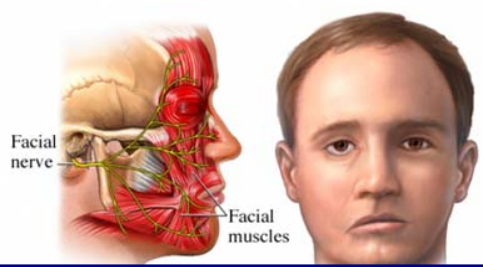




Facial Paralysis Surgery

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'The eye cannot close and constantly weeps. The mouth dribbles, the speech is interfered with and mastication impaired' [2]

Fig 1: Unilateral facial palsy causing drooping of the lower eyelid, oral incompetence and loss of the nasolabial fold [1]

Cross-facial nerve grafting may also be combined with free-muscle transfer. Commonly the gracilis, pectoralis minor and latissimus dorsi muscles are used.

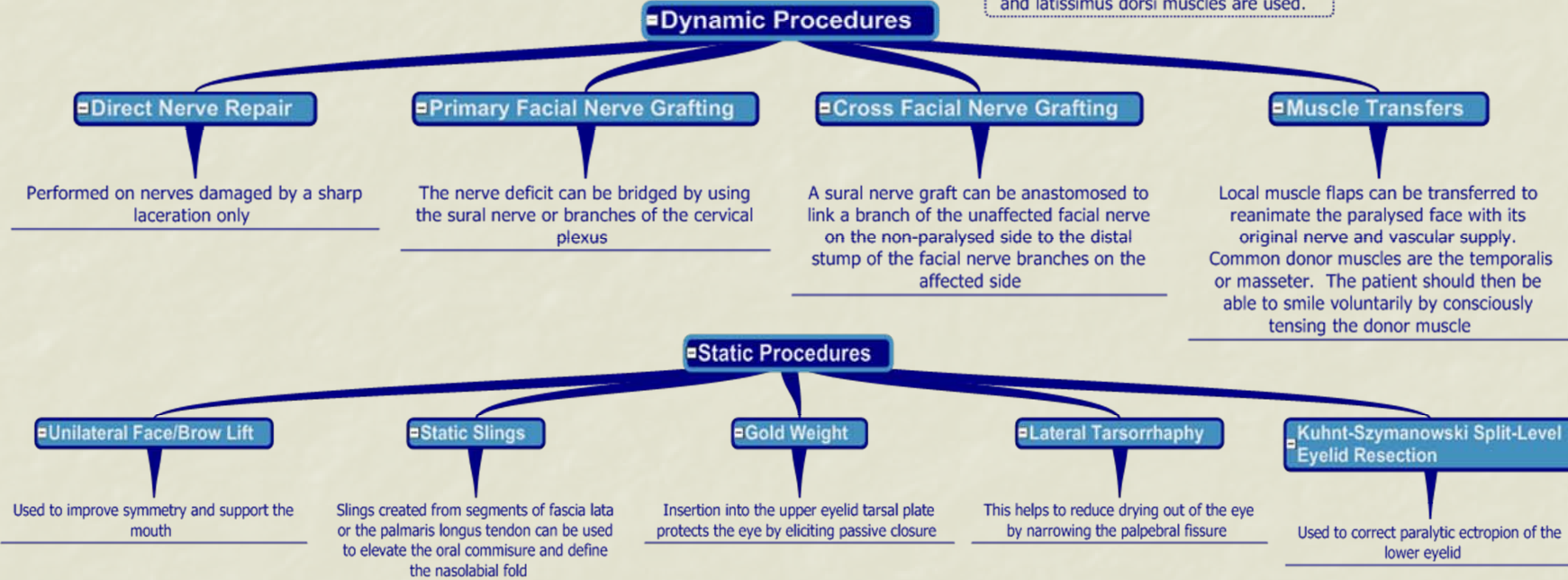
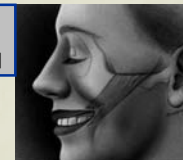


Fig 2: Facial reanimation with gold weight eyelid implant and temporalis muscle transposition [4]



Surgery aims to:

- Improve facial symmetry
- Achieve symmetry on smiling
- Support the mouth to reduce drooling and improve speech
- Protect the eye from drying and infection

For those patients to whom surgery is not an option, simply taping the eye closed at night and using saline drops helps to reduce drying of the cornea. In addition, the use of botulinum toxin injections to the non-paralysed side of the face has been described in order to improve facial symmetry.

