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Facial Nerve Palsy

We hope this information will help answer any questions you may have regarding *facial nerve palsy*, sometimes known as seventh nerve palsy. Please feel free to ask any further questions when you attend the hospital next time. This information sheet is for your general information only and is not intended to be a substitute for a proper consultation by a trained medical professional. Please visit the website:

www.mrdavidcheung.com for further information.

Introduction

The facial nerve is an important nerve which originates from the brain, exits the skull near the ear and then travels to most of the muscles of the face. It allows the brain to control the movement of these muscles. Damage to the facial nerve therefore leads to interruption of the brain's ability to control these muscles and weakness of these muscles i.e. paralysis.

The term **facial nerve palsy** describes loss of function of the facial nerve *from any cause*. The causes of facial nerve palsy are therefore many and include tumours, strokes, infections, trauma, surgery.

The term **Bell's palsy** describes the sudden weakness of the facial muscles where no obvious cause is found (idiopathic). Gradual improvement is common. Although the cause of Bell's Palsy has never been proven, various causes have been implicated including viral infection or a stroke like event.

Bell's palsy is:

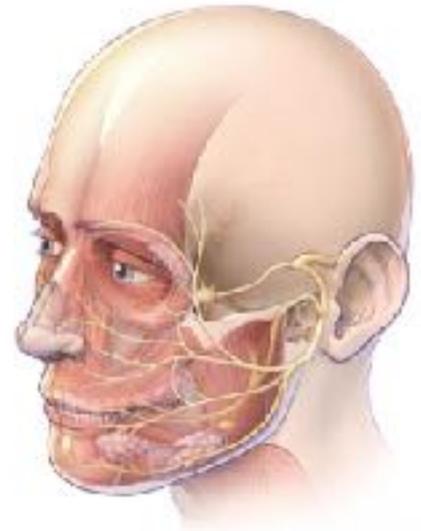
- Relatively uncommon with 10-30 cases per 100000
- Commoner in diabetics, pregnant women and in immunocompromised patients.
- Thought to affect 2 age groups of patients (20-40 years old and 70-80 years old)

Although the terms, *Bells palsy* and *facial nerve palsy*, are often used interchangeably even by some clinicians, strictly speaking facial nerve palsy is a broader term describing all causes of facial nerve nerve dysfunction and includes the commonest cause which is Bell's palsy. Importantly, a patient with a facial nerve palsy should only really be labelled as having Bells palsy when causes of facial nerve palsy have been excluded.

How does it affect patients?

Patients often complain of:

- Weakness of the facial muscles
- Problems closing the eye
- Watering eye
- A painful eye
- Blurred vision



Because the facial nerve is a nerve which supplies the muscles of the facial expression and the tear gland of the eye, loss of function of the facial nerve can have profound consequences on the face. These include:

- Lagophthalmos - the inability to close the eye due to weakness of the muscles involved in closure of the eye.
- Ectropion- an out-turning eyelid due to weakening of the muscles of the lower lid
- Corneal exposure - the corneal surface may start to ulcerate due to it drying out from the loss of normal blinking
- Brow ptosis - the eyebrow may start to droop due to weakening of the forehead muscles
- Midface/Cheek ptosis - a drooping, descended cheek due to paralysis of the cheek muscles
- Blepharospasm and Hemifacial Spasm - Abnormal spasms of the muscles due to abnormal healing of the damaged nerve
- Crocodile tears- tearing of the eye due to excess tear production associated with chewing



Bells palsy: 2 weeks after onset (left) and 6 weeks later (right). Notice the patient's difficulty in trying to close his right eye in the early stages of the palsy (the eye is still open by 10mm). Although this has improved dramatically 6 weeks later, the patient still complains of a sore right eye since the eye still cannot close completely (the eye remains open by 5mm)

Treatment

The treatment of facial nerve paresis involves 3 stages:

1. Ensure correct diagnosis
2. Supportive treatment whilst awaiting for any spontaneous improvement.
3. Facial rehabilitation for longstanding changes.

1. Ensure correct diagnosis

This is to rule out a more sinister causes other than Bell's palsy. This will involve consultations with the doctor and occasionally X-ray and magnetic scans of the brain (CT and MRI scans). Since most patients with Bells palsy show improvement within 6-8 weeks, any patient with facial paralysis that fails to improve significantly usually warrants scanning of the brain. Some clinicians feel that the diagnosis of Bell's palsy (where there is no apparent cause) can only be made after other causes of facial nerve palsy have been ruled out first.

2. Supportive treatment whilst awaiting for any spontaneous improvement

Because most facial nerve palsies are Bell's palsies, i.e. there is not an obvious cause and self resolution is the norm, most patients will require anything other than supportive treatment only, whilst awaiting for spontaneous improvement. There is strong evidence to suggest that herpetic viral infection may be the cause of Bell's palsy and that some of the long term complications are thought to be secondary to inflammation from this viral infection. It is because of this that some clinicians may prescribe **antiviral medication e.g. acyclovir (Zovirax)** and **steroid tablets (e.g. prednisolone)**.

