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SURGICAL TREATMENT OF SEVERE TRAUMATIC PTOSIS BY CONTRALATERAL FRONTAL SUSPENSION

SK. M'Fa*	Department of Stomatology and Maxillofacial Surgery, Mohammed V Military Hospital, Mohammed V University, Rabat, Morocco. *Corresponding Author
H. Buckat Buckat	Department of Stomatology and Maxillofacial Surgery, Mohammed V Military Hospital, Mohammed V University, Rabat, Morocco.
A. Bakhil	Department of Stomatology and Maxillofacial Surgery, Mohammed V Military Hospital, Mohammed V University, Rabat, Morocco.
A. Benbachir	Department of Stomatology and Maxillofacial Surgery, Mohammed V Military Hospital, Mohammed V University, Rabat, Morocco.
A. Moujahid	Department of Stomatology and Maxillofacial Surgery, Mohammed V Military Hospital, Mohammed V University, Rabat, Morocco.
Y. Ribag	Department of Stomatology and Maxillofacial Surgery, Mohammed V Military Hospital, Mohammed V University, Rabat, Morocco.
H. Sabani	Department of Stomatology and Maxillofacial Surgery, Mohammed V Military Hospital, Mohammed V University, Rabat, Morocco.
L. Khalfi	Department of Stomatology and Maxillofacial Surgery, Mohammed V Military Hospital, Mohammed V University, Rabat, Morocco.
J. Hamama	Department of Stomatology and Maxillofacial Surgery, Mohammed V Military Hospital, Mohammed V University, Rabat, Morocco.
K. El Khatib	Department of Stomatology and Maxillofacial Surgery, Mohammed V Military Hospital, Mohammed V University, Rabat, Morocco.

ABSTRACT Ptosis, a common congenital or acquired disease, is an upper palpebral droop secondary to impaired action of the levator muscle of the upper eyelid. In its severe form, he is very unresponsive or inactive. Severe traumatic ptosis is most often the result of neurogenic, myogenic or scarring lesions. The treatment of severe ptosis is essentially surgical, with a variety of techniques giving acceptable results. Frontal suspension is the therapeutic method of choice, performed according to the Fox or Crawford procedure. But it requires an active homolateral forehead muscle, capable of raising the deficient eyelid; criteria that could be missing. So what would be our alternative? In our study, we report a case of severe traumatic ptosis in a young patient, associated with a palsy of the homolateral frontal muscle, treated by contralateral frontal suspension using autologous material.

KEYWORDS : Severe ptosis, Upper eyelid levator, Frontal palsy, Contralateral frontal suspension, Temporal fascia.

INTRODUCTION:

A frequent symptom with multiple etiologies, ptosis is defined as an upper palpebral drop resulting from damage to one or all of the components of the levator muscle, leading to a more or less significant impotence of the latter [1,2]. It can be congenital or obtained; in the second case, the traumatic cause, although not very frequent, is not less important and requires surgical treatment in the majority of cases. Several therapeutic options exist [3], nevertheless the technique of palpebral suspension with the frontalis muscle has been proven in severe ptosis with the poor functioning of the levator muscle of the eyelid (< 4mm) [4-6], it therefore requires an active frontalis muscle [7], a prerequisite that could be lacking in certain cases. Following the adage that "the terrain dictates the manoeuvre", we describe here, through a case, the management of a severe traumatic ptosis with homolateral frontal muscle paralysis by contralateral frontal suspension using the temporal aponeurosis.

CLINICAL OBSERVATION:

A 32 year old patient, without any notable history, victim of a high-speed road accident about six months before, which resulted in a head trauma and a fracture of the face predominantly on the upper and middle levels of the right hemiface with damage to the frontal branch of the homolateral facial nerve; after a stay in intensive care, he underwent reduction followed by osteosynthesis of the fractures of the right naso-ethmoid-maxillofronto-orbital complex (NEMFC) by screwed plaques, through a translesional approach (right upper palpebral and glabellar) extended on one hand in the right pretragalic region and on the other hand in the contralateral internal canthal region.

The evolution was marked by a consolidation of the fractured foci with persistence of a voluminous upper palpebral edema leading to permanent occlusion of the eye, for which the patient was again hospitalized two months later. A morphological workup for etiology was performed, including orbital magnetic resonance imaging, orbital and facial CT scan, and palpebral ultrasound; associated with an ophthalmological opinion indicating drainage physiotherapy sessions associated with medical treatment for suspected lymphedema.

Faced with worsening symptoms in a context of functional and morphological discomfort, the decision is made to surgically treat the sequelae of polytrauma.

Clinical examination found a conscious patient with: a scar extending from the right pretragal region to the left inferior margin, a slight zygomatic asymmetry, a large upper palpebral swelling, without any inflammatory sign opposite, is the sight of a fistula bringing back a sero-hematic fluid under the end of the eyebrow. Sensitivity was preserved in the V1 areas, with paralysis of the frontal and levator muscles of the eyelid on the same side, indicating a lesion of the III and VII (frontal and upper palpebral branches) responsible for a ptosis with erasure of the wrinkles and impossibility of raising the eyebrow. An ophthalmic exploration attests to the functionality, although diminished, of the right eye with a very weak action of the levator of the upper eyelid (<4mm).

