



Facial Palsy Management by the Multidisciplinary Team

Catriona Neville and Vanessa Venables
Extended Scope Practitioner Therapists in Facial
Palsy
Queen Victoria Hospital
East Grinstead
2013



MDT members

- Consultant Plastic Surgeon
- Consultant Ophthalmologist
- Psychological Therapists
- Facial Palsy Therapists
- Medical Photography Team



What we offer

- Regular MDT Clinic (3 x month)
- Static or dynamic (Labbe) surgery
- Botox clinics (3 x week)
- Routine psychological screening and Social Interaction Skills Training
- Eye care +/- surgery
- Specialist therapy management
- Support group



The state of UK therapy provision for FP patients

- § Worryingly in the UK it is often not offered to patients at all or is not of a suitably high standard for their complex needs.
- § Patients are often not taught simple exercises to help their face or even well educated as to why their face is floppy or tight.
- § Sadly sometimes patients are even given general exercises that can make them worse.



FTS-UK

- Set up in 2009
- Facial Therapy Specialists UK
- www.fts-uk.org.uk
- Support for specialist therapists
- Basic courses
- Advanced courses
- Network of experienced therapists for patients to access



QVH Facial Palsy Therapy Service

- Therapists' backgrounds in Physiotherapy and Speech and Language Therapy
- Generic working to optimise patient care and efficiency
- Highly specialist team of 'facial palsy therapists'

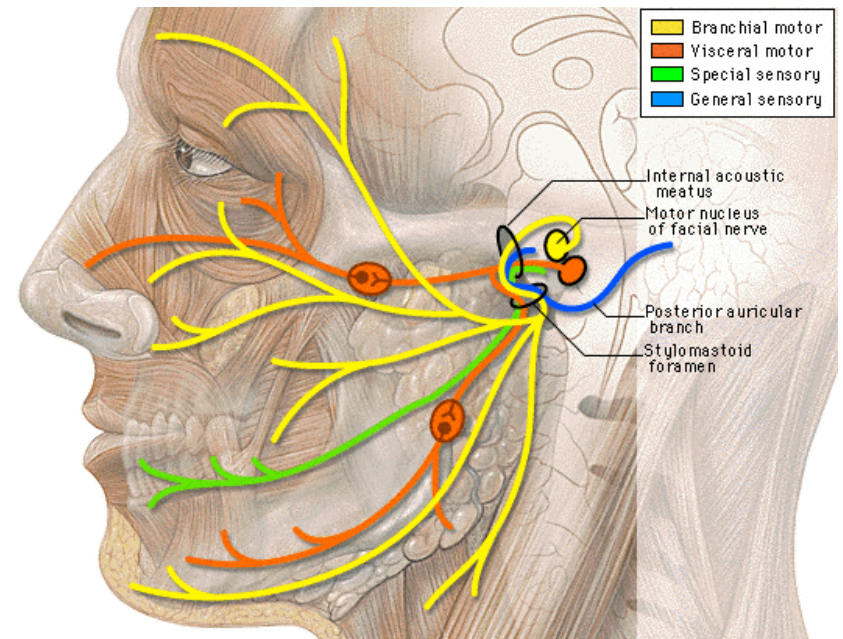


Causes of facial palsy

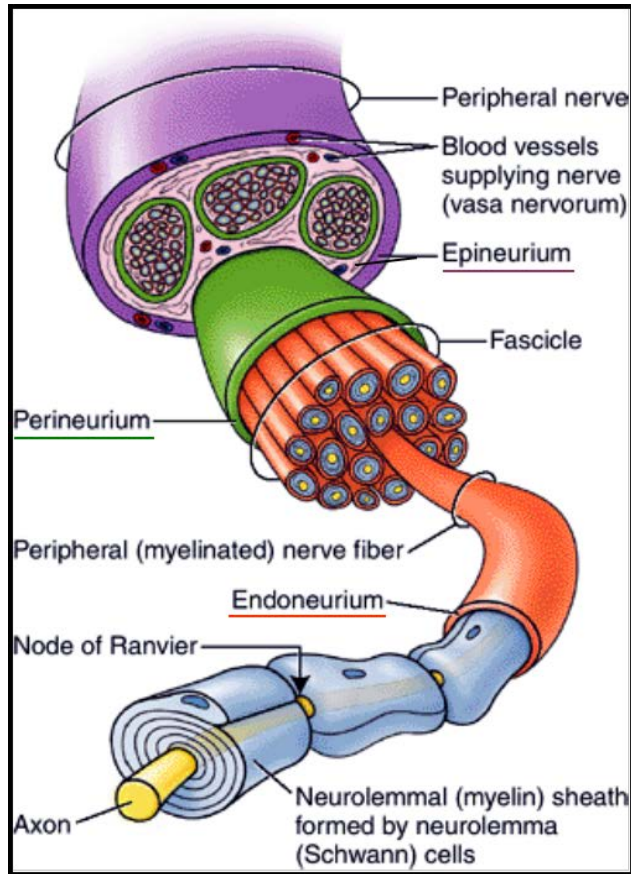
- Bells Palsy
- Acoustic Neuroma and Facial Nerve Schwannoma
- Ramsey Hunt Syndrome
- Trauma
- Infection e.g. Lyme's disease, ear infection
- Neurological conditions e.g. GB, NF2
- Auto immune disease e.g. sarcoidosis
- Birth Trauma and Congenital
- Tumours e.g. parotid tumours
- Stroke

