A Method for Assessing The Effectiveness of Rehabilitation of Women of Fertile Age with Acquired Eyelid Defect

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Abstract

This article presents the results of surgical restoration of the original shape of the eyelids and periorbital areas with their deformities in women of childbearing age. The problem of treating patients is associated with the need to preserve or simultaneously restore the shape and functions of the eyelids, normal anatomical tissue relationships and aesthetically acceptable facial contours. The increased demand for aesthetic surgeries contributed to the active development of plastic surgery in Uzbekistan. In the literature sources studied by us, little attention is paid to the methods of surgical elimination of deformities of the eyelids and periorbital areas. All of the above served as the basis for conducting research and developing a system for the complex rehabilitation of patients with acquired eyelid deformities and defects.

Keywords: Blepharoplasty, Fertile Age, Reconstructive Surgery, Aesthetic Surgery, Deformities Of The Eyelids And Periorbital Areas.

1. Introduction

The main problem in the treatment of women of childbearing age with defects in the eyelids of the periorbital areas is associated with the need to preserve or simultaneously restore the shape, functions of the eyelids, and normal anatomical tissue ratios. By etiology, defects are congenital and acquired, different in clinical manifestations and functional disorders, but in almost all cases they entail psychological problems due to a deterioration in a person’s appearance and a decrease in his quality of life [1, 6, 16, 19].

So, congenital deformities of the eyelids and soft tissues of the periorbital region occur with oblique naso-orbital or oro-orbital atypical facial clefts and are quite rare (1:100,000) malformations. A feature of the treatment of such patients is the impossibility of complete elimination of complex deformities using only the maxillofacial or ophthalmic approach, since most of these defects are characterized by ectropion, eversion, eyelid colobomas, micro- or anophthalmia, naso-maxillary hypoplasia, impaired lacrimal apparatus, deformities of the zygomatic-orbital complex [4, 10, 15].

In the general structure of traumatism, injuries of the maxillofacial region account for about 40% and tend to grow by an average of 2% per year, with the majority of victims aged 20 to 50 years, that is, in the period of greatest working capacity [3, 9, 12,]. Among patients with damage to the bones of the facial skeleton, the zygomatic-orbital complex accounts for 37.5%. Fractures are combined with damage to the eyeball in 6.6% of cases [2, 8, 18, 20].

Post-traumatic eyelid defects present a certain complexity of reconstruction [13, 17]. Practically not covered in the literature are methods for the prevention of these defects and methods of restorative treatment after blepharoplasty operations. The questions of the rational choice of the donor area for tissue sampling or cutting out flaps remain open in terms of volume sufficiency, viability, aesthetic compliance, the possibility of simultaneous use of various implants or grafts to recreate or strengthen the supporting structures of the eyelids [5, 11, 15, 22].

Thus, all of the above served as the basis for conducting research and developing a system for the complex rehabilitation of patients with acquired eyelid defects.
Optimization of methods for surgical restoration of the original shape of the eyelids and periorbital areas in case of their deformities in women of childbearing age.

2. Materials And Methods
The study is based on the analysis of clinical observations and the results of surgical and restorative treatment of 55 patients with congenital and acquired deformities and eyelid defects. All patients were divided into 2 groups depending on clinical manifestations and the presence of tissue deficiency. Before surgery, all patients underwent a general clinical examination, which included: chest X-ray, ECG, general and biochemical blood tests, and urinalysis.

3. Results and Discussion
It was noted that with superficial defects of the eyelids in patients of the first group (28 patients), regardless of the area of damage, autotransplantation of a free skin flap was effective, followed by early mechanical dermabrasion.

The most difficult for reconstruction were patients with marginal defects of the eyelids (2.9%), who needed to restore all layers of the eyelid and the ciliary margin. Thanks to the use of an improved method for eliminating the marginal defect, in all cases it was possible to eliminate lagophthalmos, achieve the correct shape, good fit of the injured eyelid to the eyeball in 2-3 stages, including strengthening the lower eyelid and free autotransplantation of hair follicles without complications.

For total, subtotal and large defects of the eyebrow, the use of a classic temporal arterialized flap on a hidden vascular pedicle and autotransplantation of small graft flaps containing 1-2 hair follicles turned out to be optimal.

The succession of specialists, joint work with an ophthalmologist and a combination of various operations (dacryocystorhinostomy with reposition and/or plastic surgery of the inner corner of the eye, elimination of lagophthalmos with correction of symblepharon) made it possible to reduce the number of stages and, accordingly, the rehabilitation period in patients with functional disorders of the organ of vision.