A biological and bacteriological workup (swabbing of the fistula discharge) carried out in the context of the search for an inflammatory and/or infectious syndrome came back without any particularity. Considering the radiological examinations previously performed, no

further exploration was necessary. The diagnosis of severe traumatic ptosis with right frontal palsy was made, and surgical treatment by contralateral suspension was indicated after obtaining agreement for general anesthesia.

The surgical procedure, performed after a delay of six months, was carried out in several stages after a pre-operative layout (Fig. 1- 4):

- The first step consisted of sampling the homolateral temporal aponeurosis with the realisation of suspensory strips; by making a 5cm incision on the bitemporal line, the dissection of two aponeurotic strips of 6cm in length and 2cm in width, split to obtain a total length of 12cm;
- The second stage involved resection of the excess skin and inflammatory palpebral scar tissue, after release of the pretarsal orbicularis of the tarsus and separation of the latter from the septum;
- Three incisions are made, two in the homolateral supra-brow and one in the contralateral front;
- Deep tunneling from the right upper eyelid connecting the three incisions;
- Fixation of the strips on the middle and medial segments of the orbicularis muscle of the right upper eyelid and their attachment to the contralateral frontal muscle on the same area;
- Closure of the approaches in one plane; the temporal approach in two planes on suction drain.

The postoperative course was simple, marked by a favorable evolution under progressive rehabilitation and medical treatment, leading to a significant improvement of the ocular opening and to the satisfaction of the patient (Fig. 5).

Figure 1: Preoperative layout

Figure 2: Removal of the temporal fascia followed by resection of the excess skin and scar tissue

Figure 3: Preparation of suspensory strips + tunneling + fixation of strips

Figure 4: Docking the strips to the contralateral forehead muscle + closing the pathways

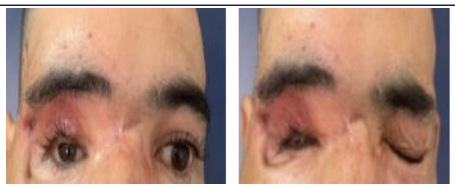

Figure 5: Result at 04 months post-operation

DISCUSSION:

Ptosis is a drooping of the upper eyelid, of variable importance, caused by a relaxation of the levator muscle [8]. In palpebral pathology, it is one of the most frequent conditions that can affect the functional and morphological prognosis [9].

Traumatic ptosis, acquired, is multifactorial, secondary to palpebral wounds and/or maxillofacial trauma, resulting: most often from contusion or section of the levator muscle of the upper eyelid (RPS), or from damage to its aponeurosis [10]; from neurological damage by total or partial paralysis of the III and the sphenoidal cleft syndrome or the orbital apex in some cases [11, 12], rarely from foreign body trauma [13]. Their frequency is variable according to the different studies carried out, with a male predominance in the majority of series [14], and a unilateral involvement in the majority of cases [9].

The etiological diagnosis of ptosis is clinical most of the time, by first performing a static examination determining the height of the palpebral slit, the degree of ptosis and the location of the palpebral crease; then a dynamic examination evaluating the RPS muscle and Müller's muscle; finally by looking for an associated abnormality: oculomotor, muscular (looking for Graefe's sign in the context of a palpebral syncinesis) and sensory. At the end of this clinical examination the degree of ptosis is assessed: minimal if ≤2mm, moderate if =3mm, or major if ≥4mm [15]. A paraclinical workup may be performed if necessary.

In general, the treatment of ptosis is surgical and depends on: its etiology, the strength of the RPS, the neosynephrine test. The frontal suspension technique of the upper eyelid is of first indication in severe ptosis with poor to no action of the RPS; the indications of this therapeutic means are essentially related to neurogenic and myogenic attacks [16]. Two varieties of palpebral suspension have been described: the Crawford and Fox techniques. [17]. Both use synthetic or autologous materials (fascia lata, temporal aponeurosis) [18]. Moreover, frontal suspension implies the presence of an active homolateral frontal muscle capable of raising the eyelid in order to correct the ptosis, which is unfortunately not always the case; and no alternative has been proposed in the literature to date.

In our case study, we describe the correction of severe traumatic ptosis, with a mechanical component, associated with a paralysis of the homolateral frontal muscle, by performing a contralateral frontal suspension using the temporal aponeurosis.

The frontal suspension technique is not without complications (lagophthalmos, under correction, eyelid popping syndrome) and close follow-up is essential.

CONCLUSION:

In severe ptosis with significant deterioration of the action of the levator of the upper eyelid, traumatic or mechanical, associated with a paralysis of the homolateral frontal muscle, contralateral frontal suspension by an autologous material constitutes a therapeutic option to be considered; given the functional and aesthetic improvement obtained. Despite the persistence of a slight asymmetry of the ocular opening, the result obtained was considered good. This case highlights the importance of adapting the surgical technique to the patient according to a global approach: the lesion assessment, the patient's expectations, and the therapeutic arsenal at our disposal; while minimizing the risks of complication and recurrence.

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