Facial Nerve Facts and Branches

- 7th Cranial Nerve
- Sensory branch (green) to tongue
- Visceral branches (orange) to saliva and lacrimal glands
- 5 Motor branches (yellow) to muscles of facial expression
- Temporal, Zygomatic, Buccal, Mandibular and Cervical branches.



Degrees of nerve injury



- Neuropraxia
 - Concussion of nerve, recovery in approx 6/52.
- Axonotmesis
 - Can vary in severity.
 - More severe damage, Wallerian degeneration occurs, loss of axon continuity and distal myelin sheath.
 - Epineurium intact
 - Recovery at approx 1mm/day, first recovery seen approx 4/12.
- Neurotmesis
 - Complete damage, needs surgical repair or reconstruction.

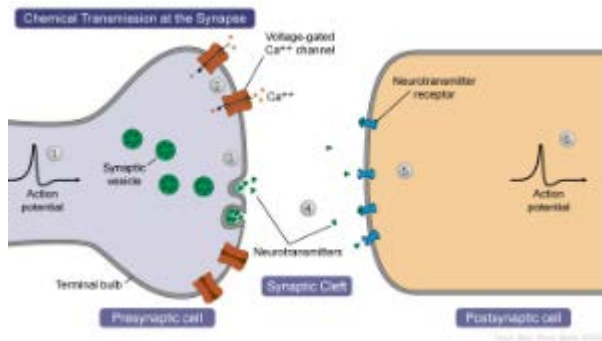


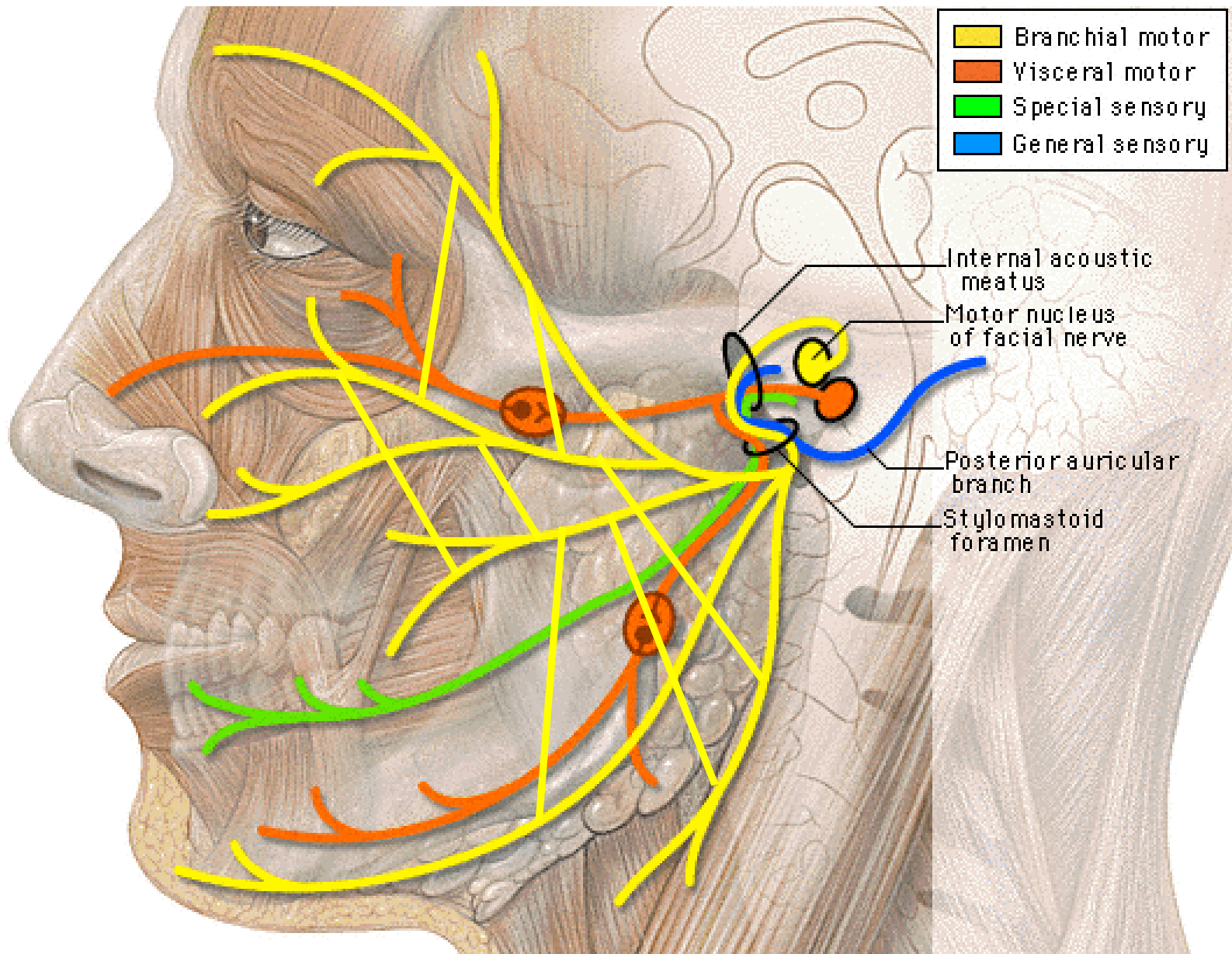
Synkinesis

- Happens when endoneurium (individual axon covering) has been damaged
- 3 mechanisms;
 1. Nuclear hyper-excitability
 - explained on next slide
 2. Interneuronal ephaptic transmission (cross talk)
 - Lack of myelination and incomplete myelin formation allows nerve to cross communicate with other nerves via artificial synapses.
 3. Aberrant regeneration
 - one axon can develop multiple sprouts and innervate many muscle fibres
 - Regenerating axon can enter wrong endoneurial tube

Nuclear hyper-excitability

- Denervated muscle deprived of input due to injury and becomes more sensitive by creating additional Ach receptor sites.
- Reduced threshold for contraction, muscle doesn't need as much stimulation in order to contract
- Neurotransmitters from undamaged axons of the nerve branch or other nerve branches nearby can provide enough stimulation to cause contraction.
- Sensitivity also spreads from motor endplate to entire muscle membrane leading to more possibility for Ach to bind in more locations all over the muscle leading to hyper contraction







Subjective Assessment

- 'Apparent' diagnosis
- Mode and speed of onset
- Facial nerve integrity (if known)
- Previous related problems
- Other health problems and general health
- Relevant medical, therapy, drug, surgical treatments since onset
