

The American Academy of Otolaryngology—
Head and Neck Surgery Foundation
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Chapter 8: Facial Nerve Paralysis

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Print: First Edition 2001, Second Edition 2004

eBook Format: Second Edition, 2005

ISBN 978-1-56772-093-8



American Academy of Otolaryngology—Head and Neck Surgery Foundation
Working for the Best Ear, Nose, and Throat Care

One Prince Street | Alexandria, VA 22314-3357 | 1-703-836-4444 | Fax: 1-703-684-4288

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Chapter 8: Facial Nerve Paralysis

Editor: Mark K. Wax, MD. Authors: J. Gregory Staffel, MD; James C. Denneny III, MD; David E. Eibling, MD; Jonas T. Johnson, MD; Margaret A. Kenna, MD; Karen T. Pitman, MD; Clark A. Rosen, MD; Scott W. Thompson, MD; and Members of the Core Otolaryngology Education Faculty of the American Academy of Otolaryngology—Head and Neck Surgery Foundation

Dr. Gregory Staffel first authored this short introduction to otolaryngology for medical students at the University of Texas School for the Health Sciences in San Antonio in 1996. Written in conversational style, peppered with hints for learning (such as "read an hour a day"), and short enough to digest in one or two evenings, the book was a "hit" with medical students.

Dr. Staffel graciously donated his book to the American Academy of Otolaryngology—Head and Neck Surgery Foundation to be used as a basis for this primer. It has been revised, edited and is now in the second printing. This edition has undergone an extensive review, revision and updating. We believe that you, the reader, will find this book enjoyable and informative. We anticipate that it will whet your appetite for further learning in the discipline that we love and have found most intriguing. It should start your journey into otolaryngology, the field of Head and Neck Surgery.

Enjoy!

Mark K. Wax, MD

Editor: Primary Care Otolaryngology and Chair: AAO-HNSF Core Otolaryngology Education Faculty



Chapter Number 8: Facial Nerve Paralysis

Facial paralysis is a devastating condition for the patient and his or her family. It may occur spontaneously, following trauma or surgical procedure, or as a result of malignant tumors of the pinna, the parotid gland, or the skull base. Paralysis involving all divisions of the nerve is **peripheral**, and that sparing the forehead is **central**.

Facial paralysis is usually graded on a scale of 1 to 6, where 1 is normal and 6 is a flaccid complete paralysis.

Bell's Palsy:

Bell's palsy is a unilateral facial nerve paralysis that is, by definition, **idiopathic**. You must be careful to rule out other potential causes of facial paralysis before making this diagnosis. **Polymerase chain reaction (PCR)** studies have demonstrated herpetic infection in a majority of cases. Therefore, a better term might be **viral or herpetic facial paralysis**.



Figure 8.1.

This patient has suffered paralysis of the right facial nerve, hence the asymmetry when he attempts to smile. Facial nerve paralysis involves both the upper and lower divisions of the facial nerve. A lesion of the supranuclear tracts would spare the forehead and represent a "central 7th."



Chapter Number 8: Facial Nerve Paralysis

The clinical course of Bell's palsy is quite characteristic. The onset is usually sudden, with the patient often noticing the symptoms upon waking from sleep. The recovery is gradual, but spontaneous recovery can be expected in more than 85% of the cases. Medical therapy (within 3 days) with oral steroids (60 mg of prednisone) and antiviral medication acyclovir or famciclovir has been shown to decrease the incidence of incomplete recovery. Careful history taking is important in treating these patients.

Gradual onset of symptoms (over months), paralysis that doesn't begin to recover by several months, or **recurrent** symptoms on the same side suggest tumor and should be further **evaluated** by gadolinium-enhanced MRI. Studies have shown that up to 30% of patients diagnosed with idiopathic Bell's palsy were found to have another cause for their facial paralysis, such as a facial nerve neuroma, parotid gland malignancy, or **cerebello-pontine angle tumor**.

