

# Oculomotor Palsy Treated with Electroacupuncture: A Case Report

**Yong-Suk Kim\*** KMD, PhD

Associate Professor, Department of Acupuncture and Moxibustion, Kyung Hee University, Seoul, Republic of Korea

## ABSTRACT

Oculomotor palsy is a mononeuropathy, which causes sudden unilateral ptosis and double vision. It often affects older people who have concurrent diabetes and/or hypertension. Oculomotor palsy generally resolves over three to four months as regeneration of affected nerve fibres. There is no effective biomedical treatment. In this report, I present a 76-year-old man who experienced left-sided oculomotor-nerve palsy. Biomedical intervention had been unsuccessful and electroacupuncture led to complete symptom relief after four weeks of treatment.

**KEYWORDS** electroacupuncture, oculomotor-nerve palsy, case report.

## Introduction

Oculomotor palsy, called 'dropping upper eyelid' in Chinese medicine, presents itself with sudden-onset unilateral ptosis and inability to turn the eye upward, downward or inward, causing visual disturbances<sup>1-3</sup> such as diplopia or blurred vision for near objects. It is common in people older than 60 years of age and in those with prominent or long-standing atherosclerotic risk factors, such as diabetes or hypertension.<sup>1,4</sup> In adults, the palsy is usually the result of vascular or compressive lesions.<sup>1</sup> In juveniles it is most commonly due to head trauma, tumours, migraine, vasculopathies and demyelinating diseases.<sup>5</sup> In children, oculomotor palsy is usually congenital.<sup>6</sup>

Biomedical treatment for acquired oculomotor palsy is targeted at removing the cause of the palsy. In cases where the cause is unknown, the treatment is mostly supportive and cannot alter the course of the disease. Patients experience tremendous suffering and distress. Isolated third-nerve palsy due to ischaemic vasculopathy often spontaneously resolves and recovers over a period of three to six months.<sup>1-3</sup>

I describe in this case report an elderly patient's acquired unilateral oculomotor palsy that improved during electroacupuncture after conventional medicine treatments were unsuccessful.

## Case history

A 76-year-old man came to the Department of Acupuncture and Moxibustion complaining of an inability to open his left eye for one month; if the eyelid was manually elevated, he experienced diplopia.

Upon the onset of the problem, the patient went to Yongdong Severance Hospital in Seoul, Korea. Brain and orbital MRI, haematology, urinalysis, clinical chemistry tests, and cerebrospinal fluid (CSF) analysis showed normal results. Brain MR angiography showed atherosclerotic change involving the middle cerebral artery (MCA), posterior cerebral artery (PCA) and vertebral artery, and a mild degree of atherosclerotic change of the left proximal internal carotid artery (ICA). The findings

\* E-mail: ackys@hanmail.net

of an abdominal ultrasound scan included the presence of mild fatty liver, simple hepatic cyst and bilateral renal cysts. The patient was diagnosed with oculomotor palsy with an unclear aetiology. Biomedical supportive treatment (Cozaar 50 mg, Adalat Oris 30 mg, Rhonal-baby 50 mg, YuYu Clid 250 mg and Mylanta-A 1T) commenced. His symptoms did not improve after one month of treatment.

On examination, he had a pale facial complexion and cold extremities. His appetite and digestion were good. He did not complain of any other problems such as stool, urine or sleep disturbances. The pulse was weak and the tongue was normal.

Complete left-sided ptosis was observed with an inability to turn the eye upward, downward or inward. The eye was in a 'down-and-out' position and the pupil was sluggishly responsive to light. No extremity weakness was noted, and other cranial nerve functions, as well as the rest of the neurological examination, such as mental state, language, dysphasia, reflexes, muscle power, cerebellar function and sensation, did not reveal any signs of additional pathology.

The patient had a history of a mild cerebrovascular accident (cerebral haemorrhage) 30 years ago, with no residual neurological deficit. He had also been diagnosed with idiopathic hypertension for 30 years.

The diagnosis of his current condition was meridian Qi stagnation around the eye, with general Qi deficiency. Electroacupuncture was selected because it delivers continuous stimulation on specific acupuncture points. Acupuncture points were selected based on Chinese medicine theory, which used nearby and remote points. The following local acupuncture points around the eye were treated on the left side of the forehead: BL2 *Zanzhu*, Ex-HN4 *Yuyao*, Ex-HN *Guangming* (head) and GB14 *Yangbai*. The remote acupuncture points were bilateral LI4 *Hegu*. LI4 was chosen because it is a distal point for any facial conditions. Prior to needling, the patient's skin was sterilised with alcohol and disposable stainless steel acupuncture needles (0.25 × 40 mm, Dong Bang Co., Korea) were used.

Electrical stimulation was delivered with a pulse stimulator (Ito Co., Japan) producing a bipolar square wave at 4 Hz frequency. Bipolar square wave was applied to stimulate the motor neurons.<sup>7</sup> The current intensity was adjusted so that localised muscle contractions could be seen. Low-frequency electroacupuncture has been shown to stimulate ergoreceptors – afferents that are sensitive to metabolic and mechanical changes in the muscle.<sup>8</sup> The patient felt a tingling sensation around the eye when the electrical stimulation was delivered. Two pairs of electrodes were attached to BL2 (cathode) and *Guangming* (head) (anode), and Ex-HN4 (cathode) and GB14

(anode) on the affected side. Electroacupuncture was applied for 20 min each time, and was delivered twice a week for one month.

After two treatment sessions, the ptosis and eye movement were slightly improved. From the fourth session onwards, the patient's symptoms improved quickly and by the eighth session he was able to open his eyelid and move his eye completely. The pupil was totally reactive and normal. He did not complain of diplopia.