- Eye care
- Relevant investigations
- DH including steroids and antivirals
- Other health professionals involved



Subjective Assessment continued

- Depression/anxiety – suicidal ideation?
- Fatigue
- Balance/dizziness
- Hearing
- Speech
- Dry mouth, taste, eating, drinking
- Tear production
- Facial sensation
- Pain – facial or cranial



Psychosocial History

- Work
 - Relationships
 - Ability to use face/speech at work
 - Limitations
- Home
 - Relationships
 - Limitations
- Hobbies and Social life
 - Amount of interaction
 - Avoidance?



HADS study at QVH

- Initially from a cohort of 126 patients we found a higher prevalence of anxiety and depression than in the normal population
- At 18 month follow up – MDT treatment had a significant effect on both anxiety and depression scores – all treatment types were equally effective



Objective Assessment

- Purpose = to establish baseline
- Monitor progress
- Identify function
- Identify any abnormal movements
- Determine patient centred treatment approach i.e. based on their problems, goals – may vary dramatically from the expected.
- Don't assume more severe facial palsy = greater distress or vice versa.



General objective assessment

- Observation
- Facial position at rest and during movement
- Wrinkles = indicator of normal repertoire of movement
- Tone
- Twitching
- Contractures
- Ptosis
- Abnormal/compensatory movements, synkinesis of ipsilateral side, hyperkinesis of contralateral side.
- Eye – colour (red/white), sensation, lagophthalmus, eyelid retraction, Bells Phenomenon, ectropion,
- Speech – clarity, pattern, speed, volume



Flaccid paralysis and synkinesis

**For confidentiality, images removed
from this slide**



Objective assessment - measurement

- Photographs
- Video
- 3D scanning
- House Brackmann – Facial Nerve Grading Scale 1985
- Sunnybrook Facial Grading System – Ross et al 1996
- Facial Disability Index
- Face Scale
- Synkinesis Assessment Questionnaire
- HADS – Hospital Anxiety and Depression Score
- Electromyography – sEMG, needle EMG, nerve conduction studies

