

FACIAL NERVE PARALYSIS CAUSED BY BIRTH TRAUMA

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ABSTRACT

Objective: To report a patient with lagophthalmos, shortening of the eyelids and blinking reflex disorders caused by birth trauma. Methods: A case report of a two-months-old baby girl was referred to our outpatient department with the main complaint of blinking disorders since she was born. From her history the baby was born aterm, helped by midwife with forceps extraction technique. After birth baby was referred to the hospital due to severe asphyxia. Two weeks after the baby discharged from the hospital, her parents realized that there was abnormality in the baby's eyelids such as shortening of the eyelids, blinking reflex disorders, the eyelids cannot be closed properly and there is no tears when the baby cries. The suckling reflex was good, but the baby showed typical mask like face. From the physical examination revealed poor visual acuity, but light reflex and ocular motility were normal. There were lagophthalmos, exposure keratitis, nebula cornea and negative Schirmer test in both eyes. Direct ophthalmoscope examination was normal in both eyes. EEG and MRI were normal but EMG revealed negative blinking reflex in both eyes. The baby is treated with artificial tears eye ointment and underwent surgery procedure (ANTERIOR LAMELLA REPOSITION and LEVATOR RESESSES) to protect the cornea. Results: Although the exposure keratitis has disappeared with the treatment, unfortunately negative blinking reflex and other sequelae caused by facial nerve paralysis remains occurred. Conclusion: A rare and difficult case of facial nerve paralysis caused by birth trauma has been reported. The treatment has successfully decreased the exposure keratitis. But the treatment of facial nerve paralysis is not in the realm of any one specialty. The intracranial, intra temporal and extra temporal lesion of the facial nerve required the skill and cooperation of multidisciplinary team.

Keywords: facial nerve paralysis, blinking reflex, lagophthalmos, anterior lamella reposition

INTRODUCTION

Peripheral facial nerve paralysis presents in multiple form in the orbitopalpebral region. Their consequences range slight asymmetry and tremor to serious corneal damage. The levator palpebrae superioris muscle is innervated by the oculomotor nerve, so when the orbicularis oculi muscle is non functional in facial palsy there is nothing to stop the levator raising the upper eyelid, apart from the weight of the lid itself. Lagophthalmos, in which there is no blinking reflex and the lids cannot be closed properly, causes desiccation of the cornea and the loss of its typical shine. The eye is, thus, unprotected against the trauma of dust and other minute particles. If untreated, a corneal ulcer can perforate and provoke a generalized infection of the eyeball (Montandon D et al, 1990). Facial paralysis is a devastating condition resulting in significant functional and aesthetic problems. Several treatment options exist for the paralyzed face although some of the methods of treatment of facial paralysis are controversial and some are still being evolved and developed. These treatments

can be categorized as either dynamic reanimation or static procedures. Choosing the best procedure to manage facial paralysis requires a thorough evaluation with determination of etiology, duration and degree of paralysis and consideration of the patient's age and general health status (Baker DC, 1998). The purpose of this case report is to report patient with lagophthalmos and blinking reflex disorders caused by birth trauma and to illustrate the best therapy for the patient.

CASE REPORT

A 3-months old baby girl was referred to our department with main complaint of blinking disorders since she was born. The baby was aterm, helped by midwife with forceps extraction due to severe asphyxia. Her parents realized that there was shortening of the eyelids, blinking reflex disorders, the eyelids cannot be closed properly, there is no tears when the baby cries, and the baby shows typical mask like face. Physical examination reveals poor visual acuity, but ocular motility and light reflex were normal. There were conjunctivitis (due to the gram negative rods), congenital lagophthalmos, exposure keratitis, and lower eyelids entropion in both eyes due to the previous infection. Electroencephalography and Head-Magnetic Resonance Imaging of this patient were normal. Electromyography examination reveals negative blinking reflex in her both eyes.

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The baby was treated with Tobramycin eye drops and artificial tears eye ointment and tarsorrhaphy after conjunctivitis and exposure keratitis resolved. In September 2003 Anterior Lamella Reposition and Levator Ressec were performed to narrow the palpebral fissure and to protect the cornea. Until now the baby is treated with artificial tears. However, lagophthalmos and blinking reflex disorders remain a problem.

