



## PATHOMORPHOLOGICAL TRICHIASIS DISEASES

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**Annotation:** Trichiasis is a disease of the visual organ, accompanied by an abnormal direction of eyelash growth. Clinically, the pathology is manifested by hyperemia of the eyes, photophobia, pain in the area of the orbit projection, increased lacrimation. Diagnosis of trichiasis includes collecting an anamnesis, conducting an external examination, biomicroscopy, and visometry. Minimally invasive (diathermocoagulation, electrolysis, argonlaser coagulation, cryotherapy) or operative techniques are used for treatment. The essence of surgical intervention is reduced to a through resection of the area with the wrong direction of eyelash growth. For generalized trichiasis, reconstructive surgery is recommended.

**Key words:** trichiasis, visometry, electrolysis, argonlaser coagulation, cryotherapy.

Trichiasis is a pathology of the location of the eyelashes, in which the growth zone of the hair follicles shifts towards the eyeball. Abnormal eyelash growth is a widespread phenomenon, but accurate statistical data are not available due to the low number of patients with mild cases who are referred to specialists. Usually the disease is acquired, less often there are congenital forms. Trichiasis is detected with the same frequency among males and females. It is more often diagnosed in elderly people. It is found in practical ophthalmology everywhere. The founder of the technique of operative correction of generalized trichiasis is Russian Professor V. N. Kanyukov, who in 1991 proposed a technique for expanding the intermarginal space by rotating the rhomboid segments of the cartilage.

### Causes of trichiasis

One of the most common causes of trichiasis is scarring of the free edge of the eyelids. Pathological keloid scars can occur with ocular scarring pemphigoid or trachoma, lead to displacement of the hair follicles, followed by a change in the direction of eyelash growth. Less often, trichiasis has an iatrogenic origin, which is associated with the formation of defects on the eyelids in the postoperative period. Cases of acquired pathology after traumatic injuries or chemical burns are described. The cause of the development of trichiasis can be a chronic or acute course of blepharitis in the anamnesis, which also causes deformation of the eyelash growth line.

Less often, the triggers of this disease are represented by degenerative or keloid changes in the orbital or palpebral conjunctiva. As a result of such changes, entropion develops, the concomitant pathology of which is trichiasis. It is often impossible to establish the etiology of the congenital form of the disease, which suggests its sporadic development. In rare cases, there is a relationship between the occurrence of pathology and a history of persistent herpes infection. The pathogenesis of the development of the clinical picture of trichiasis is a violation of the mechanism of lacrimal fluid production associated with hypofunction of goblet cells and compensatory hypertrophy of the lacrimal gland. An increase in the size of the gland is associated with constant functional activity due to chronic irritation of the bulbar conjunctiva with eyelashes.

### Symptoms of trichiasis

From a clinical point of view, there are local and diffuse forms of trichiasis. The pathology can be congenital or acquired. As a rule, the acquired form of the disease is unilateral, and the congenital lesion of the visual organ is more often binocular. If the eyelashes grow improperly, they constantly injure the orbital

and palpebral conjunctiva. This leads to the development of superficial punctate keratopathy and conjunctival injection. Patients with trichiasis complain of hyperemia of the eyes, photophobia, severe pain in the area of the orbit projection and constant lacrimation. The sensation of a foreign body in the eye causes frequent blinking, which does not bring relief, but only aggravates the clinical manifestations of trichiasis. Reflex blepharospasm is less common.

Long-term course of trichiasis aggravates the progression of punctate keratopathy and the formation of erosions of the cornea. Secondary changes may cause a slight decrease in visual acuity or a spasm of accommodation. Trauma to the skin leads to the appearance of small ulcers that do not heal for a long time due to the contact of tear fluid on them. In generalized trichiasis, patients report increased headaches when looking at a light source. In addition to the pronounced discomfort, trichiasis is manifested by a cosmetic defect.