In patients of group 2 (27 women) with involutional deformities of the eyelids after various types of EBV in the early and late postoperative period and / or browpexy, no negative changes in the anatomical and optical parameters of the eye were detected. The use of the improved EBV method in 22.9% of patients improved the distribution of the skin after its excision and formed a natural “soft” fold of the upper eyelid. Additional resection of the muscle area at the outer corner of the eye contributes to the ideal distribution of tissues without the formation of external cones.

In patients with A-deformity, hypoplasia or aplasia of the upper eyelid fold, it was possible to obtain optimal results using a combination of techniques: 1) improved EBV, 2) sparing tissue resection; 3) septo-aponeurotic fixation during the formation of the fold; 4) dissection of the oblique fibers of the tarsoorbital fascia. However, with blepharochalasis, strong connections after similar techniques persisted only for 6-8 months, then the depth and clarity of the fold somewhat decreased, and after 1, 3 and 5 years, the folds had characteristic signs of hypoplasia.

As the analysis of the obtained results of NEB showed, 37.5% of patients (subgroups 2C and 2D), who were at risk of developing eyelid retraction, needed to change the surgical tactics. The use of improved NEB in these patients significantly improved the aesthetic result and avoided postoperative eyelid retraction, despite the fact that chemosis and lymphostasis were noted in 11% of cases in the early postoperative period. Strengthening of the lower eyelid with the help of Ecoflon PTFE implant or autologous auricle cartilage made it possible to maintain a stable position of the eyelid and a good fit to the eyeball in case of tissue hyperelasticity and hypotension of the eyelids. Myopexy and canthopexy were obligatory steps, and sparing tissue resection was the main condition for NEP. A similar approach was effectively applied in all 19.7% of patients with involutional deformities of the eyelids in combination with contouring of the malar fat, including its partial planar resection. In 1.9% of patients with involutional changes in the lower eyelids of II or III degree without fatty “hernias”, the optimal result was achieved by applying mechanical dermabrasion. In these cases, this method can be considered an alternative to the NEB and unjustifiably forgotten.

In 9.6% of patients with growth tendencies of hypertrophic scar(s) on the skin, soreness and itching, Bucca therapy was the most effective, which was used once in 3.9% of cases, twice in 7.9% of patients. Based on the results of our own observations and literature data, we consider it appropriate to use Bucca therapy in the early postoperative period: 1) as an independent type of treatment; 2) a preventive procedure or 3) as the final stage of rehabilitation measures. In all patients with mobile scars on the eyelids, full rehabilitation was achieved 1.5-2 months after the operation.
In case of cicatricial contractures and slightly displaced pathological scars (11.6%), the combined use of local injections of the steroid drug "Diprospan" or the drug "Longidaza 3000 IU" with ultraphonophoresis and / or local compression therapy with silicone pads "Cica-care", myogymnastics and self-massage. Comprehensive rehabilitation treatment made it possible to completely eliminate cicatricial contractures in more than 2/3 of patients in 2-3 months, while in patients who refused rehabilitation treatment, rehabilitation took 4-6 months.

According to the developed criteria, good results were obtained in 90.3% of cases, satisfactory in 8.5% of patients and unsatisfactory in 1.2% of patients. Limited results are characterized by minor contour deformities, noticeable scarring on the face, and partial recurrence of dystopic angle(s) of the eye without functional impairment of the organ of vision. Unsatisfactory results are associated with necrosis of the free skin flap, the persistence of residual or the appearance of secondary cicatricial deformities, which were subsequently eliminated during repeated operations.

We can briefly formulate the components of a good result of the complex rehabilitation of patients with congenital and acquired deformities of the eyelids and soft tissues of the periorbital region: planning of surgical correction taking into account anatomical and functional features, risk factors for the formation of eyelid retraction, 3) pathogenetic approach to the choice of surgical technique, which allows to eliminate all causes of deformities as much as possible; 4) precise execution of the surgical technique with a tendency to preserve and replenish the volume of tissues, supporting structures of the eyelids, and 5) a differentiated approach to restorative treatment and the use of effective methods, taking into account hemomicrocirculatory disorders.

Analysis of clinical manifestations and functional disorders in congenital oblique naso- and oro-orbital clefts of the face No. 3, 4, 5 (4.5%) revealed characteristic signs: deforming scars after reconstructive operations, retraction, coloboma, entropion of the eyelids, anomaly of attachment of the medial or lateral eyelid ligaments, dystopia of the corners of the eyes, anomaly in the development of the lacrimal drainage system, deficiency, hypoplasia of bone and soft tissues of the midface. Moreover, bone landmarks in this category of patients were more constant than soft tissue manifestations. In 0.8% of cases, patients with oblique clefts No. 3.4 had previously undergone osteoplastic surgery.