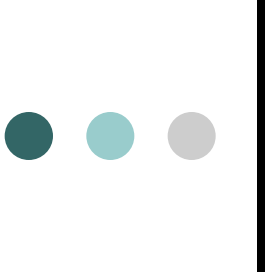
Sunnybrook Facial Grading System

Resting Symmetry	Symmetry of Voluntary Movement	Synkinesis
Compared to normal side	Degree of muscle EXCURSION compared to normal side	Rate the degree of INVOLUNTARY MUSCLE CONTRACTION associated with each expression
Eye (choose one only) normal 0 narrow 1 wide 1 eyelid surgery 1	Standard Expressions Forehead Wrinkle (FRD) 1 2 3 4 5 <input type="checkbox"/> Gentle eye closure (OCS) 1 2 3 4 5 <input type="checkbox"/> Open mouth smile (ZYG/RIS) 1 2 3 4 5 <input type="checkbox"/> Snarl (LLA/LLS) 1 2 3 4 5 <input type="checkbox"/> Lip Pucker (OOS/OOI) 1 2 3 4 5 <input type="checkbox"/> Total <input type="checkbox"/>	NONE: No synkinesis or mass movement MILD: Slight synkinesis MODERATE: Obvious but not disturbing synkinesis SEVERE: Disturbing synkinesis/Some mass movement of several muscles
Cheek (naso-labial fold) normal 0 absent 2 less pronounced 1 more pronounced 1	Degree of Asymmetry Gross Asymmetry Severe Asymmetry No Asymmetry Mild Asymmetry Normal Symmetry Total <input type="checkbox"/>	0 1 2 3 <input type="checkbox"/> 0 1 2 3 <input type="checkbox"/> 0 1 2 3 <input type="checkbox"/> 0 1 2 3 <input type="checkbox"/> 0 1 2 3 <input type="checkbox"/>
Mouth normal 0 corner dropped 1 corner pulled up/out 1		
Resting symmetry score Total X 5 <input type="checkbox"/>	Voluntary movement score: Total X 4 <input type="checkbox"/>	Synkinesis score: Total <input type="checkbox"/>
Patient's name _____ Dx _____ Date _____	Vol mov't score <input type="checkbox"/> - Resting symmetry score <input type="checkbox"/> - Synk score <input type="checkbox"/> = Composite score <input type="checkbox"/>	



Photography series

- Rest
- Eyebrow raise
- Gentle eye closure
- Forced eye closure
- Smile lips together
- Smile showing teeth
- Snarl
- Whistle
- Lateral rest and smile



Objective assessment – 'hands on'

- Feel tone of face
- Feel for lumps
- Muscle wasting
- Areas of hypersensitivity
- Check sensation
- Range of jaw movements – identify trismus
- Inspect inside mouth for trauma, tightness (especially buccinator)



Therapy management

- Depends on stage of recovery
- Early - Floppy = Initial management
- Middle - movement returning but weak
– focus is on facial symmetry at rest,
and gently centring movement as
strength increases
- Late stage - residual problems,
Tight/contractures, unwanted
movement



Initial Management

What do patients need?

- Information : Advice sheets
- Immediate practical help
- Eye care
- Oral hygiene – dry mouth care
- Eating & Drinking, drooling advice
- Speech
- Trismus management
- Reassurance and ongoing support
- Understanding
- **ONLY REFER FOR SURGERY AFTER
APPROPRIATE TIMESCALE TO ALLOW MAXIMUM
NATURAL RECOVERY**



Practical Help

- Information
- Eye care; drops, tape, eyelid stretching, manual blink
- Mouth care
- Tape to support cheek
- Massage –touch, benefits of mechanical input on nerve regeneration, reduce contralateral hyperkinesis
- Aim for symmetry at rest, slow down good side
- Reassurance
- Speech and Language advice
- Therabite



