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**ПРИЧИНЫ И КЛИНИКО-ФУНКЦИОНАЛЬНЫЕ ПОКАЗАТЕЛИ ГЛАЗ С
ДИСЛОКАЦИЯМИ ЗАДНЕКАМЕРНЫХ ИНТРАОКУЛЯРНЫХ ЛИНЗ ПОСЛЕ
ВЫПОЛНЕНИЯ ФАКОЭМУЛЬСИФИКАЦИИ КАТАРАКТЫ**

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Аннотация. Актуальность. Причины и клиничко-функциональные показатели глаз с дислокациями заднекамерных интраокулярных линз после выполнения факоемульсификации катаракты являются одной из актуальных проблем в офтальмологии. **Цель.** Оценка клиничко-функционального состояния глаза у пациентов с дислокацией интраокулярной линзы после факоемульсификации. **Материалы и методы.** Настоящее исследование проведено на базе отделения офтальмологии многопрофильной клиники Ташкентского государственного медицинского университета и Республиканского специализированного научно-практического медицинского центра микрохирургии глаза в период с сентября 2024 года по сентябрь 2025 года. В исследование включён 21 пациент



(21 глаз), у которых после факоемульсификации катаракты с имплантацией заднекамерной интраокулярной линзы (ЗК ИОЛ) была диагностирована её дислокация. Пациенты были разделены на две группы: 1-я (основная) группа – пациенты, у которых интраокулярная линза была смещена в задней камере; 2-я (контрольная) группа – пациенты, у которых интраокулярная линза была правильно зафиксирована в задней камере. В исследование включались пациенты в возрасте от 50 до 80 лет с дислокацией заднекамерной интраокулярной линзы после факоемульсификации катаракты. Исключались пациенты с тяжёлыми офтальмологическими заболеваниями (глаукома, макулодистрофия, диабетическая ретинопатия) и травматическими повреждениями органа зрения в анамнезе. **Результаты исследования.** В ходе исследования были проанализированы 21 пациент (21 глаз) с дислокацией заднекамерных интраокулярных линз после факоемульсификации катаракты. Оценка клинико-функциональных показателей позволила выявить характерные особенности зрительных нарушений, структурных изменений глазного яблока и частоту различных типов дислокаций интраокулярных линз. **Заключение:** Полученные данные подтверждают ведущую роль дегенеративных изменений циннового аппарата в механизме дислокации интраокулярной линзы, а также важность раннего выявления и коррекции офтальмогипертензии и макулярных изменений. Оптимизация хирургических подходов и индивидуальный подбор тактики лечения пациентов с дислокацией интраокулярной линзы являются перспективными направлениями дальнейших исследований.

Ключевые слова: интраокулярная линза, факоемульсификация, катаракта, дислокация, хирургия катаракты, фиксация интраокулярной линзы в задней камере.

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**KATARAKTA FAKOEMULSIFIKATSIYASIDAN KEYINGI ORQA KAMERA
INTRAOKULYAR LINZALARI DISLOKATSIYASINING SABABLARI VA KLINIK-
FUNKSIONAL KO'RSATKICHLARI.**

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Annotatsiya. Dolzarbligi. Katarakta fakoemulsifikatsiyasidan keyingi intraokulyar linzalar (IOL) dislokatsiyasining sabablari va klinik-funksional ko'rsatkichlari oftalmologiyada dolzarb muammolardan biri hisoblanadi. **Tadqiqot maqsadi:** Fakoemulsifikatsiyadan keyin intraokulyar linza dislokatsiyasi bo'lgan bemorlarda ko'zning klinik va funksional holatini baholash. **Materiallar va metodlar.** Ushbu tadqiqot Toshkent davlat tibbiyot universiteti ko'p tarmoqli klinikasi ko'z kasalliklari bo'limi va "Respublika ixtisoslashtirilgan ko'z mikroxirurgiya ilmiy-amaliy tibbiyot markazi"da 2024-yil sentabrdan 2025-yil sentabrgacha bo'lgan davrda o'tkazildi. Tadqiqotga katarakta fakoemulsifikatsiyasidan so'ng orqa kamera implantatsiya qilingan intraokulyar linzalar dislokatsiyasi tashxisi qo'yilgan 21 nafar (21 ko'z) bemor tanlab olindi. Bemorlar ikki guruhga ajratildi. 1- guruh(asosiy)-orqa kamera intraokulyar linzalari dislokatsiyaga uchragan bemorlar. 2- guruh(nazorat)-intraokulyar linzalar orqa kamera implantatsiya qilingan bemorlar. Tadqiqotga 50–80 yosh oralig'idagi, katarakta fakoemulsifikatsiyasidan so'ng orqa kamera intraokulyar linzalari dislokatsiyasiga uchragan bemorlar kiritildi. Og'ir oftalmologik kasalliklar (glaukoma, makula degeneratsiyasi, diabetik retinopatiya) va ko'rish organida shikastlanish kuzatilgan bemorlar tadqiqotdan chiqarib tashlandi. **Tekshiruv natijalari.** Tadqiqotga 50–80 yosh oralig'idagi, katarakta fakoemulsifikatsiyasidan so'ng orqa kamera intraokulyar linzalari dislokatsiyasiga uchragan bemorlar kiritildi. Og'ir oftalmologik kasalliklar (glaukoma, makula degeneratsiyasi, diabetik retinopatiya) va ko'rish organida shikastlanish kuzatilgan bemorlar tadqiqotdan chiqarib tashlandi. **Xulosa.** Olingan ma'lumotlar intraokulyar linza dislokatsiyasi mexanizmda Zinn boylamidagi degenerativ o'zgarishlarning yetakchi rolini tasdiqlaydi. Shuningdek, ko'z gipertenziyasi va makula o'zgarishlarini erta aniqlash hamda ularni vaqtida tuzatish muhimligi qayd etildi. Jarrohlik yondashuvlarini optimallashtirish va intraokulyar linza dislokatsiyasi bo'lgan bemorlarni davolash taktikasini individual tanlash keyingi tadqiqotlar uchun istiqbolli yo'nalishdir.

