# Orthrodromic Temporalis Muscle Transfer For Facial Reanimation

### Using The Anatomy For Multitasking

-Dr.(Brig) Alok Sharma, Professor.

Department of Plastic And Reconstructive Surgery

DR.D.Y.PATIL HOSPITAL & RESEARCH CENTRE , PIMPRI, PUNE

- A 30 year Male patient suffering from congenital lower motor neuron (LMN) type of facial palsy .
- Complaints of unaesthetic appearance of face.

#### **On Examination**

- Facial appearance was abnormal
- There was asymmetrical face with deviation to the left side on mouth opening.
- Recurrent twitchings seen on the Rt side of face suggestive of congenital facial palsy
- Lack of movement of right forehead and eyebrows
- Inability to close right upper eyelid.
- Wide palpebral fissure on right.
- Drooping of the right corner of the mouth, loss of nasolabial fold, and asymmetrical smile.





Bells phenomenon present on Right side, drooping of angle mouth



Deviation to the Left side on mouth opening, absence of wrinkling on right side



 Orthrodromic temporalis muscle transfer for facial reanimation surgery was planned

Aim of the Surgery

- A Sustained, Spontaneous, Synchronous and Symmetrical Smile.
- Closure of the Right eye to prevent exposure keratitis



Markings for Incision (Pre Auricular retro tragal, face lift incision with temporal extension) and Direction of pull of muscle



Fascia Lata Graft Harvested, to be used as extension strips to transfer temporalis muscle action over Right eyelids and angle of mouth.

- Incision deepened in layers till temporal fascia and zygomatic arch.
- Insertion of temporalis muscle over coronoid process of mandible divided.
- Muscle mobilised and split into Anterior and Posterior halves.
- Fascia Lata strips sutured to flat tendons of anterior and posterior halves of the temporalis tendon for extension to effect the transfer.



- Anterior Belly for Angle of mouth ( Modiolus)
- Posterior belly for upper and lower eyelid



- The dissection to divide the muscle insertion from the coronoid process is difficult.
- The risk of injuring the Superficial temporal artery and temporal branch of facial nerve exists when the zygomatic arch is not cut as in this case.
- Fascia Lata strips sutured to the halves of flat temporalis tendon by weaving and converting them into round tendons



- Posterior Belly sutured with Fascia Lata strip and tunneled subcutaneously till lateral canthus
- Fascia Lata strip split into 2 for upper and lower eyelid
- Fascia Lata further tunneled subcutaneously in the pretarsal plane.
- Upper and lower eyelid strips crossed over at the medial canthus and then fixed to the medial canthal ligament and underlying periostium.



- Anterior Belly sutured with Fascia Lata strip and tunneled subcutaneously to be inserted over the Modiolus.
- Two strips passed over to the midpart of both lips and inserted



### 1 Month Post operative Facial Animation



## Discussion

- Single muscle is used for achieving two functions independent of each other viz smile and eye closing achieving a facial symmetry in repose and sustained, synchronous, symmetric and spontaneous smile while at the same time achieving eye closure without a mandatory effort at smiling.
- No deformity in facies as seen with a retrograde temporalis transfer which also mandatorily makes eye closure and smile a conjoint function.
- No time lag, uncertain results and multiple surgeries as seen with free functioning muscle transfer with crossover facial nerve grafting.
- Indications- Ideal for facial reanimation in infranuclear palsies with involvement of both eye and the mouth.
- The muscle is too strong for only smile reconstruction in which case only the anterior half may be used.

# Conclusion

- The temporalis muscle anterior and posterior halves could be used as two different muscles for achieving function in two different planes independent of each other
- Certain anatomical characteristics of temporalis muscle have been used here for multitasking from a single muscle transfer in a hitherto unreported technique
- This paper is under preparation for publication as a unique technique with its anatomical basis