

Three-wall Orbital Decompression in Thyroid Ophthalmopathy: Is it the Ideal Chioce?

Tiroid Oftalmopatide Üç Duvar Orbital Dekompresyonu: İdeal Bir Seçim mi?

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Abstract

Thyroid Ophthalmopathy is an autoimmune endocrine pathology characterized with retraction of the eyelids, diffuse infiltration of the extra-ocular muscles, restriction of eye motility and exophthalmos. Orbital decompression surgery can be recommended when there is progressive proptosis, severe keratopathy, persistent retro-orbital pain, optic neuropathy, compression of the optic nerve and/or serious disturbance in facial appearance. In this short correspondence we are reporting our experience of eight patients on whom we operated with the three-wall orbital decompression technique. All of the patients presented with severe eyelid retraction, proptosis, extra-ocular muscle involvement, keratopathy and cosmetic deformity. At post-operative six-month control of the patients, proptosis was calculated to improve by a mean of 6.2mm. Although no major complications were encountered in the early postoperative period, 6 to 12 months after the procedure, six of the patients had to be re-operated by the ophthalmologist due to their persistent diplopia and unfavorable eyelid problems.

Three-wall orbital decompression surgery is very effective particularly in advanced cases of thyroid ophthalmopathy, however potential adverse ocular effects still present a problem. *Turk Jem 2007; 11: 129-31*

Key words: Thyroid opthalmopathy, orbital decompression surgery, exophthalmos

Özet

Graves Oftalmopati, göz kapaklarında retraksiyon, ekstra-oküler kaslarda(EOK) infiltrasyon, göz hareketlerinde kısıtlılık ve ekzoftalmi ile karakterize otoimmun endokrin bir patolojidir. İlerleyici proptozis, açık-kalma keratopatisi, dirençli retrorbital ağrı, optik nöropati, optik sinir kompresyonu veya ciddi kozmetik deformite durumlarında orbital dekompresyon cerrahisi önerilmektedir Graves oftalmopatide uygulanan koronal yaklaşım ile üç duvar orbita dekompresyonu(ÜDOD) ile plastik cerrahinin bu alandaki rolünü hatırlatmanın yanısıra, bu yöntemle opere ettiğimiz hastalarda alınan sonuçlar üzerinden işlemi değerlendirmeyi ve başarısını tartışmayı amaçladığımız bu çalışmada, tiroid oftalmopati tanılı hastalarımızdan koronal yaklaşım ile ÜDOD uyguladığımız sekiz adet olguyu inceledik. Olguların tümünde preoperatif dönemde ileri derece göz kapağı retraksiyonu, proptozis, EOK tutulumu, keratopati ve kozmetik deformite vardı. Olgularda postop 6. ayda, ortalama 6.2mm proptozis gerilemesi gözlemlendi. Erken dönemde hiçbir major komplikasyon ile karşılaşılma, 6 olgu diplopi ve göz kapağı sorunları nedeni ile göz hastalıkları kliniği tarafından yeniden opere edildi. ÜDOD, tiroid oftalmopatide ortaya çıkan görüntüyü düzeltmede ve oküler problemleri azaltmada oldukça etkili bir yöntemdir. İşlemin fizyolojik olmaması nedeniyle gelişen diplopi önemli sorun oluşturmaya devam etmektedir. *Turk Jem 2007; 11: 129-31*

Anahtar kelimeler: Tiroid oftalmopatisi, orbita dekompresyon cerrahisi, ekzoftalmi

Sir,

Thyroid Ophthalmopathy is an autoimmune endocrine pathology characterized with retraction of the eyelids, diffuse infiltration of the extra ocular muscles, restriction of eye motility and exophthalmos. Among those findings, particularly progressive exophthalmos may lead to severe psychosocial problems, especially in middle-aged

women due to its disturbing changes in periorbital area. Therapy is mainly medical in form of artificial tears and topical and systemic steroids (1). However, the endocrinologist and ophthalmologist can recommend orbital decompression surgery when there is progressive proptosis, severe keratopathy, persistent retro-orbital pain, optic neuropathy, compression of the optic nerve and/or serious

disturbance in facial appearance(1). With this procedure, the medial, lateral, and/or the inferior walls of the orbit are either fractured outwards or removed, in order to enlarge the orbital capacity (2). As one of the earlier well-described techniques, three-wall orbital decompression via coronal approach yields safe and effective results in advanced cases of proptosis (3,4).