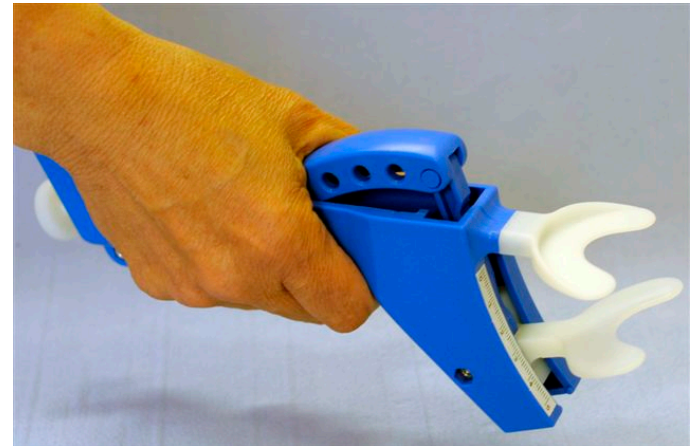
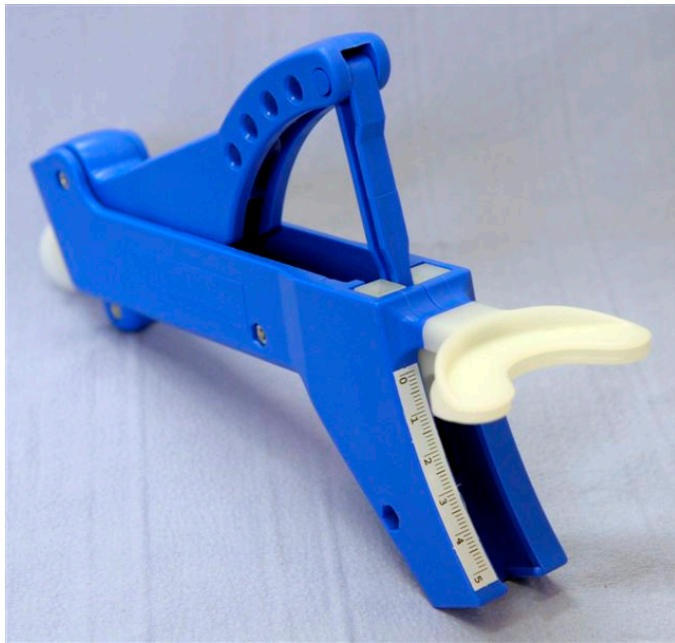
**For confidentiality, images removed
from this slide**



Pre and post manual blink training

For confidentiality, images removed from this slide

Therabite for trismus





Late stage management

**For confidentiality,
images removed from
this slide**

- Complex presentations
- Require experienced management as part of MDT
- Do best with mixed treatment approach
- Considerable patient effort involved
- Patient can be happy with result earlier than you think!
- Effort v Reward ratio



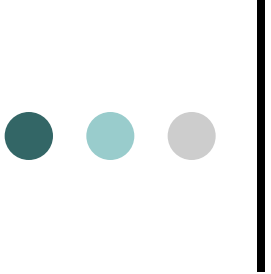
What might you see?

- Poor understanding – weak or tight?
- Lack of knowledge – what muscle should work when?
- Narrow eye aperture
- Deepened nasal labial fold
- Corner of mouth pulled up
- Excessive tearing
- Over effort
- Poor patterning and sequencing
- Synkinetic patterns on affected side
- Hyperkinesis on unaffected side



Management choices

- Education about synkinesis
- Massage
- Stretches
- Relaxation
- EMG Biofeedback
- Control of effort
- Awareness of correct & abnormal patterns
- Normal movement re-education
- Control of synkinetic activity
- Botulinum toxin
- Acupuncture

- 
- Facial exercises have the potential to cause more harm than good
 - Exercises must target specific muscles
 - The patient should not be allowed to move in gross patterns
 - Both emotional and voluntary inputs should be retrained



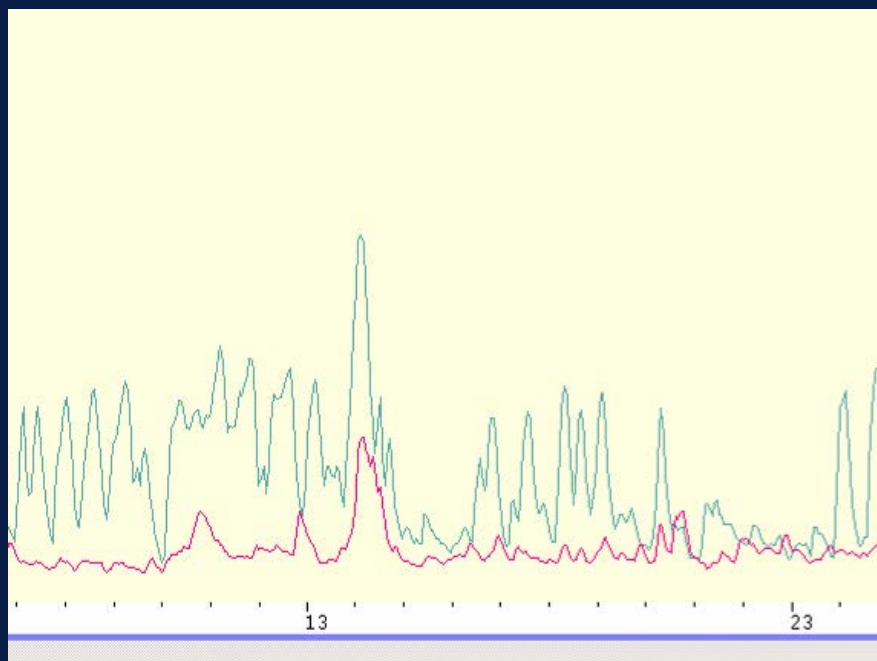
Pre and Post Rx EMG BF readings
of cheek at rest.