Ramsay-Hunt's Syndrome:

Another syndrome that includes facial nerve paralysis is Ramsay-Hunt's or **herpes zoster oticus**. Facial nerve paralysis is accompanied by severe pain and a vesicular eruption in the external auditory canal and auricle in the distribution of the facial nerve. The vesicular lesions generally precede the facial nerve paralysis, but this isn't



Chapter Number 8: Facial Nerve Paralysis

always the case. Vesicles may be nonpainful, quite small, or even undetectable. The prognosis for recovery is significantly poorer than in Bell's palsy. Medical therapy with antiviral agents and oral steroids is now considered standard and should be instituted early in the course of the disorder.

Temporal Bone Fractures:

The facial nerve has an elongated course throughout the temporal bone. Significant head trauma producing fracture lines through the temporal bone can affect the facial nerve in one of two ways. The fracture line can directly traverse the facial nerve and transect it or cause a bony fragment to directly impale the nerve, or the fracture line may be some distance away from the nerve but cause stretching or bruising of the nerve. This second situation creates edema and swelling of the nerve and its surrounding sheath, which can impede axoplasmic flow and create a conduction block. Unless the facial nerve has been completely transected, the swelling and subsequent facial nerve paralysis can take up to 72 hours to develop. Therefore, careful assessment of the facial nerve **at initial presentation** is important in later management decisions. Unfortunately, the patient has usually suffered significant head trauma and may have multiple other injuries that render him or her unconscious and unable to perform voluntary facial motion. Also, medical teams may be performing lifesaving intervention, with facial



Chapter Number 8: Facial Nerve Paralysis

nerve assessment not an immediate priority. If the status of the facial nerve is in question, specialized electrical testing and high-resolution CT scanning of the temporal bone can be done to assess the facial nerve along its intratemporal course. If the nerve appears to be impaled by a bony spicule, facial nerve exploration via a transmastoid and/or intracranial approach should be done. Facial nerve transection can be repaired with either direct **reanastomosis** or with an **interposition graft (greater auricular or sural nerve)** if undue tension would occur with reanastomosis. Most facial nerve injuries related to trauma involve contusion injuries that can be followed expectantly and tend to do well over the long term.

Temporal bone trauma can also affect a patient's hearing. If the fracture line disrupts the cochlea or balance organs, a complete sensorineural hearing loss is frequently seen. However, if the fracture involves the middle ear or ear canal, conductive hearing loss may occur secondary to a middle ear blood collection (**hemotympanum**), fractures of the ossicular chain creating a discontinuity, or a TM perforation. Hearing assessment and subsequent treatment can be done after the acute, more serious injuries have been stabilized.

Eye Care in Facial Paralysis:

The facial nerve provides a critical function to the eye, namely, eyelid closure. This action provides a valuable



Chapter Number 8: Facial Nerve Paralysis

protective function of maintaining moisture to the **cornea** over the external surface. The eyelid blink sweeps tears over the cornea, and eyelid closure at night prevents the cornea from drying. Without this protection, the cornea can become progressively more dry, causing significant pain, **corneal ulceration**, scarring, and ultimately permanent changes in vision. In addition, the eyelid blink reflex protects the eye by preventing foreign bodies from contacting the surface and damaging the cornea. Patients with facial nerve paralysis need to use artificial tears frequently during the day, as well as a moisture lubricant at night while they sleep. They may also wear a clear plastic moisture chamber for protection and humidification. The best treatment for corneal injuries is prevention by early use of lubricating drops and moisturizing lubricants and chambers.

Surgical rehabilitation is possible with placement of a gold weight into the upper eye lid. This allows gravity to pull the eyelid down. An almost natural appearance and function results.



Chapter Number 8: Facial Nerve Paralysis

Questions, Section #8

1. Peripheral facial paralysis can be due to _____
, _____
, _____
or, _____
2. Facial paralysis without an identified etiology is termed ____

3. Bell's palsy is commonly due to _____
_____ and should be treated
with _____
and _____

Answers

1. Tumors of parotid or skull base, infections, trauma, cholesteotoma
2. Bell's Palsy
3. Viral or herpetic infection, steroids, antivirals



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Visit the Academy's website, <http://www.entnet.org> to learn more about these programs.

