A NEW SURGICAL APPROACH FOR SEVERE UPPER EYELID ACQUIRED PTOSIS

Summary:
Palpebral ptosis is a condition caused by different congenital and acquired pathologies. Difficulty seeing due to the visual field obstruction, prefrontal headaches due to chronic use of the frontalis muscle in an attempt to lift the eyelids and cosmetic deformity are the main complaints of the patients. The surgical correction of the ptosis can be challenging. According to the preoperative evaluation, the most appropriate technique should be used to maximize the postoperator result. We describe a new surgical approach for severe upper eyelid acquired ptosis consisting in reanimation of the eyelid by using the neighboring active muscle. Two clinical cases with different etiology for severe upper eyelid ptosis are presented. Both have been suitable candidates for the new surgical approach we introduce. The result was a normal palpebral fissure. The advantage of this approach consist in immediate postoperator mobilization of the upper eyelid which determine the recovery of the upper lid motility by autocontrol.

Keywords:
palpebral ptosis, acquired, surgical approach.

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INTRODUCTION

Palpebral ptosis is a common condition resulting from the dysfunction of one or both upper eyelid retractors. It may be caused by various pathologies, both congenital and acquired. There are numerous etiologies of ptosis with varying anatomic pathologies and associations with underlying systemic disorders. Congenital ptosis may be diagnosed shortly after birth. Mechanical ptosis due to dermatochalasis and brow ptosis is often seen in the aging population and can accompany many of the other types of ptosis. Myogenic ptosis, aponeurotic ptosis, neurogenic ptosis, and neuromyogenic ptosis (e.g., ocular myasthenia) can all present in adults and present rarely in children as well [1]. The most common type of ptosis in adults is involutorial ptosis secondary to acquired dehiscence or detachment of the elevator aponeurosis from the tarsus [1]. Depending on the degree of ptosis, the patient symptoms may range from an asymptomatic subtle cosmetic defect to significant visual deficits. Drooping of the upper eyelids is one of the most common complaints [2]. Other related complaints include difficulty seeing due to visual field obstruction and prefrontal headaches due to chronic use of the frontalis muscle in an attempt to lift the eyelids [1]. Palpebral ptosis causes also an apparent cosmetic deformity.

The aim of surgery is functional in order to correct the limit in the visual field and also aesthetic. Surgical treatment of palpebral ptosis is complex and requires precise diagnosis and indications for surgery related to clinical examination and pathogenesis. Ptosis surgery can be challenging for even the most experienced eye and plastic surgeon. The rate of reoperation in most series of acquired ptosis varies from 5% to 35% [3-5]. Detailed preoperative assessment and intraoperative anatomic dissection with respect to tissue planes and hemostasis should minimize reoperations and maximize postoperative results.

Many surgical techniques have been described for the repair of palpebral ptosis:

- **Tarsomyectomy (Fasanella-Servat Procedure)** is a technically simple and predictable procedure suitable for young patients with mild lid asymmetry [6];
- **Posterior Muller’s Muscle/Conjunctival Resection (Putterman Mullerectomy Procedure)** is an alternative procedure for minimal ptosis (2 mm or less) and good levator function. It is a technically difficult procedure with limited amount of eyelid lift [8-10];
- **levator Aponeurotic Advancement Procedure** is used in cases of fair to good levator function [11]. This technique results in the shortening of the levator complex;
- **Frontalis Suspension Techniques** are reserved for patients with poor levator function (0 to 4 mm) and intact frontalis muscle. This technique involves elevating the eyelid by suspending the tarsus to the frontalis muscle [12-13].

In this paper we will present a new technical approach for severe acquired ptosis.

NEW TECHNIQUE

In this paper we are presenting a new technical approach suitable for severe acquired palpebral ptosis of the upper eyelid. The preoperative evaluation consisted in detailed patient history and local examination. The four important measurements: interpalpebral fissure height, upper lid margin to corneal reflex distance (MRD1), levator function, and upper lid crease position have been assessed and recorded with the patient looking in primary position. The technical procedure consists in creating a muscular plan from a fascicle of upper lid orbicular that is advanced superior to the elevator of eyebrow. After identification of the orbicular muscle a fascicle from the orbicular muscle with bipedicled vascularization is isolated. An isosceles triangle shape is formed. Upper triangle top is fixed to the upper eyelid elevator. Wallpapering the fascicle on the eye brow elevator determine an integral unit with fixed points. While moving the elevator of the eye brow the palpebral fissure is opening. The result is a normal palpebral fissure.