Green = affected side.

Pre Rx average = 8.2mV

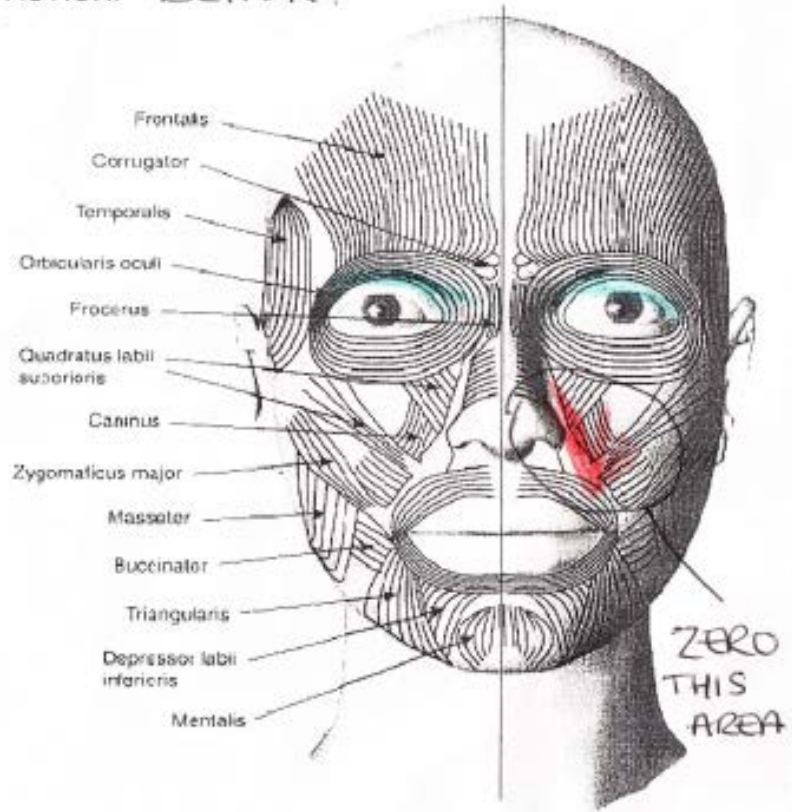
Post Rx average = 4.3mV

Normal side average = 3.8mV both times

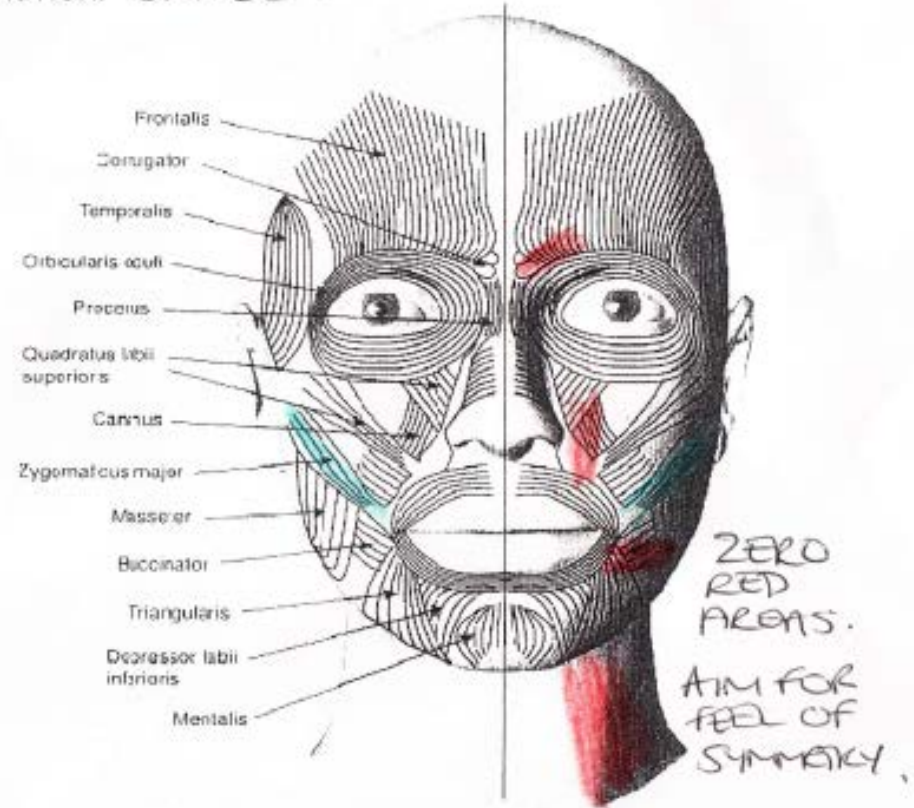


Muscle identification activity

ACTION: BLINK.

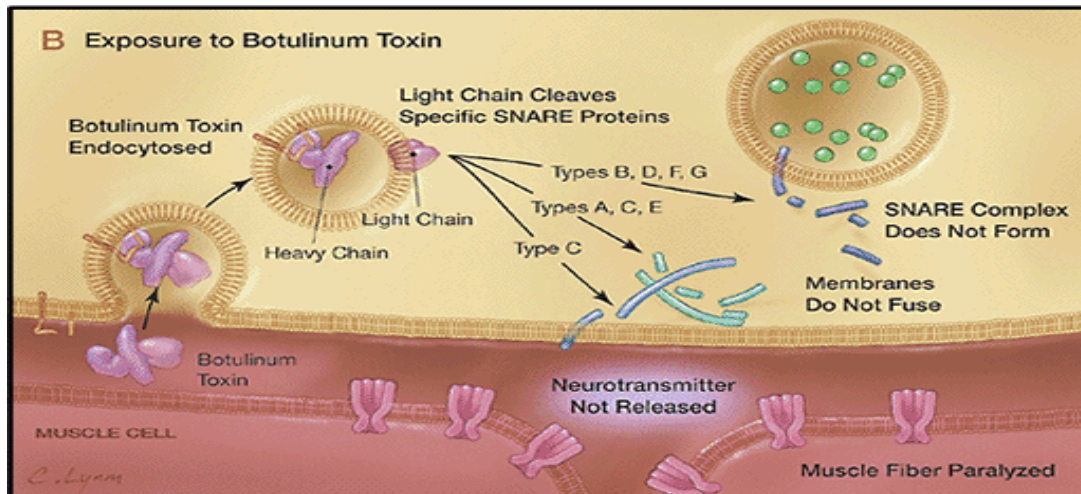


ACTION: SMILE.



Botox

- Botox works by blocking the acetylcholine receptors on the muscle side of the neuromuscular junction. Therefore when the nerve sends a signal to the muscle to contract, acetylcholine is released as before, but it can't bind anywhere on the muscle. The muscle is therefore unable to respond to the signal and remains relaxed.



JAMA. 2001;285:1059-1070. © American Medical Association



Botox treatment choices

Ipsilateral Botox for Treatment of Synkinesis

Aim - Inhibition of involuntary/synkinetic movement, (e.g. Botox to peri-ocular muscles will help control involuntary eye closure during smile or lip rounding).

Used as an adjunct to therapy to maximize benefits of stretching and neuro-muscular retraining.

