

Long-term effect of Botulinum Toxin on Thyroid-Related Upper Eyelid Retraction

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Purpose: To evaluate the long-term effectiveness of botulinum toxin injection for upper eyelid retraction in patients with thyroid orbitopathy.

Methods: We retrospectively reviewed all patients who underwent injection of botulinum toxin for thyroid related upper eyelid retraction. Ten units/0.1mL of botulinum toxin was administered transconjunctivally, just above the superior tarsal border (3 units at medial and 7 units at temporal part). Main outcome measures included margin reflex distance (MRD1), 12 oblique midpupil lid distances (MPLDs) on every 15° across the temporal and nasal sectors of the upper eyelid, and complications including ptosis or diplopia.

Results: Forty-nine eyelids of 45 patients were identified. Mean age of patients was 36.9 ± 9.3 years old and follow up periods ranged 6 months to 6.5 years. The average decrease of MRD1 was 1.4 ± 1.2 mm at the first month. Mean reduction was 1.3mm at 6months and 1.5mm at the last follow up time. The mean difference of MPLDs was -1.3mm at nasal sectors and -1.7mm at temporal sectors. Complications were ptosis in 12 eyelids (24.5%) and diplopia in 5 patients (10.2%) temporarily. There was statistical significance in the excellent result with higher pre-injection MRD1 ($p < 0.001$).

Conclusions: Botulinum toxin injection is an effective and simple procedure for the treatment of thyroid-related upper eyelid retraction. Our study shows that it is variable but effective to decrease eyelid height and improve eyelid contour in the long term paradoxically, despite of transient effect of botulinum toxin. Botulinum toxin could be considered as an alternative treatment for the patients waiting for surgery or denying invasive surgery.