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MODERN APPROACHES TO THE TACTICS OF SURGICAL TREATMENT OF GLAUCOMA IN CATARACTS

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Abstract: All patients were examined in the eye department of the SamMI clinic. All patients underwent visometry, pneumotonometry, autorefractometry, and ultrasound examination of the eye. All patients were divided into two groups: the main and the control. Currently, there are 3 main approaches to the problem of surgical treatment of patients with a combination of cataracts and primary glaucoma: cataract extraction (CE) with implantation of an intraocular lens (IOL); combined one-stage intervention with IOL implantation, two-stage treatment. Analysis of accumulated experience indicates that no obvious connection between the cataract and glaucomatous process in terms of clinical symptoms has been identified. If in these cases intraocular pressure is compensated by medications, then the question concerns exclusively the treatment tactics: to operate or not, if to operate, then at once or in stages and in what sequence. Depending on the degree of compensation of ophthalmotonus, stage and form of the glaucoma process, it is possible to carry out staged or combined surgical treatment.

Key words: glaucoma, cataract, pseudoex foliation syndrome, cataract phacoemulsification, intraocular lens implantation.

Introduction. The prevalence of such a combined pathology as glaucoma with cataract, which is one of the main causes of blindness and low vision, varies from 17.0 to 38.6%. According to the literature, in patients with primary glaucoma over 50 years of age, cataract occurs almost three times more often than in the same age group of people who do not suffer from glaucoma. It is noted that cataract in patients with glaucoma progresses much faster. Thus, during the first two years after the diagnosis of cataract, significant progression of lens opacity from the initial to immature stage is observed on average in 25% of patients with glaucoma, while in patients with age-related cataract - in about 11% of cases. The combination of glaucoma with cataract is such a common and typical phenomenon that the question of the pathogenetic relationship of these diseases is increasingly discussed in the literature. It is not entirely clear, although it is possible that there is a cause-and-effect relationship between glaucoma and cataract in the so-called exfoliative syndrome with characteristic multiple small white deposits and depigmentation of the pupillary margin. In the exfoliative form of glaucoma, dystrophic changes in the tissues of the eye are more pronounced, and the incidence of this pathology increases to 40-85%. In addition, the frequency of cataract detection in patients with advanced stages of the glaucoma process also increases significantly. Clinical experience shows that the appearance of opacities in the lens in the form of complicated cataracts with their subsequent progression is quite often observed after antiglaucoma operations. This suggests the existence of so-called trabecular risk factors in cataractogenesis, since the development of cataracts after trabeculectomy can increase to 78%. A major role in the pathogenesis of the development and progression of cataracts in patients with glaucoma is attributed to disturbances in hydrodynamics ,

hemomicrocirculation, dystrophic and immunological changes in the tissues of the eye, inherent in the glaucoma process. In this regard, lens opacity in glaucoma is considered as complicated cataract, given that glaucoma progresses against the background of ophthalmotonus fluctuations, changes in the composition of the chamber fluid and metabolism of the eye structures dependent on it. This is confirmed by the frequent occurrence of pseudoexfoliation, posterior synechiae and rigid pupil. In addition, there is evidence that not only increased IOP itself, but also local hypotensive therapy to a significant extent lead to an increased risk of lens opacity in various locations. Thus, with long-term use of local hypotensive drugs, not only does the level of oxidation-reduction and metabolic processes in the eye tissues deteriorate, which to a certain extent explains their cataractogenic properties, but a number of systemic side effects may also occur, including tachyphylaxis. In addition, quite often the progression of cataracts (especially posterior cortical and subcapsular) is observed not only with normal, but also with low levels of postoperative IOP (≤9 mm Hg). In patients with glaucoma with initial cataracts, some features of the morphological structure of the lens have been identified, which primarily concern the anterior and posterior capsules. Their occurrence is associated with the same metabolic and biochemical changes in the aqueous humor. Thus, a distinctive feature of the posterior capsule of the lens in patients with glaucoma is a greater degree of its weakening and thinning in comparison with similar changes in senile cataracts. In addition, in the crunch In glaucomatous eyes, the appearance of slit-like defects has been found, which is associated with the influence of the vitreous body on the metabolism of the lens. This is confirmed by the topography of such opacities of the lens, which in glaucoma eyes develop mainly in the posterior cortical and subcapsular layers. It is known that in some cases, ophthalmic hypertension may not be primary, but secondary in nature, since it develops against the background of processes occurring in the lens. In particular, this applies to phacolytic glaucoma, in which an increase in intraocular pressure occurs due to swelling of the cataract. A special place is occupied by a specific form of ocular hypertension called phacomorphic glaucoma (PMG), which has recently begun to occupy a significant place among all known forms of glaucomas. At the same time, the difficulties in diagnosing PMG are primarily associated with the lack of obvious clinical symptoms of this disease, which could be used for differential diagnosis.