It is very important that any patient with a facial nerve palsy be reviewed by an ophthalmologist (preferably with an oculoplastic interest) to assess the risk of developing eye surface problems due to the weakening of the blink reflex:

Low Risk Facial Nerve Palsy: Many patients complain of a sore watering eye due to dryness of the cornea from incomplete wetting. This is either because of failure of the eye to close completely (lagophthalmos) or a reduction in frequency of blinking. Therefore eye drops and ointments are often helpful.

Moderate Risk Facial Nerve Palsy: in some patients the inability to close the eye may be particularly severe. In these patients, the cornea (clear window of the front of the eye), risks drying out; ulcerating with possible perforation of the eye itself. For patients with these high risk eyes, their doctors may also recommend that in addition to the use of sticky ointments and drops to help lubricate the eye; other techniques may also be required e.g. taping the upper eyelid down to the cheek, sticking a small external lid weight on to the skin of the eyelid to aid closure, wearing cling film to cover the eye at night, wearing moisture goggles at night, botulinum toxin injections to the eyelid (to cause it to droop).

High Risk Facial Nerve Palsy In the small proportion of patients where the facial nerve dysfunction is particularly severe and the eye is starting to suffer despite maximal conservative measures, urgent surgery may be necessary to protect the eye whilst awaiting self improvement.



This patient has a severe complete left (his left) facial nerve palsy: Note how his left eye fails to close leading to exposure of the surface of the eye and ulceration of the cornea (clear window of the eye). This patient is at risk of losing his left eye. Note also how the left lower eyelid is turning outwards (ectropion) and how the eyebrow has become very droop.

3. Facial rehabilitation for longstanding changes

The vast majority of patients with facial nerve palsy, especially those due to Bell's palsy, go on to make a complete recovery. However a small proportion of patients will continue to have long term functional and cosmetic problems e.g. watering eyes, drooping brows and cheeks, sore red eye due to lagophthalmos. A very small proportion of patients with facial nerve palsy never fully regain function of their facial muscles and as a result may develop long term problems. Oculoplastic surgeons such as Mr Cheung can offer various treatments for these:

Eye not being able to close properly

The eye may not close properly leading to surface dryness and possible damage to the eye surface.

This may occur because

- the upper eyelid may not descend completely when blinking due to weakening of its closure muscles
- the lower eyelid may have descended due weakening of its closure muscles

Mr Cheung may:

- prescribe eye drops to help lubricate the eye,
- advise taping down the upper eyelid or using cling film on the eye at night
- injecting botox into the upper eyelid to weaken the muscles involved in lifting the eyelid

Various operations can help:

- Inserting a gold weight into the upper eyelid to aid closure
- Suturing the upper and lower eyelids together slightly to help eyelid closure
- Lowering the upper eyelid surgically, aiding closure
- Elevating the lower eyelid eyelid if it is too low
- Surgically closing the entrance of the tear duct reduce drainage of tears, thereby improving wetting of the eye surface.

Watering Eye

Patients may develop watering eyes following facial nerve palsy for various reasons:

- The eye surface may be sore due to chronic overexposure from inadequate blinking. This causes the patient to produce more tears due to the irritation
- The muscles involved in blinking away the tears may be paralysed
- The muscles within the tear drainage system may have weakened, leading to poorer drainage of the tears.
- The lower eyelid may be turned out (ectropion) allowing a pool of tears to collect and overflow.

Treatment of watering eye in facial nerve palsy revolves around treating the causes. This may involve:

- Improving comfort of the eye by reducing pain from eye surface dryness. This may involve prescribing lubricating eye drops. Sometimes surgery to aid closure of the eye (see above) may be recommended.
- Treating any abnormal position of the lower eyelid. This is especially helpful if the lower eyelid is turned outwards (ectropion).
- A tiny proportion of patients may develop watering of the eyes when they eat or chew (gustatory hyperlacrimation or crocodile tears). Sometimes Mr Cheung may recommend injections of Botox into the tear gland to reduce the inappropriate tear production.
- Mr Cheung may recommend surgery to improve tear drainage from the eye

Cosmetic Problems

Various longterm cosmetic issues may arise. These include:

- brow ptosis (drooping of the eyebrow)
- drooping of the cheek
- drooping of the angle of the mouth
- lower eyelid retraction (pulling down of the lower eyelid)

Depending on the severity of the cosmetic changes arising from long term facial paralysis, Mr Cheung may recommend various operations to help rehabilitate the patient. These include:

- brow lifting surgery
- cheek lifting surgery
- lower eyelid elevation surgery

Occasionally, Mr Cheung may collaborate with other facial plastic surgery surgeons in offering this surgery

Involuntary Spasms

As the facial nerve recovers, sometimes the muscles it supplies can start to develop uncoordinated movement. This can manifest itself as uncontrolled twitching of various muscles of the eyelid, forehead and cheek.

In patients with severe debilitating facial twitching, various treatments are available.

These include injecting the affected muscles with botulinum toxin (e.g. Botox) to try and weaken the abnormally twitching muscle. Botulinum toxin injections temporarily weaken muscles and will need to be repeated on average every 3-6 months.