## Discussion

When seeing an oculomotor palsy case, it is important to make a clear diagnosis to exclude some emergency cases.

The third cranial nerve palsy may be partial or complete, congenital or acquired, isolated or accompanied by signs of more extensive neurological involvement.<sup>1</sup> The patient usually presents with sudden-onset unilateral ptosis, which is frequently accompanied by significant eye or head pain. The patient rarely complains of double vision because the ptosis obscures the vision in the affected eye; however, if the lid is manually elevated, the patient will experience diplopia. Acuity is typically unaffected unless damage occurs in the superior orbital fissure and cranial nerve II is also involved. The pupil may be dilated and minimally reactive to light, totally reactive and normal, or may be sluggishly responsive.<sup>1,2</sup> In complicated third nerve palsy where other neural structures are involved, patients are required to undergo an MRI for differential diagnosis with ischaemic vasculopathy, tumour and aneurysm. In isolated third nerve palsy with no pupillary involvement where the patient is over 50 years old, MRI scanning, an ischaemic vascular evaluation and daily pupil evaluation are indicated. If the patient is under 50 years old and has a non-pupillary involved isolated third nerve palsy, intracranial angiography is indicated since ischaemic vasculopathy is less likely to occur in this age group than aneurysm. If an adult patient of any age presents with complete or incomplete isolated third nerve palsy with pupillary involvement, consider this to be a medical emergency and have the patient undergo intracranial angiography immediately. In these cases, the cause is likely subarachnoid aneurysm and the patient may die if the aneurysm ruptures. Children under the age of 14 rarely have aneurysms and the majority of third nerve palsy cases in this age group are traumatic or congenital.<sup>1,2,6,9</sup>

In this case, the patient was over 50 years old and had no pupillary involvement. MRI showed that there was no significant finding for ischaemic vasculopathy, tumour or aneurysm. This case represents an isolated oculomotor palsy with undetermined aetiology. It took four weeks of acupuncture treatment to recover completely.

A Medline search covering the years until 2004 found 179 articles describing acupuncture treatment for paralysis. The majority of these articles are peripheral facial paralysis and stroke. There is only one article describing a case of oculomotor palsy treated with acupuncture, by Frenkel and Frenkel.<sup>10</sup> They selected the local and distal acupuncture points based on meridians that transverse the area of pain. The following local acupuncture points were treated on the affected side: GB1 *Tongziliao*, GB14 *Yangbai*, GB19 *Naokong*, GB20 *Fengchi*, GV26 *Shuigou* and Ex-HN4 *Yuyao*. The distal points treated were bilateral LR3 *Taichong* and LI4 *Hegu*.

The acupuncture points selected are similar to the current protocol, but the stimulation method is different. Frenkel and Frenkel<sup>10</sup> applied manual manipulation, whereas electroacupuncture was used in this case. Unlike manual manipulation, electrical stimulation can be easily controlled and reliably repeated. Low-frequency electroacupuncture produces muscle contraction and improves paralysis. The recovery time is similar in both cases. Frenkel and Frenkel<sup>10</sup> reported a recovery process of oculomotor palsy that began one week after initiation of acupuncture treatment and ended only four to five weeks after the condition appeared.

## Conclusion

This case report describes electroacupuncture treatment that led to a complete and rapid recovery from acquired unilateral oculomotor palsy of undetermined aetiology; however there is no firm evidence that acupuncture is indicated as a primary therapy for oculomotor palsy. More case reports are needed and controlled clinical studies should be planned to further examine the role of acupuncture for the treatment of oculomotor palsy.

## References

1. Biousse V, Newman NJ. Third nerve palsies. *Semin Neurol* 2000;20(1):55–74.
2. Sowka JW, Gurwood AS, Kabat AG. Handbook of ocular disease management: cranial nerve III palsy [Online]. 2001 [cited 14 April 2005]. Available from: [www.revoptom.com/handbook/sect6c.htm](http://www.revoptom.com/handbook/sect6c.htm).
3. Tiffin PA, MacEwen CJ, Craig EA, Clayton G. Acquired palsy of the oculomotor, trochlear and abducens nerves. *Eye* 1996;10:377–84.
4. Eshbaugh CG, Siatkowski RM, Smith JL, Kline LB. Simultaneous, multiple cranial neuropathies in diabetes mellitus. *J Neuroophthalmol* 1995;15(4):219–24.
5. Gomez-Gosalvez F, Sala AG, Rubio A, Escriva P, Clemente F, Perez C et al. Acquired oculomotor paralysis in the adolescent. *Rev Neurol* 2001;32(3):241–4.
6. Schumacher-Feero LA, Yoo KW, Solari FM, Biglan AW. Third cranial nerve palsy in children. *Am J Ophthalmol* 1999;128(2):216–21.
7. Lee JH. Electrotherapeutic current. In: Lee JH, editor. *Electrotherapy*. Seoul, Korea: Daihak Publishing; 1995. p. 56.
8. Thomas M, Lundeberg T. Acupuncture: a peripheral sensory stimulus for the treatment of pain. In: Hopwood V, Lovesey M, Mokone S, editors. *Acupuncture and related techniques in physical therapy*. New York, NY: Churchill Livingstone; 1997. p. 119–30.
9. Kose S, Urtemen O, Pamukcu K. An approach to the surgical management of total oculomotor nerve palsy. *Strabismus* 2001;9(1):1–8.
10. Frenkel M, Frenkel J. Oculomotor nerve palsy treated with acupuncture. *Altern Ther Health Med* 2002;8(2):1–2.