed 41 articles representing 61 patients who were identified with severe complications and they determined that blindness due to embolization of the filler into ophthalmic artery was the most often complication associated with injections in the glabella.

Gold and platinum metals are the most commonly preferred materials for loading upper eyelid. Previously, varying complication rates have been reported with these techniques. Egemen et al. recommended covering the gold weight to avoid common short or long-term complications such as ulceration of the skin, and extrusion and visibility of the implant. Disadvantages of this technique are the high complication rates and the high cost of these metals.

Our cases demonstrate that graded full thickness blepharotomy is a safe, cheap and effective technique with satisfying results. It does not require any additional surgery to harvest a graft nor does it require a synthetic material to implant. Despite these advantages, when we searched Turkish ophthalmology literature, we determined that published articles about graded full thickness blepharotomy for correction of upper eyelid retraction are limited. We tried to draw attention to this technique with this case presentation.

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REFERENCES