Currently, accumulated experience shows that cataracts in glaucoma are a fairly common pathology of the visual organ. Given the complicated nature of the eye pathology, the appearance and progression of cataracts can negatively affect the course of the glaucoma process and quite quickly lead to persistent loss of visual functions. In this regard, ophthalmologists pay special attention to the development of approaches to the tactics of active management of such patients.

Despite the revolutionary changes in the technologies of surgical intervention for both cataracts and glaucoma, in the treatment of this combined pathology, especially in the early stages, preference is given to conservative therapy methods. This is especially true for patients with high visual acuity and stable functional indicators indicating compensation of the glaucoma process.

The aim of the study was to evaluate modern methods of treating glaucoma with cataracts.

Materials and methods of the study. All patients were examined in the eye department of the SamMI clinic. All patients underwent visometry, pneumotonometry, autorefractometry, and ultrasound examination of the eye. All patients were divided into two groups: the main and the control. Currently, there are 3 main approaches to the problem of surgical treatment of patients with a combination of cataract and primary glaucoma:

1. cataract extraction (CE) with implantation of an intraocular lens (IOL);
2. combined one-stage intervention with IOL implantation;
3. two-stage treatment.

Analysis of accumulated experience indicates that no obvious connection between the cataract and glaucomatous process in clinical symptoms has been identified. If in these cases intraocular pressure is compensated by medications, then the question concerns exclusively the treatment tactics: to operate or not, if to operate, then one-stage or in stages and in what sequence. Depending on the degree of compensation of the ophthalmotonus, the stage and form of the glaucoma process, it is possible to carry out staged or combined surgical treatment. It is noted that cataract removal without antiglaucoma intervention is becoming increasingly popular, but its implementation is advisable with a normal level of intraocular pressure (IOP), with a minimal regimen of antiglaucoma drugs, as well as in the absence of pronounced glaucoma changes in the visual field (VF) and optic nerve head (ONH). At the same time, the most pronounced hypotensive effect after such an operation is observed in patients with closed-angle glaucoma (CAG), with phacomorphic glaucoma (PMG) and with pseudoexfoliation syndrome (PES). However, with initial and immature cataracts against the background of unstabilized glaucoma with high IOP, a two-stage treatment is considered more indicated and appropriate: hypotensive surgery at the first stage, cataract extraction - at the second. At one time, Academician V.P. Filatov argued this point of view by the fact that performing antiglaucoma surgery on an aphakic eye is more difficult and less effective in terms of achieving a hypotensive effect. This was explained by the fact that after cataract removal, pronounced scarring processes usually develop in the filtration zone. From this point of view, it is more justified to perform manipulations that allow, first of all, to achieve compensation of intraocular pressure, and then decide on the issue of cataract removal.

Conclusions. Thus, the two-stage technique involves performing hypotensive surgery as the first stage, and cataract removal surgery as the second. This tactic is especially preferable in patients with severe decompensation of IOP (at advanced or advanced stages of glaucoma). In two-stage treatment, the choice of antiglaucoma surgery is determined by the experience and preferences of the surgeon. In these cases, a number of ophthalmologists believe that performing trabeculectomy before cataract extraction is most preferable and will allow for cataract removal in the future. to be carried out in less extreme conditions. With regard to the second stage, the choice of cataract removal technique requires a careful approach and preparation from the ophthalmic surgeon. It is necessary to determine in advance the location of the future cataract access. It should be taken into account that the opposite location of the two incisions (cataract - from above, and antiglaucoma - from below) can contribute to the occurrence of dystrophic changes in the cornea, displacement of the pupil as a result of the formation of adhesions, which will have an unfavorable effect on both the cosmetic result and the quality of the patient's vision. In this regard, both antiglaucoma surgery and cataract removal are best performed in the upper half of the eyeball. To obtain favorable results after cataract removal in a single eye with concomitant glaucoma, it is extremely important to achieve adequate ophthalmotonus before surgery to reduce the risk of intraoperative complications. In this case, the use of a two-stage technique for surgical treatment of cataracts and glaucoma in single eyes is more preferable, since the one-stage technique is regarded as an unjustified risk for the development of intra- and postoperative complications. However, failures of surgical treatment are known even with a two-stage approach. First of all, we are talking about the fact that even after a successful filtering operation and normalized IOP, glaucoma optic neuropathy continues to progress in at least every fifth patient over the next 10-15 years, which makes us seriously think about finding and implementing new approaches to preventive and postoperative neuroprotective therapy. In recent years, due to the widespread introduction of new minimally invasive technologies, the proportion of combined one-stage operations in this category of patients has increased significantly. In these cases, antiglaucoma (AG) surgery and cataract removal are

performed simultaneously, mainly using an ultrasound method. All known types of antiglaucoma surgeries can be used as a hypotensive stage, among which are:

1. Laser interventions (laser trabeculoplasty, laser iridectomy; laser gonioplasty, laser trabeculopuncture, laser descemetogoniopuncture, laser transscleral cyclophotocoagulation).
2. Antiglaucoma surgeries (non-perforating, filtering type, on the ciliary body, to stimulate uveoscleral outflow; using drainage devices).