**Case Nr.1.**

A 54 year old female patient with right palpebral ptosis secondary to paralysis of elevator muscle of eyelid after an operated frontal tumor. Preoperative evaluation (Fig. 1 a, b and c) reveal:

- palpebral fissure 0;
- levator function - not the case;
- upper lid crease position > 8 mm;
- the position of the right lower eyelid is normal;
- the normal side is used to achieve symmetry.

General clinical examination and biological parameters have been evaluated prior to surgical procedure. General anesthesia has been used to preserve the local anatomical plans. Skin incision was made at 2 mm of ciliary edge of the upper lid (Fig.2a, b, c and d). The skin was closed with several 6-0 absorbable interrupted sutures (Fig.2 e and f).
**Fig. 1.** Preoperative aspects during clinical evaluation of first case (a 54 year old female patient with right palpebral ptosis secondary to paralysis of elevator muscle of eyelid after an operated frontal tumor). The right palpebral fissure closed and property if: **a** - left palpebral fissure opened in the normal range associated with gaze above the horizontal; **b** - left palpebral fissure opened to the maximum level previously associated with the horizontal gaze; **c** - left palpebral fissure opened at maximum

**Fig. 2.** The most important intraoperative steps and the immediate result after surgery in the first studied case. **a** - Identification of the orbicular muscle; **b** - Isolating a fascicle from the orbicular muscle with bipedicled vascularization; **c** - Fixing the muscular fascicle to the eye brow elevator; **d** - Wallpapering the fascicle on the eyelid elevator muscle; **e** - Immediate result after surgery; **f** - Immediate passive mobilization.
Fig. 3. Preoperative aspects during clinical evaluation of the second case (a 61 year old male patient with miastenia gravis with involutive bilateral palpebral ptosis). The palpebral fissures very slightly open if: a - eyebrows muscle contraction occurs; b - frontalis muscle contraction occurs.

Fig. 4. The most important intraoperative steps and the immediate result after surgery in the second studied case. a - Identification of the orbicular muscle; b - Subcutaneous tunneling of the orbicular fascicle; c - Fixing the orbicular muscular fascicle to the eyebrow elevator; d - Wallpapering the fascicle on the eyebrow elevator; e - Immediate result after surgery; f - Result at 7 days postoperative.
Case Nr.2.

A 61 year old male patient with miastenia gravis with involutive bilateral palpebral ptosis. Preoperative evaluation both eyes (Fig.3a and b) reveal:

- palpebral fissure: right eye - 4 mm; left eye – 2 mm;
- levator function bilateral less than 4 mm;
- upper lid crease position bilateral > 8 mm;
- the position of the lower eyelids are normal.

General clinical examination and biological parameters have been evaluated prior to surgical procedure. General anesthesia has been used to preserve the local anatomical plans. Skin incision was made at 2mm of ciliary edge of the upper lid (Fig.4a, b, c, d).

For good cosmetic results, the symmetry of both eyes surgery has been carefully controlled. The skin was closed with several 6-0 absorbable interrupted sutures bilaterally. The immediate postoperative evaluation showed good functional and cosmetic results (Fig.4e). No complications occurred. The pictures bellow are showing the immediate results in both cases.

CONCLUSIONS

The severe palpebral ptosis acquired in different pathologic circumstances can have a significant impact for the patient. The visual field obstruction when bilaterally together with the cosmetic impairment is the main complaints of the patients. We have presented two different situations that have been successfully solved by using this new surgical approach.

The advantage of this new approach is the immediate mobilization of the upper lid which determines the self control of the eyelid mobility and a palpebral fissure in physiological parameters.

A detailed knowledge of eyelid anatomy coupled with a comprehensive history and preoperator evaluation are the prerequisites for proper surgical planning.

We consider that this new surgical approach is suitable for severe upper eyelid ptosis acquired in different pathologic situations.

References: