

Resolution of Pseudoptosis after Anti-inflammatory Treatment of the Contralateral Eye in Thyroid-associated Ophthalmopathy

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Thyroid-associated ophthalmopathy (TAO) is an autoimmune inflammatory disease. Pseudoptosis (or ptosis), which involves a reduction in the opening of the upper eyelid with a normal levator muscle, is rarely reported in TAO patients.^[1-3] In this article, we reported three cases of unilateral pseudoptosis due to inflammation of the levator in the contralateral eye. The effect of the unilateral use of triamcinolone acetonide (TA) on contralateral lid position and contour was also investigated.

A 42-year-old female complained of narrowing of the right eye for 6 months and had been diagnosed with hyperthyroidism 18 months before visiting our clinic [Figure 1]. She was using thiamazole tablets and her current thyroid function was normal. Proptosis of her right and left eyes were 12 mm and 11 mm, respectively. Visual acuity for both eyes was 1.0 (20/20), and her levator muscle strength was 12 mm for both eyes. The upper margin reflex distance-1 (MRD-1) of the right eye was 0.5 mm while that of the left eye was 3.5 mm. Her anterior segment and fundus were normal. Forced fixation of the right eye led to the elevation of the right eyelid (MRD-1 2 mm) and retraction of the left upper eyelid (MRD-1 5 mm) [Figure 1]. There were no significant findings in her anterior segment or fundus examination. Magnetic resonance imaging (MRI) showed enlargement and an enhanced signal of the left levator muscle. She was diagnosed with TAO, inflammation of the left levator palpebrae superioris muscle, and pseudoptosis of the right eye. A volume of 0.5 ml of 40 mg/ml TA (Kunming Jida Pharmaceutical Co., Ltd.) was injected into the subconjunctival area at 3 mm above the upper edge of the everted tarsus. She was given left monthly repeated

subconjunctival injections of TA for 5 consecutive months. Complete recovery was achieved without any recurrences after 14 months.

A 24-year-old girl suffered from drooping of the left upper eyelid for 2 months. She had been diagnosed with hyperthyroidism and was now under treatment. MRD-1 of her right eye was 3 mm while that of the left eye was 1 mm. The left eyelid was able to elevate to a normal position (MRD-1 was 3 mm), with widening and covering of the right eye. There were no significant findings in her intraocular pressure, anterior segment, or fundus examination. Her levator muscle strength was 11 mm for both eyes. MRI showed thickening and enhancement of the right levator. She was given monthly subconjunctival injections into the right eye with TA for 4 months. The two eyes became symmetrical gradually. There are no recurrences after 21 months.

A 61-year-old female complained of narrowing left eye for several months. The upper MRD-1 of the right eye was 3 mm while that of the left eye was 0.5 mm. She also suffered from lamellar macular holes in both eyes. Her thyroid function was normal. MRI showed enlargement and an

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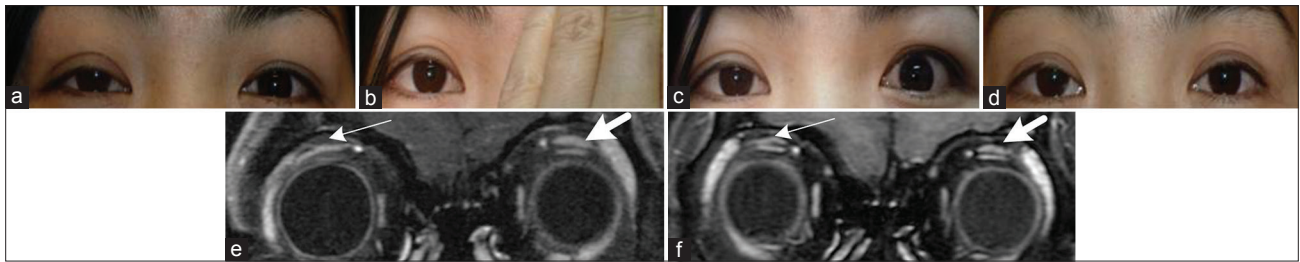


Figure 1: Photos and coronal MRI scanning before and after treatment. (a) Ordinary appearance. (b) Forced fixation of the right eye led to eyelid elevation. (c) When the cover was removed and the right eye remained fixated, the left eyelid retracted. (d) Last follow-up. (e) Contrast-enhanced coronal MRI scanning before treatment. (f) Coronal MRI scanning after treatment. The white thick arrows point to the thickening and contrast-enhanced levator superioris of the left eye, which alleviated after treatment. The white thin arrows point to the normal right levator. MRI: Magnetic resonance imaging.

enhanced signal of the right levator. She was given right monthly repeated subconjunctival injections of TA for 6 consecutive months. The eyelid of the ptosis eye gradually elevated. The patient was followed for 5 years, and her eyes remained symmetrical.