Laser surgery is increasingly being introduced into clinical practice both as independent surgeries and in combination with non-perforating microsurgical surgeries. They are especially preferred in the treatment of uncompensated glaucoma. If necessary, depending on the IOP level achieved with laser treatment and stabilization of the glaucoma process, either IOP correction with local antiglaucoma drugs or repeated laser intervention are performed. For example, in patients with low visual functions and insufficient IOP reduction after transscleral cyclophotocoagulation, it can be repeated within 2 to 4 weeks after the first operation. In the absence of compensation of the glaucoma process after laser interventions, the question of surgical treatment is decided. When choosing antiglaucoma operations, different authors give preference to different types of surgical intervention. Thus, some prefer trabeculectomy, others - non-penetrating deep sclerectomy, others - trabeculectomy with intrascleral microdrainage or deep sclerectomy. Many years of experience using non-penetrating technology have shown that non-perforating surgeries have a number of advantages over penetrating surgeries: gradual reduction of ophthalmotonus, decreased risk of infection, significantly lower incidence of hemorrhages, absence of serious complications associated with postoperative hypotension, and the possibility of wider use in combination with laser interventions. All of the above, including a significant degree of atraumatic nature and low level of postoperative complications, allow using these surgeries at the earliest stages of glaucoma development in patients with a high level of visual functions. The main disadvantages of non-penetrating surgeries are considered to be the short duration of the hypotensive effect and some technical difficulties (insufficient microperforation in 30% of cases and depth of excision of scleral tissue in 10-20% of cases).

Nevertheless, filtering surgeries, which allow obtaining the maximum hypotensive effect after the first surgery, are still the most widespread. It is known that trabeculectomy remains the "gold standard".

When choosing a method of surgical treatment of glaucoma, one should take into account the Recommendations of the European Glaucoma Society, according to which it is recommended to perform: trabeculectomy - for primary open-angle pi glaucoma; trabeculectomy in combination with the use of metabolites - in secondary glaucoma (neovascular, uveal), juvenile glaucoma and in repeated operations, as well as in cases of significant decrease in the level of IOP after surgery; non-penetrating operations - if the target IOP is not very low; implantation of drains - in the absence of conditions for mobilization of the bulbar conjunctiva in the upper parts of the eyeball, in secondary glaucoma, as a reoperation in the absence of compensation after previously performed operations, including trabeculectomy using metabolites cyclodestructive operations - in terminal stages and an unfavorable prognosis for visual functions. In case of severe lens opacity, moderately increased ophthalmotonus, impossibility of 2-stage treatment due to the general condition of the patient, preference remains for a combined intervention or the so-called "triple procedure" in the form of a single-stage cataract removal with implantation of an artificial lens and antiglaucoma surgery. This makes it easier for the patient in terms of necessary repeated examinations, hospitalization and reduction of the postoperative rehabilitation period, which, in turn, significantly affects the quality of life. Considering that the main goal of surgical treatment of patients with a combination of glaucoma and cataracts is to preserve visual functions, reduce IOP, stabilize the hydrodynamics of glaucomatous neuroopticopathy, one should not expect maturation of cataracts with concomitant glaucoma, since with progressive lens opacity, control over the state of the optic disc with retinal ganglion cells may be lost. In recent years, the widespread introduction of minimally invasive microsurgical techniques for

glaucoma and cataract has significantly reduced the risk of postoperative complications, and the tactics of surgical treatment of this contingent of patients has become more decisive. Thus, phacoemulsification of cataracts and transparent lenses has increasingly been performed to correct IOP in primary angle-closure and POU phacomorphic glaucoma, which allows restoring normal tissue relationships and IOG outflow at the level of the angle-closure glaucoma. In the presence of a very dense nucleus, manual tunnel cataract removal through a 4-5 mm corneoscleral approach can be used. In some cases, this technique can be combined with TE in the tunnel area. In recent years, the question of the advisability of intraocular lens (IOL) implantation in the case of a combined diagnosis of glaucoma and cataract has most often been decided in favor of intraocular correction with intracapsular IOL fixation, which ensures minimal trauma to the iris and the anterior capsule area. However, in case of damage to the posterior capsule, other types of IOL fixation can now be used. Currently, intraocular correction is preferable for patients with advanced stages of glaucoma and with pronounced field defects. With regard to the choice of the method of hypotensive surgery in a combined technique, in patients with open-angle glaucoma it does not differ significantly from that in a staged surgical intervention. Nevertheless, non-penetrating interventions in combination with manual or ultrasonic cataract removal remain the operations of choice in the one-stage, combined treatment of patients with cataract and glaucoma.

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