DISCUSSION

The incidence of facial paralysis in newborns has been estimated at 0.23% of live births. 78% of facial paralyzes in infants are related to birth trauma. This patient was delivered by forceps extraction helped by midwife. Forceps injury is one of the kinds of birth trauma that can cause facial paralysis. The others are pressure from maternal sacrum and pressure from fetal shoulder. (Falco NA and Eriksson E, 1990)

The first problem in managing the facial paralysis in an infant is differentiating between true congenital paralysis and birth trauma. But abnormalities of other cranial nerves or abnormalities on brain-stem audiometry suggest that the facial paralysis is congenital and not traumatic (Falco NA and Eriksson E, 1990). In this patient, the other cranial nerves are normal. Electroencephalography and Magnetic Resonance Imaging of the brain are within the normal limit.

This baby girl came to our hospital complaints of blinking disorders and incomplete eyelid closure. Paralysis of the orbicularis oculi muscle resulted in diminished blink, incomplete eyelid closure (lagophthalmos), and impairment of the nasolacrimal pumping system. The blink reflex and lid position are important in maintaining the ocular surface epithelial integrity. Each blink physically spreads the tear film over the ocular surface and allows for a continuous layer of moisture. The precorneal tear film continuity is also dependent on the volume of tears produced by the lacrimal gland, and the surfactant properties of the tear film resulting from its biochemical composition, and the micro anatomic state of the surface epithelium.

Lack of blinking and incomplete eyelid closure resulted in increased evaporation from the ocular surface, discontinuity of the precorneal tear film, and degenerative changes in the surface erosions (exposure keratitis) and ulceration which ultimately can result in permanent visual loss (Dryden RM and Adams JL, 1985).

The ophthalmic management of paralytic lagophthalmos is directed at maintaining a normal corneal epithelium that provides comfort and preserves visual acuity. Initial management includes ocular lubricants as a tear substitute or ointment used at varying intervals (Marck C and McKenna M, 2003) Until now, we are still giving artificial tears eye ointment 4-5 times daily on her both eyes. Ointments are more effective in corneal protection even though they often substantially cause blurred vision.

If this is not effective treatment or if the paralysis is expected to persist, more permanent therapy will include procedures which narrow the palpebral fissure such as tarsorrhaphy (Marck C and McKenna M, 2003). We asked her mother to do tarsorrhaphy with tongue-in-groove technique when the baby is asleep.

Anterior lamella Reposition and Levator Ressec were performed to repair the lower eyelids entropion and narrow the palpebral fissure which protect the cornea. Because this case needs multidisciplinary team to manage, consultation to Growth and Development Department, Pediatric Neurology Department, Neurosurgery Department is done regularly until now.

Some of the methods of treatment of facial paralysis are controversial, and some are still being evolved and developed. There is no single surgical method will restore a complex combination of axonal and muscular degeneration. Therefore, the treatment of facial nerve paralysis is not in the realm of anyone specialty (Montandon D et al, 1990). The intracranial, intratemporal and extratemporal lesions of the facial nerve require the skill and cooperation of the multidisciplinary team, i.e. neurosurgeon, ophthalmologist, otolaryngologist, pediatric neurologist and the plastic surgeon (Baker DC, 1998).



Figure 1. Before Surgery



Figure 2. After Surgery

REFERENCES

- Baker DC, 1998. Facial Paralysis. In: Nesi FA, Lisman RD, Levine MR. *Ophthalmic Plastic and Reconstructive Surgery*. 2nd edition. Mosby. New York. p 308-318
- Dryden RM, Adams JL, 1985. Temporary non incisional tarsorrhaphy. *Ophthal Plast Reconstr Surg* 1985;1:119
- Falco NA, Eriksson E, 1990. Facial Nerve Palsy In The Newborn: Incidence and Outcome [see comments]. *Plastic & Reconstructive Surgery*, 85(1): p. 1-4.
- Mark C, McKenna M, 2003. Management of Facial Paralysis after Intracranial Surgery (cited 19 August 2003). Available from: www.neurosurgery.mgh.harvard.edu
- Montandon D, Maillard GF, Morax S et al, 1990. Facial Nerve Paralysis. In: *Plastic and Reconstructive Surgery of The Orbitopalpebral Region*. 2nd edition. PG publishing. Singapore. pp 198-213.