Contra-lateral Botox for Treatment of Hyperkinesis

Aim – Dampen down movement in dominant muscles on the unaffected side to allow movement to develop on the affected side.

Used as an adjunct to therapy especially exercises which require controlling movements on the affected side when working for symmetry.



Pre and Post Botox

**For confidentiality, images removed
from this slide**

Botox given to contra-lateral (R) Zygomaticus Major and ipsilateral (L) peri-ocular muscles

Result is

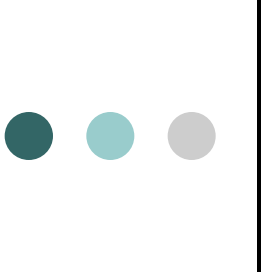
- reduction in eye synkinesis so that the eye remains open during smile.
- diminished smile on the right side to achieve a more symmetrical smile with greater awareness and movement of the affected left side



Case Study

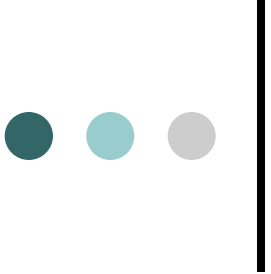
- Removal of left acoustic neuroma 1986 with no therapy management.
- High rest levels, muscle wasting, poor smile + synkinesis.
- Patient goal – improve smile, get life back.

