Case report

Polypropylene and poliglecaprone mesh implant for lifting muscles in facial paralysis

Implante de tela de polipropileno e poliglecaprone para elevação da musculatura na paralisia facial

PEDRO CELSO DE CASTRO PITA[1]*
RAFAEL XIMENES BANDEIRA DE MORAIS[2]
MARCELLA FERREIRA BARROS[3]
EDUARDA AUGUSTA DE LUCENA CALDAS[3]
CAROLINE SILVA COSTA DE ALMEIDA[1]
KYLDERY WENDELL MOURA CAVALCANTE[1]
VANDERSON LAMARTINE DE LIMA SILVA[1]

■ ABSTRACT

Introduction: Facial paralysis is a condition that can cause some sequelae, and sometimes only aesthetics can be improved. Based on this, the objective was to report a case in which a polypropylene and poliglecaprone mesh was used in order to raise the structures of the right hemiface. **Case Report:** The patient had paralysis in the right hemiface, with incompetent eyelid sealing, deviation of the labial commissure and no movement of the temporal musculature. An incision was made below the cutlet, pre and retroauricular, with detachment of the skin flap across the right hemiface. After lifting the superficial musculoaponeurotic system and fixing it with mononylon threads, the polypropylene and poliglecaprone mesh was placed in the middle third region and fixed with monocryl. Canthotomy and lateral canthopexy of the right eyelid were performed. In the immediate postoperative period, the patient evolved without edema, retraction or bulging, and after one year and seven months, she had complete integration of the mesh, with no retraction, fibrosis or recurrence. **Discussion:** The choice of aesthetic treatment for facial paralysis depends on the cause and duration of the injury, but there are several ways to do it. Among the newer ideas are the use of stem cells and alloplastic materials, and following this second line, the polypropylene and poliglecaprone canvas can be thought of as a viable technique, as was reported in this case.

Keywords: Reconstructive surgical procedures; Facial paralysis; Esthetics; Face; Facial asymmetry.

■ RESUMO

Introdução: A paralisia facial é um quadro que pode gerar algumas sequelas, e às vezes apenas as estéticas podem ser melhoradas. Com base nisso, objetivou-se relatar um caso em que foi utilizada uma tela de polipropileno e poliglecaprone com finalidade de elevar as estruturas da hemiface direita. **Relato de Caso:** A paciente apresentava paralisia em hemiface direita, com selamento palpebral incompetente, desvio de comissura labial e sem movimento da musculatura temporal. Foi realizada uma incisão abaixo da costeleta, pré e retroauricular, com descolamento do retalho cutâneo em toda a hemiface direita. Após levantar o sistema musculoaponeurótico superficial e fixá-lo com fios de mononylon, foi colocada a tela de polipropileno e poliglecaprone na região do terço médio e fixada com monocryl. Foi realizada cantotomia e cantopexia lateral da pálpebra direita. No pós-operatório imediato a paciente evoluiu sem edemas, retrações ou abaulamentos, e após um ano e sete meses apresenta total integração da tela, sem retração, fibrose ou recidiva. **Discussão:** A escolha do tratamento estético de paralisia facial depende da causa e duração da lesão, mas existem diversas formas de fazê-lo. Entre as ideias mais novas, estão o uso de células tronco e materiais aloplásticos e, seguindo essa segunda linha, a tela de polipropileno e poliglecaprone pode ser pensada como uma técnica viável, como foi neste caso relatado.

Descritores: Procedimentos cirúrgicos reconstrutivos; Paralisia facial; Estética; Face; Assimetria facial.

Institution: Universidade Federal de Pernambuco, Hospital das Clínicas, Recife, PE, Brazil.

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[1] Hospital das Clínicas, Universidade Federal de Pernambuco, Recife, PE, Brazil.
[2] Universidade de Pernambuco, Faculdade de Ciências Médicas, Recife, PE, Brazil.
[3] Universidade Federal de Pernambuco, Faculdade de Medicina, Recife, PE, Brazil.

INTRODUCTION

Facial paralysis has a wide range of etiologies and can result from injuries to the facial nerve and, depending on the level of this injury, changes occur in the muscles of facial mimicry. It is usually a reversible phenomenon spontaneously or through clinical or surgical treatment. Even so, about 20% of cases evolve with some sequel, ranging from a mild degree to complete paralysis of facial muscle movements[1,2].

The treatment will depend on some variants, mainly the time, place and mechanism of injury. One can try to reanimate the mimic musculature for early injuries through neuroanastomoses or nerve repairs. For example, in late paralysis, one may try dynamic suspension with a muscle flap or static suspension when the mimic function is not recovered, only the aesthetics[3].

In surgery, the polypropylene and poliglecaprone mesh, commercially called ULTRAPRO™ (Figure 1), is partially absorbable, has interesting space, and is mainly required for abdominal hernia repair. It generates tissue fibrosis, providing support but simultaneously stimulating a flexible scar and promoting multidirectional elasticity, providing the abdominal wall with normal dynamics and physiology[4].

Figure 1. ULTRAPRO™ mesh (composed of polypropylene and poliglecaprone).

OBJECTIVE

Thus, this work aims to present a case report at Hospital das Clínicas de Recife-PE, in which the polypropylene and poliglecaprone mesh was used to treat the aesthetic sequel of a patient with facial paralysis, with the function of raising the right hemifacial structures.