	Dynamic Procedures	Static Procedures
Advantages	Voluntary movement can be restored	Suitable for patients who cannot withstand extensive operations
Disadvantages	<ul style="list-style-type: none"> ■ Extensive and multiple operations ■ Masseter m. nerve grafts lead to sacrifice of the donor nerve and asymptomatic muscle atrophy.[5] ■ Patients must be trained to use local muscle flaps with their original nerve supply by consciously tensing the donor muscle 	<ul style="list-style-type: none"> ■ Voluntary movement is not restored ■ Lateral tarsorrhaphy limits peripheral vision and is not associated with an acceptable long term cosmetic result. A permanent tarsorrhaphy is only usually performed when there is little expectation of recovery.[6]

'Joy, happiness, sorrow, shock, surprise, all the emotions have for their common expression the same blank stare' [2]

References

- [1] <http://www.aurorahealthcare.org/yourhealth/healthgate/getcontent.asp?URLHealthgate=12019.html> (Online; 4.1.09)
- [2] Bunnell S. Suture of the facial nerve within the temporal bone with a report of the first successful case. *Surg Gynecol Obstet.* 1927;45:7.
- [3] House, J.W. and Brackmann, D.E. (1985) Facial nerve grading system. *Otolaryngol. Head Neck Surg.*, 93, 146–147.
- [4] <http://www.michiganear.com/library/brochures/facial/facialpictures.html> (Online; 7.1.09)
- [5] Richards AM. *Key Notes on Plastic Surgery.* Oxford: Blackwell Science Ltd; (2002), p.149
- [6] Stone C. *Plastic Surgery Facts*, 2nd Edition. Cambridge: Cambridge University Press; (2006), p.432

History

- 200 AD Galen first discussed the possibility of nerve regeneration
- 600 AD The first suture repair was recorded and accredited to Paul of Aegina
- 1820s Sir Charles Bell found the VIIth cranial nerve to be responsible for facial movement
- 1850s Waller recognised that peripheral nerves could regenerate
- 1879 The first facial nerve repair was performed by Drobnick
- 1985 The first cross nerve suture of the facial nerve (accessory-facial anastomosis) was performed by Sir Charles Ballance
- 1970s Refined microsurgical techniques improved results of the suture repair of peripheral nerves
- 1971 Scaramella pioneered cross-facial nerve grafting
- 1976 The first microvascular free gracilis muscle transfer for smile reconstruction by Harii et al. This remains one of the basic methods for reanimation of the paralysed face.

Aetiology

Facial palsy can be psychologically devastating and may be caused by tumors, trauma, viral infections (Bell's palsy), stroke and congenital differences such as Moebius Syndrome, Craniofacial Microsomia and CHARGE Syndrome.

Assessment

Nerve conduction studies can be used to evaluate the extent of functional deficit. Facial palsy is categorised by the *House-Brackmann* scale (1985).[3] Grades I – V denote incomplete facial paralysis; implying an anatomically intact nerve.

Grade	Definition
I	Normal symmetrical function in all areas
II	Slight weakness noticeable only on close inspection
III	Obvious weakness, but not disfiguring
IV	Obvious disfiguring weakness
V	Motion barely perceptible
VI	No movement, loss of tone, no synkinesis, contracture, or spasm

Management

Surgical techniques used to restore facial symmetry depend on the mode of facial nerve injury, resultant deficit, prognosis for recovery and wishes of the patient. Surgery of this type can be separated into two categories – static and dynamic procedures. Static techniques support and suspend soft tissue structures of the face but do not produce voluntary movements. Dynamic facial reanimation (neural suturing, grafting and/or muscle transfer) aims to improve facial symmetry at rest and with voluntary and involuntary motion. It also aims to restore control of the ocular, oral and nasal sphincters. Both strategies can improve facial symmetry, reduce ophthalmic complications and enhance psychological well-being. Static and Dynamic techniques may be applied in combination, though surgical treatment can never replicate the precise subtle movements of the facial musculature and realistic expectations must always be conveyed to the patient.