Here in this brief correspondence, we report our outcomes in 8 advanced cases of thyroid ophthalmopathy surgically treated with three-wall orbital decompression. Patients age ranged between 42 and 72 years (mean 48 yrs) and among them were seven female and one male. All of the patients were referred with severe clinical findings of eyelid retraction, proptosis, extra ocular muscle involvement, keratopathy and cosmetic deformity. Three of the patients had diplopia and restricted ocular motility whereas two cases had partial visual loss. Hexel Ophthalmometer measurement showed a mean proptosis figure of 26.7mm changing from 24 to 30mm. Fourteen three-wall orbital decompression via coronal approach were undertaken in two unilaterally and six bilaterally involved patients. Multidisciplinary follow-up of the patients ranged between 12 months and 8 years (mean 4 yrs). At post-operative six-month control of the patients, proptosis was calculated to improve by a mean of 6.2mm, which changed from 5mm to 7mm. While two patients recovered from their initial partial visual losses, patients with diplopia failed to show improvement. On the other hand, three of the patients (37.5%) presented with new-onset diplopia (Figure1a&b). Six of the patients stated that they were satisfied with the end result (2a&b). No major complication was encountered in the early postoperative period. Of note, six of

the patients (75%) had to be re-operated 6 to12 months after the three-wall orbital decompression procedure by the ophthalmologist due to their persistent diplopia and unfavorable eyelid problems (Figure 3a, b&c). Additionally, one of the patients developed a frontal branch facial paralysis recovered in 3 weeks and two other cases had persistent minor asymmetry.

In the comprehensive management of Thyroid Ophthalmopathy three-wall orbital decompression is an effective method not only to improve the cosmetic appearance of the patients but also to lessen the ocular problems. In our opinion, although more sophisticated and less morbid, balanced surgical techniques continue to be described, the surgical decompression is still not a physiological intervention and the resulting new-onset diplopia and periocular problems always present a challenge. In various reports, postoperative diplopia rate has changed from 0% to 64% with different surgical techniques (5-7). In those studies, a variety of causes have been proposed as a possible mechanism which is out of scope of this brief communication (1,2,5-7).

In our series new-onset diplopia rate is seemingly higher than other large series, which we think is a result of severe proptosis and diffuse extraocular muscle involvement in our patients. In other way, our rate reflects the figures in advanced cases. In such cases, intra-orbital fat removal and balanced two-wall decompression might be an alternative solution to reduce relatively high diplopia rates (5).

In summary, choosing the suitable surgical method for thyroid ophthalmopathy should depend not only on the degree of the disease, but also on the level of experience, knowledge, and ability of



Figure 1. a- 46 years old female patient, exophthalmos caused by bilateral thyroid ophthalmopathy, pre-operative appearance **b-** Late post-operative appearance, diplopia is present with up-wards gaze



Figure 2. **a-** 58 years old female patient, bilateral exophthalmos and diplopia are present, pre-operative appearance **b-** Late post-operative appearance, diplopia showed no improvement.

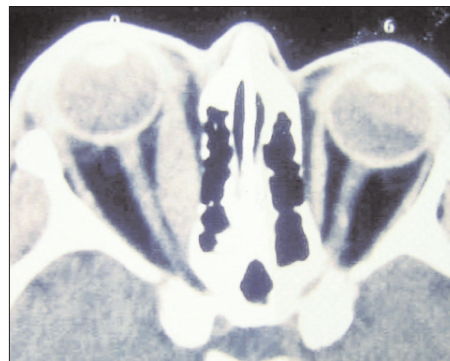


Figure 3. **a-** 60 years old female patient, unilateral thyroid ophthalmopathy, diplopia is present, pre-operative appearance. **b-** Orbital CT Scan; diffuse infiltration of the medial rectus muscle of the involved side. **c-** Late post-operative appearance, diplopia and hypoglobus persists.

the surgical team, and also on the possibility of performing additional surgery and of providing necessary medical treatment. Although three-wall orbital decompression has been one of the most successful procedures for diminishing severe proptosis, in our hands, it caused extraocular motility problems. In our belief, ideal way should be to perform the surgical procedure, which through comprehensive prospective studies was found to be the most successful method of decompression, simultaneously combined with the required ocular surgery and the medical treatment. Thus, reexamination of the patients 6-8 months post-operatively is of paramount importance in order to identify residual diplopia and eyelid problems as noted before (6,7). Patients should be fully assessed preoperatively together with an experienced eye surgeon and endocrinologist at a multidisciplinary meeting and surgical planning should be made in collaboration.

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