CASE REPORT

S.RS, female, 55 years old, presents with facial paralysis of unknown etiology for approximately 27 years, having already performed another surgery in an attempt to correct the paralysis in another center, but without satisfactory results. At the initial physical examination-June 2016 (Figure 2), she had an incompetent eyelid seal, scleral show, labial commissure deviation, and no right temporal musculature movements. After evaluation by the neurology service, it was decided to correct the asymmetry by employing a facelift with the elevation of the musculature and fixation of the entire hemiface structure with the ULTRAPRO® mesh due to its support characteristic associated with flexibility and elasticity.

During surgery - in May 2017, with the patient in dorsal decubitus and under general anesthesia, marking

Figure 2. Patient in the initial physical examination with scleral show, deviation of the labial commissure and without movements of the right temporal musculature.

was performed with bright green using a compass, and then started with an incision below the sideburn, pre and retroauricular with a detachment of the skin flap on the entire right hemiface. After lifting the superficial musculoaponeurotic system (SMAS) and fixing it with mononylon threads (Figure 3), the ULTRAPRO® mesh was placed in the middle third of the right hemiface (Figure 4). The mesh was fixed with monocryl over the SMAS.

Figure 3. SMAS lifted and fixed with mononylon threads.

The canthotomy and lateral canthopexy of the right eyelid were performed as a complement. On the left hemiface, the same incision was made below the pre- and retroauricular sideburns over the previous marking with skin flap detachment and treatment of the SMAS. Suspension of the tail of the left eyebrow was performed according to the Castanares technique. After a review of hemostasis, suturing was performed in layers. Tubular drains were introduced in both hemifaces.

Figure 4. ULTRAPRO® mesh placed in the third middle region of the right hemiface and fixed with monocryl over the SMAS.

In the immediate postoperative period, the patient evolved without edema, retractions or bulges. One year and eight months after the surgery, she presents complete integration of the mesh, remaining

Figure 5. A: Patient in an initial consultation before the procedure; **B:** Patient at 1 year and 8 months postoperatively.

with the fixation of the musculature in its new location, showing no fibrosis or recurrence of sagging (Figure 5).

DISCUSSION

Facial paralysis is a disorder that involves the nerves of the face region; the etiology is quite wide, with more than 75 causes described, such as congenital, idiopathic, traumatic and tumoral. However, the etiological diagnosis is often difficult to give, thus increasing the idiopathic casuistry known as Bell's palsy[5].

For surgical treatment, the advantages and disadvantages of each proposal must be informed, stating that it is not possible to restore sufficient voluntary movements to restore facial mimicry[6].

The choice of treatment will also depend on the cause and duration of the injury[7]. Numerous techniques have already been described to improve the function and appearance resulting from facial nerve injuries, such as immediate reconstruction by direct or indirect sutures or by the interposition of nerve grafts[8]. In these cases, an attempt is made to restore nerve function through neurorrhaphy, as reported by Viterbo et al.[9] in several cases.

Another, more recent way of trying to recover nerves is using stem cells, as has been studied for some time. These cells must act in nerve regeneration[10].

In long-term paralysis, the static suspension is the simplest surgical treatment. In 1934, Gillies[11] described the use of temporal muscle transposition for facial resuscitation, which showed good results, but was impractical for the patient in question.

Some new static techniques for correcting long-term paralysis continue to be proposed, many with alloplastic materials, as presented by Alam[12], in which "Gore-tex strip" was used, with a good aesthetic response, especially when analyzing the nasolabial fold.

Following the use of new materials, the use of ULTRAPRO™ mesh can be considered a viable technique, as it was in this case. The main characteristic of generating tissue fibrosis, providing support and, at the same time, an elastic, flexible scar, motivated the choice of this product, which made that the result of the suspension, by the traction of the SMAS, was maintained even after absorption of the mesh[4].

Therefore, it can be concluded that using polypropylene and poliglecaprone mesh can correct the muscle flaccidity resulting from facial paralysis and maintain its surgical result without presenting skin deformities, even with the mesh placed in the subcutaneous tissue, not causing retraction.

COLLABORATIONS

PCCP Analysis and/or data interpretation, Conception and design study, Conceptualization, Data Curation, Final manuscript approval, Formal Analysis, Funding Acquisition, Investigation, Methodology, Project Administration, Realization of operations and/or trials, Resources, Software, Supervision, Validation, Visualization, Writing - Original Draft Preparation, Writing - Review & Editing.

RXBM Analysis and/or data interpretation, Conception and design study, Final manuscript approval, Investigation, Methodology, Project Administration, Validation, Visualization, Writing - Original Draft Preparation, Writing - Review & Editing.

MFB Analysis and/or data interpretation, Conception and design study, Conceptualization, Data Curation, Final manuscript approval, Formal Analysis, Funding Acquisition, Investigation, Methodology, Writing - Original Draft Preparation, Writing - Review & Editing.

EALC Analysis and/or data interpretation, Conceptualization, Data Curation, Final manuscript approval, Formal Analysis, Investigation, Project Administration, Realization of operations and/or trials, Resources, Software, Visualization, Writing - Original Draft Preparation, Writing - Review & Editing.

CSCA Analysis and/or data interpretation, Conceptualization, Data Curation, Final manuscript approval, Investigation, Methodology, Resources, Validation, Visualization, Writing - Original Draft Preparation, Writing - Review & Editing.

KWMC Analysis and/or data interpretation, Conceptualization, Final manuscript approval, Visualization, Writing - Review & Editing.

VLLS Analysis and/or data interpretation, Conceptualization, Final manuscript approval, Supervision, Visualization, Writing - Review & Editing.

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***Corresponding author:** **Pedro Celso de Castro Pita**
Praça Miguel de Cervantes, nº 60, sala 301, Ilha do Leite, Recife, PE, Brazil
Zip Code: 50070-520
E-mail: pedro.pitta@hotmail.com