Correspondence: Dr Ament, Department of Ophthalmology, Massachusetts Eye and Ear Infirmary, Harvard Medical School, 243 Charles St, Boston, MA 02114-4724 (jaredament@post.harvard.edu).

Author Contributions: Drs Ament and Pineda had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

Financial Disclosure: The authors do not have any commercial or proprietary interest in the Boston KPro, nor do they have any financial interest or receive payment as a consultant, reviewer, or evaluator. Dr Ament is a clinical research fellow under Claes Dohlman, MD, PhD, creator of the Boston KPro. Dr Dohlman has no financial interest in the Boston KPro. He makes no profit from its sales. All proceeds support continuing research and medical missions to Africa and other nonindustrialized nations.

Role of the Sponsor: Dr Dohlman was not involved in the design and conduct of the study; the collection, management, analysis, and interpretation of the data; or the preparation, review, or approval of the manuscript.

Additional Contributions: Through a research and development fund, Dr Dohlman donated the KPro devices and provided support for the medical trips. Khalil Lakho, MD, an administrator in Sudan, provided logistical support, clinic time, operating room time, and coordination of efforts with ophthalmology staff and residents. Tania Marie Ament, BS, modified and conducted activities of daily living, instrumental activities of daily living, and quality-of-life surveys.


Proprioceptive Transient Elevation of Ptotic Eyelid and Lacrimation in Congenital Third Nerve Palsy: The Monosynaptic Stretch or Hoffmann Reflex Gone Awry?

Although proprioceptive structures seen in antigravity muscles like jaw-closing muscles are lacking in levator palpebrae superioris muscle (LPSM), another antigravity muscle, Müller muscle (MM), may act like one for LPSM.1 We report stretch-induced ephemeral eyelid elevation of the completely ptotic eyelid followed by copious lacrimation in a girl with congenital third nerve palsy, speculate about the neuronal pathways, and educe its diagnostic and therapeutic implications.

Report of a Case. A 10-year-old girl had complete drooping of the left eyelid with the globe fixed in abduction (Figure 1). Her birth and family history were unremarkable. Aided visual acuity was 20/20 OD and 20/60 OS. An isolated left complete pupillary-involving third nerve palsy with no signs of aberrant regeneration was noted (Figure 2). On pulling the left upper eyelid margin down with her finger, her ptotic eyelid reflexively elevated by 6 to 8 mm, drifting back in 30 to 50 seconds. Profuse lacrimation followed (Figure 3 and video, http://www.archophthalmol.com). The pupil, other muscles supplied by the third nerve, and the contralateral eyelid were unaffected. The phenomenon could be repeated immediately thereafter and was not abolished by local anesthesia. There was no jaw wink or associated salivation. Results from the rest of the examination and magnetic resonance imaging of the brain and orbits were unremarkable.

Comment. Proprioceptive structures, muscle spindles, and palisade endings exist in the global but not orbital layer of human extraocular muscles. Distal myotendinous junctions, the areas traumatized in most strabismus procedures, are most richly endowed. The information they relay, however, remains controversial.2 Levator

(Reprinted) Arch Ophthalmol/Vol. 128 (No. 6), June 2010 www.archophthalmol.com 797

©2010 American Medical Association. All rights reserved.

Downloaded From: by a Non-Human Traffic (NHT) User on 11/10/2018
The superior oblique muscle (SOM) is the deepest and most posterior of the extraocular muscles. It originates on the front of the orbital side of the optic nerve sheath and inserts into the inferior rectus muscle. The somatic fibers of the trigeminal nerve (V) innervate the SOM, and the somatosensory fibers of the ophthalmic nerve (V1) also innervate the extraocular muscles, including the SOM. The trigeminal nerve (V) also innervates the lacrimal gland, which is located in the eyelid and produces tears. The lacrimal gland is innervated by the sympathetic and parasympathetic nervous systems. The lacrimal gland is important for the production of tears, which help to maintain the health of the cornea and conjunctiva.

The lacrimal gland is located in the lacrimal fossa of the maxillary bone and is connected to the nasolacrimal duct, which exits the eye through the lacrimal caruncle. The lacrimal gland is supplied by the lacrimal artery, which arises from the ophthalmic artery, and by the lacrimal nerve, which is a branch of the ophthalmic nerve (V1). The lacrimal gland is innervated by the sympathetic and parasympathetic nervous systems. The lacrimal gland is important for the production of tears, which help to maintain the health of the cornea and conjunctiva.

The lacrimal gland is located in the lacrimal fossa of the maxillary bone and is connected to the nasolacrimal duct, which exits the eye through the lacrimal caruncle. The lacrimal gland is supplied by the lacrimal artery, which arises from the ophthalmic artery, and by the lacrimal nerve, which is a branch of the ophthalmic nerve (V1). The lacrimal gland is innervated by the sympathetic and parasympathetic nervous systems. The lacrimal gland is important for the production of tears, which help to maintain the health of the cornea and conjunctiva.

The lacrimal gland is located in the lacrimal fossa of the maxillary bone and is connected to the nasolacrimal duct, which exits the eye through the lacrimal caruncle. The lacrimal gland is supplied by the lacrimal artery, which arises from the ophthalmic artery, and by the lacrimal nerve, which is a branch of the ophthalmic nerve (V1). The lacrimal gland is innervated by the sympathetic and parasympathetic nervous systems. The lacrimal gland is important for the production of tears, which help to maintain the health of the cornea and conjunctiva.