In post-traumatic and postoperative deformations of the eyelids and soft tissues of the periorbital region (24.4%), similar negative factors were identified: deforming scars, retraction, eyelid defects, dystopia of the eye angles, damage to the lacrimal ducts, improperly consolidated fractures of the zygomatico-orbital complex, defect of the lower orbital wall, damage ligamentous apparatus of the eyelids and post-traumatic tissue atrophy.

Regardless of the etiology, location, area, depth of damage and the presence of tissue deficiency, all patients of groups 1 and 3 were diagnosed with eyelid retraction with changes in the shape of the palpebral fissure and functional disorders in 8.9% of cases. The main reason for permanent (more than 6 months) eyelid retraction in 18.8% of patients was tissue deficiency, including through-and-through eyelid defects in 2.9% of cases. In 15.0% of patients, soft tissue deficiency was combined with a defect in the lower wall of the orbit and/or the anterior wall of the maxillary sinus. Using CT, in 4.8% of cases, damage to the zygomatico-orbital complex with a defect in the bone tissue of the anterior wall of the maxillary sinus and/or the lower wall of the orbit was detected. With retraction of the lower eyelids, lagophthalmos was diagnosed in 7.3% of patients with an average value of 3.81 ±0.14 mm; with retraction of both eyelids of one eye, lagophthalmos was more pronounced and amounted to 7.10 ±0.30 mm. In 5.9% of patients, dystopia of the outer and in 0.8% of cases of the inner corners of the eye was diagnosed, which was 5.7 ±4.0 mm for post-traumatic injuries, and 2.8 ±0.6 mm after blepharoplasty operations.

The presence of dystopia was an important clinical sign of anomaly of development, attachment, damage, hyperelasticity of the eyelid ligaments and an indication for canthoplasty or canthopexy. Hidden retraction of the lower eyelids (without lagophthalmos) after aesthetic blepharoplasty was diagnosed in 18.6% of patients, amounted to 2.70 ± 0.53 mm and was manifested by an arched bend of the costal edge of the eyelid and a rounded shape of the palpebral fissure.

Based on the studies, clinical, intraoperative observations and analysis of the results obtained, the main factors causing the formation of eyelid retraction were established: tissue deficiency, scar contracture, including the tarso-orbital fascia to the lower wall of the orbit or levator, hypotension, hyperelasticity of tissues, including the tarsal plate and ligamentous apparatus, exophthalmos, insufficiency of bone support, which were considered during blepharoplasty operations.

4. Conclusion
Diagnostic signs-causes of eyelid retraction were established - tissue deficiency, pathological scars, lack of sufficient bone support for the lower eyelid, levator pathology, lower eyelid hypotension and tissue hyperelasticity, including the tarsal plate and ligamentous apparatus of the eyelids in various combinations, reflecting the prevalence of the pathological process in deformities and defects of the eyelids. According to the clinical and morphological study, it was found that the volume of surgical intervention in patients with involutional deformities of the eyelids and soft tissues of the periorbital region depends on the presence of pseudoblepharochalasis, blepharochalasis, blepharoptosis, A-deformity, epicanthus, and risk factors for the formation of lower eyelid retraction (hypotension, tissue hyperelasticity, exophthalmos, expansion of the correction zone during resection of malar fat), which was the basis for creating a working classification and developing a differentiated approach to surgical treatment. The use of improved upper aesthetic blepharoplasty with a vertical dissection of the orbital part of the orbicular muscle of the eye by the type of notches, techniques for forming the fold of the upper eyelid by septo-aponeurotic fixation, and developed methods for correcting brow ptosis in pseudoblepharochalasis can improve the aesthetic component of blepharoplasty operations with involutional deformities of the upper eyelids and adjacent areas.

For the most objective and accurate assessment of the state of altered tissues in patients with deformities, defects of the eyelids and soft tissues of the periorbital region of various etiologies, the use of improved classifications is shown in the complex "orbit-eye-eyelids-periorbital region".

The modified rotational buccal-zygomatic flap is recommended for the elimination of extensive defects, including the eyelids, two or more anatomical areas located in the central parts of the face, a vascularized frontal flap - for isolated multilayer eyelid defects, a full-layer free skin flap - for superficial defects of the eyelids and surrounding areas combined with the strengthening of the supporting structures of the century. To eliminate limited superficial defects of the eyebrow, it is recommended to use autotransplantation of graft flaps containing 1-2 hair follicles, with a large defect in the eyebrow region - a vascularized temporal flap on a hidden vascular pedicle, which improves the efficiency of surgical correction.

References:
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