Kalit so'zlar: ko'z ichi linzalari, fakoemulsifikatsiya, katarakta, dislokatsiya, katarakta jarrohligi, orqa kamera intraokulyar linzani fiksatsiyalash.

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CAUSES AND CLINICAL-FUNCTIONAL PARAMETERS OF INTRAOCULAR LENS DISLOCATION AFTER CATARACT PHACOEMULSIFICATION.

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Annotation: The causes and clinical and functional parameters of intraocular lens dislocation after cataract phacoemulsification are one of the current problems in ophthalmology. **Materials and methods.** This study was conducted at the Ophthalmology Department of the Multidisciplinary Clinic of Tashkent State Medical University and “Republican Specialized Scientific-Practical Medical Center of Eye Microsurgery” from September 2024 to September 2025. 21 patients (21 eyes) diagnosed with dislocation of the posterior chamber intraocular lens implanted after cataract phacoemulsification were selected for the study. Patients were divided into two groups. Group 1 (main) - patients with dislocation of the posterior chamber intraocular lens. Group 2 (control) - patients with implantation of the intraocular lens into the posterior chamber. The study included patients (50-80 years old) with posterior chamber intraocular lens dislocation after cataract phacoemulsification. Patients with severe ophthalmological diseases (glaucoma, macular degeneration, diabetic retinopathy) and damage to the organ of vision were excluded. Clinical and instrumental methods were used to comprehensively assess visual functions and the state of eye structures. **Results of the study.** The study analyzed 21 patients (21 eyes) with posterior chamber intraocular lens dislocation after cataract phacoemulsification. The assessment of clinical and functional indicators made it possible to identify the characteristic features of visual impairment, structural changes in the eyeball, and the frequency of various



types of intraocular lens dislocation. **Conclusion.** The data obtained confirm the leading role of degenerative changes in the bundle of Zinn in the mechanism of intraocular lens dislocation, as well as the importance of early detection and correction of ocular hypertension and macular changes. Optimization of surgical approaches and individual selection of treatment tactics for patients with intraocular lens dislocation are promising areas for further research.

Keywords: intraocular lens, phacoemulsification, cataract, dislocation, cataract surgery, fixation of intraocular lens in the posterior chamber.

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Relevance. Phacoemulsification of cataract with implantation of a posterior chamber intraocular lens (PCIOL) is a modern, highly effective, and widely used method of surgical cataract treatment. Despite its minimally invasive nature and generally favorable outcomes, various postoperative complications may still occur. One of the most significant among them is dislocation of the intraocular lens, which represents a displacement of the artificial lens from its physiologically correct position.

This condition leads to decreased visual acuity, refractive disturbances, pupil instability, elevated intraocular pressure, and other ophthalmic issues that may require additional intervention. The incidence of PCIOL dislocation depends on multiple factors, including patient age, weakness of the zonular fibers, presence of pseudoexfoliation syndrome, surgical technique characteristics, and accompanying ocular pathology. Despite numerous studies dedicated to this problem, the mechanisms underlying IOL dislocation, its impact on clinical and functional ocular parameters, as well as optimal approaches to prevention and management, remain insufficiently understood. The incidence of PCIOL dislocation depends on multiple factors, including patient age, weakness of the zonular fibers, presence of pseudoexfoliation syndrome, surgical technique characteristics, and accompanying ocular pathology. Despite numerous studies dedicated to this problem, the mechanisms underlying IOL dislocation, its impact on clinical and functional ocular parameters, as well as optimal approaches to prevention and management, remain insufficiently understood.