#### Diagnostics

Diagnosis of trichiasis is based on anamnestic data, results of external examination, biomicroscopy, and visometry. The etiology of this disease is indicated by such anamnestic information as the presence of traumatic injuries, inflammatory processes of the eyelids or conjunctiva, chemical burns. Less often, patients report a burdened family history (the presence of trichiasis in close relatives). When conducting an external examination, local or generalized changes in the eyelash growth zone, conjunctival injection, eyelid hyperemia, increased tearing are detected.

A detailed examination is performed using biomicroscopy with a slit lamp. The method allows you to visualize erosive changes in the edges of the eyelids, abnormal direction of the eyelash growth zone, pathological areas of contact of the eyelashes with the cornea. To study changes in the cornea and orbital conjunctiva in trichiasis, biomicroscopy is performed using a dye and a blue cobalt filter. Fluorescein stains areas of pinpoint keratopathy, erosive changes in the cornea, conjunctival damage, which makes them accessible for visualization. Visometry is an auxiliary research method for detecting changes in visual acuity. A prolonged course of trichiasis leads to a spasm of accommodation, and secondary changes lead to minor myopia.

Differential diagnosis of trichiasis is performed with entropion, epiblepharone and distichiasis. With entropion, the area of the eyelashes does not change, the eyelid is inverted, which leads to a secondary reversal of the eyelashes towards the eyeball. Unlike trichiasis, epiblepharon is in most cases a genetically determined pathology with the greatest prevalence among people of the Mongolian race. The direction of the eyelashes in this pathology changes due to the formation of an additional skin fold on the lower eyelid. In case of distichiasis, the eyelash growth zone is not changed, traumatization of the orbital conjunctiva and cornea occurs due to an additional row of eyelashes.

#### Treatment of trichiasis

The treatment strategy for trichiasis depends on the form of the disease. For local lesions, the method of choice is diathermocoeagulation using a special needle-shaped electrode. The procedure is performed in the course of eyelash growth up to its bulb. Also, in case of isolated changes, argonlaser coagulation on the skin of the eyelid at the exit point of the eyelash with abnormal growth can be used as a minimally invasive technique. After coagulation for 3 days, it is recommended to use antiseptic drops or ointments before going to bed. A widely used method of treating trichiasis – eyelash removal (removal with tweezers) is ineffective. Due to the rapid growth of eyelashes, the procedure must be repeated every 30 days.

You can remove eyelashes with trichiasis using the electrolysis technique. In this case, the electrocauter electrode is applied to the hair bag and the tissue is coagulated. A side effect of the procedure is the formation of small scars in the area of action of the electric scooter. With common forms of trichiasis, surgical intervention is necessary. The essence of surgical treatment of trichiasis is reduced to the implementation of end-to-end resection of the area with incorrect eyelash growth, followed by convergence of the wound edges and layer-by-layer suturing.

In generalized trichiasis, the most effective treatment method is reconstruction of the posterior pole of the affected eyelid by grafting a flap from the patient's lip mucosa. Also, as a material for plastic surgery, you can use autochondria, canned aponeurosis. An alternative option is to rotate the diamond-shaped segments of cartilage or hair sacs. A minimally invasive technique for the generalized form of trichiasis is cryotherapy with liquid nitrogen. If the protocol of the procedure is not followed, the cells of the epithelial layer may die

off. After removing eyelashes with the wrong direction of growth, patients with chiseled keratopathy are recommended to use an antibacterial ointment for 3 days to eliminate clinical symptoms.

#### Prognosis and prevention of trichiasis

There is no specific prevention of trichiasis. Non-specific preventive measures are limited to compliance with occupational safety regulations when working with acids and alkalis. For preventive purposes, all patients with a history of blepharitis should be monitored and treated promptly by an ophthalmologist. After traumatic injuries or burns of the eyes, the costal edge of the eyelid should be carefully sutured or ankyloblepharon should be formed. To prevent the development of frequent relapses of trichiasis, specific therapy should only be performed by a specialist.

The prognosis for life and working capacity in trichiasis is favorable. In the absence of timely treatment, a slight decrease in visual acuity or secondary complications may occur.

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