



Fountoulakis Emmanuel,

Otorhinolaryngologist, Heraklion, Crete



Dr Dimitrios N. Gelis, MD, Otorhinolaryngologist, DDS, PhD, with special interest in Medical Nutrition,

Damaskinou 46, Korinthos 20100, Greece tel. 00302741026631, 00306944280764

www.gelis.gr, www.orlpedia.gr, www.allergopedia.gr, www.gkelanto.gr, www.pharmagel.gr

The facial paralysis patient suffers serious functional, cosmetic, and often has a significant emotional impact on patients creating psychological problems (mainly depression) and impairment of the ability for social communication.

The management of facial paralysis is one of the most complex areas of reconstructive surgery[2]. Management of the condition has evolved extensively over the past 50 years, relying largely upon neural repair techniques and static techniques prior to the 1940s, followed by heavy emphasis on regional muscle transfer by the 1970s. With the advent of the operating microscope and the development of microinstrumentation, in the mid-1970s free tissue transfer became technically feasible, and new techniques quickly ensued that introduced functioning muscle as a viable and valuable option in the management of the paralyzed face. These techniques have been subject to continual refinement to improve their reliability and reduce morbidity[3].

Despite the advances of recent years and the number of new techniques proposed in the literature, facial reanimation remains a challenge for the reconstructive surgeon. Along with the myriad of new surgical techniques in managing facial paralysis comes the challenge of selecting the most effective procedure for the patient[1].

Given the wide variety of functional and cosmetic deficits in the facial paralysis patient, the reconstructive surgeon requires a thorough understanding of the surgical techniques available to treat this condition [2].

The surgeon must select the treatment options available for acute facial paralysis (2 yr) [2]. The options for dynamic reanimation of the paralyzed face must be examined in the context of several patient factors, including age, overall health, and patient desires[1].

With the advent of microsurgery, reanimation of the paralyzed face took a major leap forward with the use of cross facial nerve grafts, nerve transfers, and free muscle transplantation. Today, nerve transfers represent the backbone of facial reanimation, especially in cases where reconstruction of the affected facial nerve is not feasible. The suitability of each nerve transfer is related to the type of facial palsy, time elapsed since injury, and the age and general health of the patient. The selected motor nerve must provide strong muscle contraction and allow the patient to control the facial movements[2].

For acute facial paralysis, the main surgical therapies are facial nerve decompression and facial nerve repair. For facial paralysis of intermediate duration, nerve transfer procedures are appropriate. For chronic facial paralysis, treatment typically requires regional or free muscle transfer. Static techniques of facial reanimation can be used for acute, intermediate, or chronic facial paralysis as these techniques are often important adjuncts to the overall management strategy[2].

The best functional results are obtained with direct facial nerve anastomosis and interpositional nerve grafts. In long-standing facial paralysis, temporalis muscle transfer gives a dependable and quick result. Microvascular free tissue transfer is a reliable technique with reanimation potential whose results continue to improve as microsurgical expertise increases. Postoperative results can be improved with ancillary soft tissue procedures, as well as botulinum toxin[1].

Long-standing facial paralysis requires the introduction of viable, innervated dynamic muscle to restore facial movement. The options include regional muscle transfer and microvascular free tissue transfer. There are advantages and disadvantages of each. Briefly, the regional muscle transfer procedures are reliable and provide immediate return of movement. However, the movement is not of a spontaneous mimetic nature. Free tissue transfer, in contrast, offers the

possibility of synchronous, mimetic movement. It does, however, require a prolonged healing time in comparison with that of regional muscle transfer.

The choice is made by physician and patient together, taking into account their preferences and biases. Muscle-alone free tissue transfer is the our preferred option for reanimation of uncomplicated facial paralysis without skin or soft tissue deficits[2]. Combined muscle and other tissue (most are skin flap) is another preferred option for more challenging complex facial paralysis with skin or soft tissue deficits after tumor excision. Gracilis flap is the first choice of muscle transplantation for both reconstructions according to Mehta RP.(2009)[2].

From 1986 to 2006, gracilis functioning free muscle transplantation (FFMT) was performed by Mehta RP.(2009)[2] at Chang Gung Memorial Hospital for facial reanimation in 249 cases of facial paralysis. The main etiology was postoperative complication and Bell's palsy. The innervating nerve came mostly from contralateral facial nerve branches, few from ipsilateral facial nerve due to tumor ablation, and from ipsilateral motor branch to masseter or spinal accessory nerve due to MÅ¶bius syndrome.

Mehta RP had evolutionally used a short nerve graft (10 to 15 cm) to cross the face in the first stage; after a 6- to 9-month waiting period, gracilis FFMT was performed for the second stage of the reconstruction. The technique of evolution has shown encouraging results to achieve the goal of rapid restoration and fewer scars on the donor leg[2].

In the modern era of evidence-based medicine, the field of facial nerve management has expanded exponentially with critical questions that will help future facial reanimation surgeons refine the approach for patients with acute and long-standing facial paralysis[3].

References

1. Tate JR, Tollefson TT. Advances in facial reanimation. *Curr Opin Otolaryngol Head Neck Surg.* 2006 Aug;14(4):242-8.
2. Mehta RP. Surgical treatment of facial paralysis. *Clin Exp Otorhinolaryngol.* 2009 Mar;2(1):1-5. Epub 2009 Mar 26.
3. Hadlock T. Facial paralysis: research and future directions. *Facial Plast Surg.* 2008 May;24(2):260-7.
4. Terzis JK, Konofaos P. Nerve transfers in facial palsy. *Facial Plast Surg.* 2008 May;24(2):177-93.