In this article, we described three cases of pseudoptosis due to TAO. There are some diagnostic clues that differentiate pseudoptosis from true ptosis in TAO: (1) with pseudoptosis, the eyelid can elevate to a normal position if the contralateral eye is covered and retracted, while true ptosis of the eye does not show this sign; (2) muscle strength of the levator is not attenuated in pseudoptosis, whereas it is weakened in true ptosis; and (3) MRI can indicate thickening and an enhanced signal of the levator in the contralateral eye in patients with pseudoptosis. However, this phenomenon does not occur with true ptosis.

There have been limited reports about unilateral ptosis resulting from TAO in the literature.^[2-4] Grove^[1] previously reported on fatty infiltration between the levator muscle and Müller's muscle, connective tissue proliferation forming adhesions to the levator muscle, and degenerative changes within the levator muscle. He suggested that inflammatory changes with resultant enlargement and fibrosis of the levator muscle might cause the retraction. It was unique for our patients that their inflamed eyes appeared normal without retraction. Instead, contralateral eye ptosis was shown and we could explain it with Hering's law of equal innervation. That is, the elevators act as yoke muscles, with equal innervation received by each muscle. In our patients, the inflammation of the levator did not lead to retraction of the eye, and it required less neural innervation to maintain its contour or position of the inflamed eyelid. The resultant reduced innervation might cause a ptosis on the opposite side.

TA is a synthetic glucocorticoid.^[5] With the use of TA subconjunctivally, the eyelid with pseudoptosis elevates gradually until the pseudoptosis disappears. Therefore, we came up with three hypotheses regarding this process: (1) the

anti-inflammatory effect of TA cured the inflamed levator gradually; (2) the neural innervation of the eyelid became normal bit by bit; and (3) the eyelid with pseudoptosis then elevated gradually. MRI results after the treatment also supported our hypothesis. The levator of the inflamed eye became thinner, and the signal strength became normal after repeated subconjunctival TA injections.

Unilateral pseudoptosis is a rare presentation of TAO. Misdiagnosis can impose adverse outcomes including unnecessary diagnostic and therapeutic measures, which are both costly and time-consuming. Furthermore, delayed diagnosis can affect the prognosis of improvement in such patients.^[5] Our cases point toward the importance of testing for underlying causes of unilateral ptosis in patients with TAO. MRI can be used to evaluate the diagnosis and activity of the disease. With treatment for the inflammation of one eye, the pseudoptosis of the other eye can improve. Recognition of this relationship has made it possible to offer a good treatment modality.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Grove AS Jr. Upper eyelid retraction and Graves' disease. *Ophthalmology* 1981;88:499-506.
- Uldry PA, Regli F, Scazziga BR, Naegeli C. Palpebral asymmetry and hyperthyroidism. Two cases in connection with Graves' disease. *J Neurol* 1986;233:126-7.
- Naseem M, Donker DL, Paridaens D. Blepharoptosis as a sign of severe Graves' orbitopathy. *Eye (Lond)* 2009;23:1743-4. doi: 10.1038/eye.2008.333.
- Lohman L, Burns JA, Penland WR, Cahill KV. Unilateral eyelid retraction secondary to contralateral ptosis in dysthyroid ophthalmopathy. *J Clin Neuroophthalmol* 1984;4:163-6.
- Xu DD, Liu YH, Xu HY, Li H. Repeated triamcinolone acetonide injection in the treatment of upper-lid retraction in patients with thyroid-associated ophthalmopathy. *Can J Ophthalmol* 2012;47:34-41. doi: 10.1016/j.jcjo.2011.12.005.