The incidence of PCIOL dislocation depends on multiple factors, including patient age, weakness of the zonular fibers, presence of pseudoexfoliation syndrome, surgical technique characteristics, and accompanying ocular pathology. Despite numerous studies dedicated to this problem, the mechanisms underlying IOL dislocation, its impact on clinical and functional ocular parameters, as well as optimal approaches to prevention and management, remain insufficiently understood. Further investigation of these aspects will help improve cataract surgery outcomes, enhance rehabilitation quality, and reduce the likelihood of repeated surgical interventions.

Purpose of the Study. To assess the clinical and functional status of the eye in patients with posterior chamber intraocular lens dislocation after phacoemulsification of cataract.

Materials and Methods. The study was conducted at the Department of Ophthalmology of the Multidisciplinary Clinic of the Tashkent State Medical University and the Republican Specialized Scientific and Practical Center of Eye Microsurgery from September 2024 to September 2025. The study included 21 patients (21 eyes) in whom dislocation of a posterior chamber intraocular lens (PCIOL) was diagnosed after phacoemulsification of cataract with lens implantation. Patients were divided into two groups: Group 1 (main group): patients in whom the



intraocular lens was dislocated within the posterior chamber; Group 2 (control group): patients in whom the intraocular lens remained securely fixed in the posterior chamber. The study included patients aged 50–80 years with posterior chamber intraocular lens dislocation after cataract phacoemulsification. Patients with severe ophthalmic conditions such as glaucoma, macular degeneration, diabetic retinopathy, as well as those with a history of ocular trauma, were excluded. A comprehensive assessment of visual function and ocular structures was performed using clinical and instrumental diagnostic methods. Visual acuity was measured by visometry, while Goldmann applanation tonometry was used to determine intraocular pressure. Biomicroscopy enabled a detailed examination of the anterior segment and visualization of PCIOL position, and ophthalmoscopy was used to evaluate changes in the vitreous body and retina. To obtain a more detailed analysis of morphological and functional changes, modern imaging techniques were applied. Optical coherence tomography (OCT) was used for detailed assessment of the macular region and retina. Ultrasound biomicroscopy (UBM) provided visualization of the zonular fibers and capsular bag, and B-scan ultrasonography was performed in cases of significant opacity of ocular media to accurately determine the spatial position of the intraocular lens.

Results and Discussion. In this study, data from 21 patients (21 eyes) with posterior chamber intraocular lens (PCIOL) dislocation following cataract phacoemulsification were analyzed. Evaluation of clinical and functional parameters revealed characteristic features of visual impairment, structural changes of the eyeball, and the distribution of various types of IOL dislocation. The results of the ophthalmologic examination are summarized in Table 1. These findings reflect the prevalence of different types of IOL displacement and the degree of associated visual and structural abnormalities, enabling an objective assessment of patient status and the selection of an optimal treatment strategy.

Table 1. Ophthalmologic Examination Findings

Type of dislocation	Partial – 71,4% ($n = 15$), Complete – 28,6% ($n = 6$)
Uncorrected visual acuity (UCVA)	$0,21 \pm 0,09$
Best-corrected visual acuity (BCVA)	$0,42 \pm 0,11$
Mean intraocular pressure (mmHg)	$22,1 \pm 3,2$
Ocular hypertension (> 21 mmHg)	28,6% ($n = 6$)
Zonular fiber ruptures (UBM)	57,1% ($n = 12$)
Capsular bag deformation	28,6% ($n = 6$)
Cystoid macular edema (OCT)	14,3% ($n = 3$)
Foveal thinning	14,3% ($n = 3$)



The results confirm the significant role of zonular fiber weakness and capsular bag damage in the mechanism of PCIOL dislocation. They also highlight the necessity of careful monitoring of intraocular pressure and macular status in this category of patients.

Conclusion. The conducted study demonstrated that posterior chamber intraocular lens dislocation after cataract phacoemulsification predominantly presents as partial subluxation (71.4%) and is often associated with compromised integrity of the zonular fibers (57.1%) and deformation of the capsular bag (28.6%).

Functional impairments are manifested by reduced visual acuity (0.21 ± 0.09 uncorrected) and elevated intraocular pressure (22.1 ± 3.2 mmHg), with ophthalmic hypertension identified in 28.6% of cases. Optical coherence tomography revealed signs of cystoid macular edema in 14.3% of patients, underscoring the need for comprehensive monitoring of the macular region. The obtained data confirm the leading role of degenerative changes in the zonular apparatus in the mechanism of IOL dislocation, as well as the importance of early detection and timely correction of ophthalmic hypertension and macular alterations. Optimization of surgical approaches and individualized treatment strategies for patients with IOL dislocation represent promising directions for future research.

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