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Surgery

The Interest of Temporal Muscle Lengthening Myoplasty in the Rehabilitation of Facial Palsy

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Abstract | **Case Report**

Facial paralysis, whether traumatic, idiopathic or secondary to surgery, causes significant functional and aesthetic impairment. Among the various surgical options for facial rehabilitation, temporal muscle lengthening myoplasty is an effective technique for restoring the symmetry and dynamics of the smile. This procedure involves mobilising the temporalis muscle, which is generally spared in peripheral facial paralysis, and transposing it to the labial commissure. We report the case of a patient treated in our department for sequelae of facial paralysis who underwent allograft myoplasty of the temporalis muscle using the LABBE technique with a satisfactory result, demonstrating the effectiveness and cost-effectiveness of this technique.

Keywords: facial paralysis - sequelae - temporal muscle.

INTRODUCTION

Peripheral facial palsy is a fairly common pathology, most often idiopathic. Initial treatment is essential, the aim being to avoid complications such as exposure keratitis. In the sequelae phase, facial paralysis is responsible for a disgrace with facial asymmetry at rest which is accentuated during mimicry. Management is multidisciplinary, involving plastic surgeons, ophthalmologists, physiotherapists and psychologists in order to obtain the best possible results.

Through a clinical report and a review of the literature, we highlight the interest of temporal muscle lengthening myoplasty in the context of global rehabilitation of sequellar left facial palsy.

CLINICAL REPORT

A 36-year-old patient with no notable pathological history who was the victim of a road accident in 2015 with a fracture of the rock bone complicated by left facial paralysis. The patient was treated medically with a bolus of corticosteroids with no improvement, and followed up with physiotherapy sessions.

On clinical examination, the patient was generally conscious, haemodynamically and respiratorily stable, in good general condition, cooperative and motivated. Examination of the face reveals flaccid left facial paralysis, HOUSE-BRACKMANN grade IV, with: Severe asymmetry of facial expression, incomplete palpebral closure on expression, labial asymmetry and absence of forehead movement (Figure 1).

Figure 1: appearance of left facial palsy

Given this clinical presentation, an electromyogram was carried out, which confirmed peripheral facial nerve damage (figure 2).

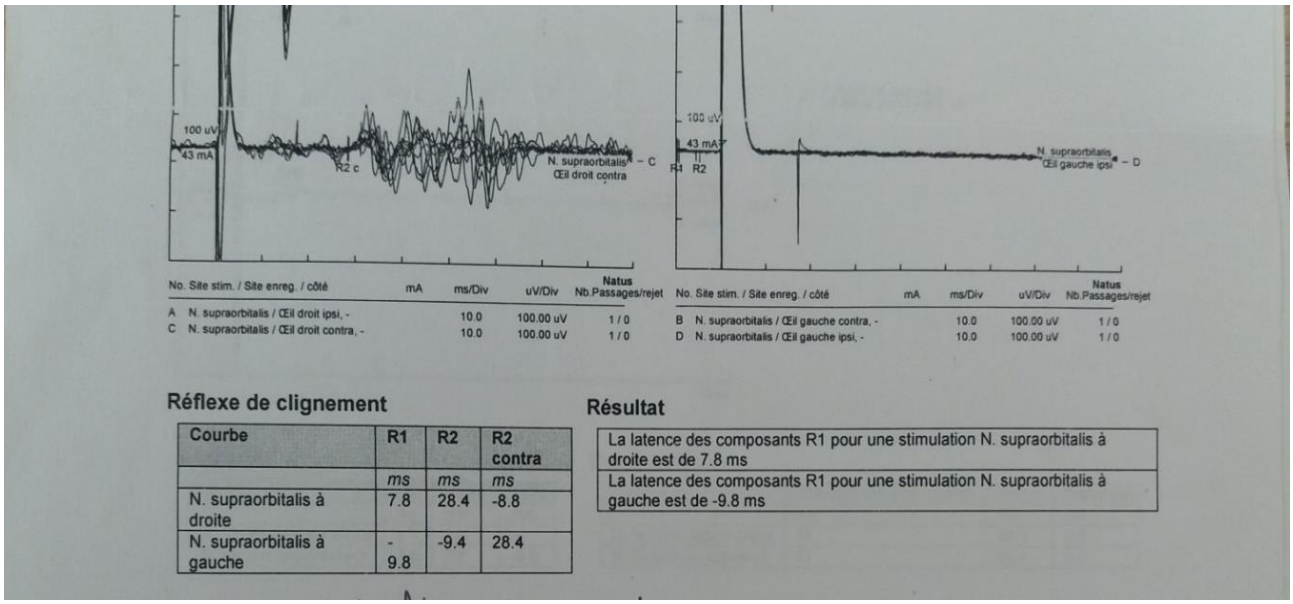

Figure 2: EMG of the patient

In view of the lagophthalmos, the left eyelid was first made heavier, then the middle stage was rehabilitated by lengthening the temporalis muscle using the LABBE technique.

