



## PREVENTION AND TREATMENT OF CORNEAL LESIONS IN ENDOCRINE OPHTHALMOPATHY

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### Abstract

This article provides clear and detailed information about corneal lesions in endocrine ophthalmopathy. In this article facts about the causes of this illness are mentioned, in turn, ways to prevent and cure this illness are also clarified.

**Keywords:** endocrine ophthalmopathy, vision, muscle, treatment, patient, surgery, eyeball, cell, eyelid, biopsy.

### Introduction

Endocrine ophthalmopathy (EOP) is a progressive disease of the soft tissues of the orbit and eye, which is based on immunomediatory inflammation of the extraocular muscles and orbital fiber (A.F. Brovkina, 2006). EOP develops in 50-70% of patients with Graves-Bazetov disease (Wiersinga W.M., Bartalena L, 2002). One of the most severe, leading to a significant decrease in vision, complications of EOP is corneal damage. The progression of stromal defects is often complicated by purulent melting of the cornea. If the elimination of lagophthalmos fails, the volume of soft tissues of the orbit decreases and intraorbital pressure decreases, corneal perforation is possible, which, according to Ogura J.H. (1978), leads to the development of panophthalmitis in 1.8% of patients.

Such a course of EOP is rarely observed, and therefore, only descriptions of individual clinical cases are found in the literature and there are no clear recommendations for the treatment of this category of patients (Heinz C, Eckstein A et. al, 2004). Due to the severe consequences of the involvement of the cornea in the pathological process, the prevention of this condition becomes particularly relevant, however, data on the risk factors of corneal damage in EOP are different and few (Brovkina A.F., Panteleeva O.G., 2003; Eckstein A.K., Finkenrath A. et. al., 2004). In addition, the severe somatic condition of these patients sometimes does not allow for a full range of surgical measures, including decompression of the orbit, aimed at adequate protection of the cornea. Therefore, the search for new non-invasive methods remains an important task in the treatment of such patients.

Sometimes the cornea is involved in the pathological process with minor changes in the position of the eyeball and eyelids, or, conversely, with pronounced exophthalmos and lagophthalmos, it can remain intact for a long time. In this regard, the study of the influence of internal protective factors of the cornea on the processes of its epithelialization is of great interest. One of such factors is the family of antimicrobial peptides of defensins synthesized in the epithelial cells of the conjunctiva and cornea (Schroder J-M, Raida M. et al., 1999; Chaly YV, Paleolog E.M. et. al., 2000). p-defensin-2 (HBD-2) is not normally produced, its synthesis is stimulated by bacterial antigens, as well as in violation of the integrity of the corneal epithelium. The first results indicating the role of this protein in infectious



diseases of the cornea and in "dry eye" syndrome have been obtained, however, no studies have been conducted on its role in protecting the cornea in EOP.

The effectiveness of treatment is evaluated by several parameters: visual acuity, corneal condition, eyeball retention, lagophthalmos, width of the eye slit, retraction of the upper and lower eyelids. As a result, it is shown that there is a pronounced positive dynamics in all these parameters after treatment, in all cases the difference is statistically significant.

In some cases, botulinum toxin type A (BTA) was injected into the muscle lifting the upper eyelid for better immobilization of the eyelids after tarzoraphy. In order to eliminate the retraction, the upper tarsal muscle tendon was cut off or a full-layer blepharotomy was used, a mucoperiosteal flap was transplanted to the lower eyelid. In the treatment of patients with severe dry eye syndrome, occlusion of the lower lacrimal points was performed in the following ways: the use of occluders (temporary occlusion), radiosurgical coagulation of the lacrimal point and occlusion with a mucosal transplant.

To determine the probability of corneal damage in EOP, the following prognostic factors can be used: the patient's age, the activity of the disease, the width of the eye slit, the magnitude of retraction of the upper eyelid and the degree of staining of the conjunctiva with vital dyes. Treatment of patients with corneal stroma defects in EOP should be combined and include corneal biopsy, surgery on the orbit and eyelids. With high activity of the orbital inflammatory process, simultaneous systemic use of glucocorticoids is necessary.

Covering the cornea with an amniotic membrane is advisable to combine with simultaneous partial or complete tarzoraphy, which significantly reduces the risk of deterioration of the cornea, lysis and traumatization of the biopsy during blinking movements. As a temporary way to correct lagophthalmos and reduce the width of the eye slit in EOP, it is possible to introduce a gel based on hyaluronic acid into the upper eyelid both as an independent procedure and as one of the stages of combined treatment. This is especially true in patients with severe somatic status or when the patient refuses surgery.

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