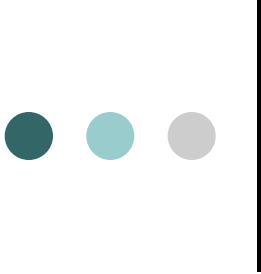
- 1st session May 2008 –
 - FGS 24 (48, 15, 9), HADS - +ve for depression
- Final session Feb 2010 –
 - FGS 62 (76, 10, 4), HADS –ve for depression
- Total 5 sessions over 2 years



Smile before and after
management with Therapy and
Botox (to platysma)

**For confidentiality, images removed
from this slide**

- 
- “Thank you for everything you have done for me – I never imagined my smile coming back. I thought I had lost it forever. Having my smile back has allowed me to feel happiness again for the first time in over 20 years”



Case Study – benefits of stretching alone

- Male, 41.
Left sided Ramsey Hunt syndrome 1999.
First attended QVH in 2010 – 11 years post onset
No previous therapy input or exercises
Severe synkinesis
- Given stretches but no specific neuromuscular retraining in first 3 months

**For confidentiality, images removed
from this slide**



**For confidentiality, images removed
from this slide**



Smile before and after Rx

Diagnosis – salivary gland tumour removed Feb '08 – non resolving mandibular branch weakness.

Rx length – Feb '09 (1year post onset) – Feb '10

Rx type – NMR, massage, stretch, sEMG BF to increase recruitment. Botox L platysma only.

**For confidentiality, images removed
from this slide**



Smile before and after treatment.

Diagnosis – skull base # 2003.

Rx length – 2 years (2008-2010)

Rx type – normal movement, control of synkinesis, sEMG BF, STM, Stretches, Botox to mentalis, right eye, left forehead.

**For confidentiality, images removed
from this slide**



Smile before and after treatment.

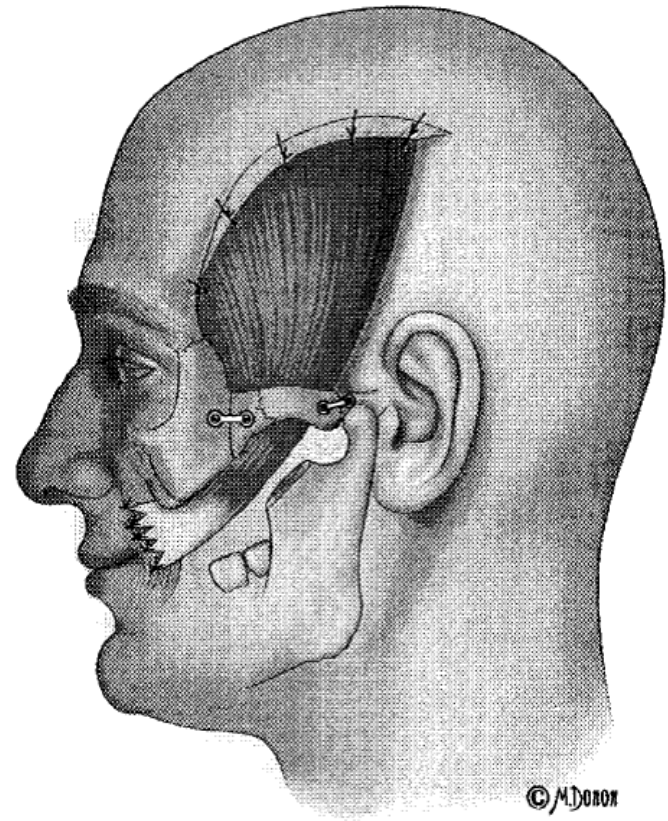
Removal of acoustic neuroma 2001

No improvement after 6 years Labbe surgery and therapy management

**For confidentiality, images removed
from this slide**

Labbe surgery overview

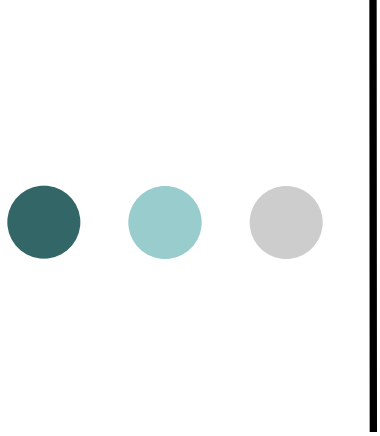
- Incision across scalp
- Temporalis muscle isolated on nerve and blood supply
- Rotation of muscle allows lengthening to reach the lip
- Post-operative rehabilitation and biofeedback





Labbe surgery smile outcomes

**For confidentiality, images removed
from this slide**



Thank you for
listening

Any Questions?