The patient was admitted to the operating room under general anaesthetic, and a coronal approach to the left temporal muscle was performed with deposition of the zygomatic arch (figure 3). The temporalis muscle was then disinserted from its temporal bone attachments and a coronoidectomy was performed using the same approach, sliding endo jugally to be fixed externally at the level of the modiolus.

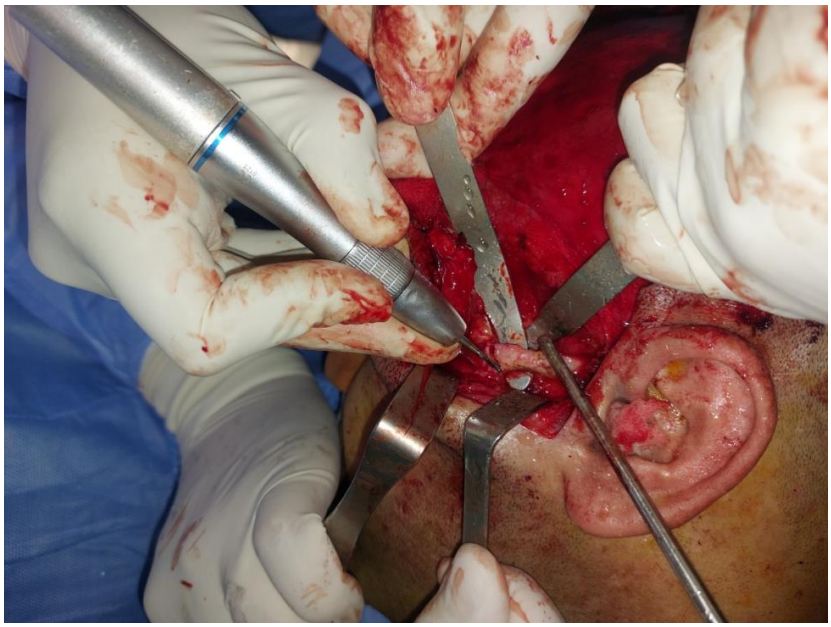

Figure 3: Coronal approach to the left temporal fossa and deposition of the zygomatic arch

The post-operative follow-up was simple, physiotherapy was started 3 weeks after surgery, and after 6 months the patient benefited from botulinum toxin injections with a satisfactory result (Figure 4).

Figure 4: Appearance at 6 months post-operative

DISCUSSION

Facial paralysis is the source of both functional and morphological damage, which alters patients' quality of life. It is responsible for unsightly asymmetry and lagophthalmos, with a risk of corneal complications, If possible, treatment should be etiological, with sutures or nerve grafts. In cases where etiological treatment is impossible, rehabilitation of facial paralysis gives satisfactory results.

temporal muscle lengthening myoplasty is a relatively old technique described in 1997 by DANIEL LABBE [1], involves transferring the entire temporalis muscle from the coronoid process to the homolateral superior hemiliped without interposition of fascial material. Thanks to cerebral plasticity, it loses its masticatory function and, in about 6 months of re-education by speech therapists, acquires its new function as the muscle of the smile. The ultimate aim of rehabilitating the lower part of the face, which must be part of an overall treatment plan as in our case, is to recreate a normal appearance, which implies symmetry at rest and when smiling [2] , It is particularly indicated in cases of sequelae of facial paralysis that have been evolving for at least 18 months without signs of regression. The pre-operative assessment is essentially based on a thorough clinical examination at rest and with mimicry, with an analysis of the smile and the position of the nasolabial fold [3].

Since it was first described, the technique has been modified several times to make it more cost-effective and easier to perform. The use of intraoperative electrical stimulation can help to precisely position the temporalis muscle tendon to optimise aesthetic and functional results[4]. According to several authors, the results are satisfactory in most cases, with an improvement in the smile and mastication[5], the results vary according to the series and also according to gender. Women tend to recover a symmetrical and harmonious smile more than men[6] , Finally, precise knowledge of the anatomy of the temporalis muscle, including its insertions and accessory attachments, is crucial to the success of the procedure. Challenges include releasing the accessory attachments to allow sliding of the muscle without damaging the main pedicle[7], and prevent complications, which are generally rare and have little impact on final results.

Compared to other facial paralysis rehabilitation techniques such as sutures and nerve grafts or free muscle transfers, which require specific technical skills in microsurgery with a slow learning curve and unpredictable results, temporal muscle lengthening myoplasty is a technique of choice for smile rehabilitation that forms part of a personalised patient care protocol with other associated procedures, as in the case of our patient, which allows a clear improvement in the patient's quality of life with a durable result[4] .

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