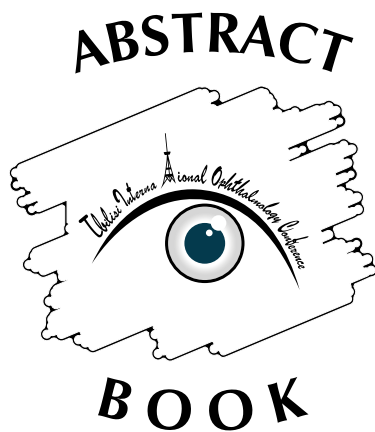


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HERPES NEONATORUM, CASE REPORT.

A.Davtyan. Shengavit Medical Center, Ophthalmology Department, Assistant at Eye diseases Department, National Institute of Health of Armenia, Zilfyan Eye Care Centre, Alexander Malayan Vision Center, Astghik Medical Centre, Ophthalmology Department. Yerevan, Armenia

Introduction: HSV infections are common worldwide, humans are considered to be the natural reservoirs. Neonatal herpes simplex virus (HSV) infection has high mortality and significant morbidity. Incidence estimates range from 1/3,000 to 1/20,000 births. HSV-1 and HSV-2 are both causes of eye infections, more commonly HSV-1 in neonates. Transmission is more likely with vaginal delivery, although the majority of women have no documented history of genital herpes. 3 types of neonatal herpes are classified: Skin, eyes, and/or mouth (SEM), central nervous system (CNS) involving and disseminated. The mortality of disseminated herpes simplex disease is 85%, neonates with untreated encephalitis, it is about 50%. SEM has low mortality but reoccurs in 90% of cases. Recurrence in SEM and CNS disease is common. The aim of this abstract is to show a challenging case of neonatal herpetic disease.

Methods: 40 days old male was seen at “Shengavit” MC with h/o 1 month tearing, conjunctival injection, light sensitivity, eyelids edema in the right eye and 1 month use of Tobradex, Tobrex, Maxitrol, Oftaquix, Cipro oxacin, Tetracycline ointment, arti cial tears. Examination revealed eyelid severe edema, conjunctival moderate injection, mild discharge, edematous almost opaque cornea and epithelial defect. Antibiotics were stopped, Fluorometholone and Arti cial tears were added for toxicity reduction and further evaluation. 3 days later cornea the eyelid edema was improved, corneal edema decreased, epithelial defect was not change. Mother denied any previous history of herpetic disease. However, patient referred to HSV IgG and IgM evaluation with positive results.

Results: Acyclovir 100 mg twice a day for 14 days was prescribed. The second day after initiating treatment the patient presented with a closed epithelial defect. After 3 months of treatment a mild anterior stromal scar was left.

Conclusion: Herpes neonatorum is rare but not a highly unusual disease. Manifestations generally occur between the 1st and 3rd weeks of life. Keep in mind herpetic cause in case of persistent epithelial defect.

PROSPECTS FOR THE USE OF BIOADHESIVES AND THERMOSENSITIVE POLYMER COMPOSITES IN OPHTHALMOLOGY: FORMULATION, TECHNOLOGY AND BIOPHARMACEUTICAL EVALUATION.

Aliosha Bakuridze, Davit Shengelia, Grigor Kamushadze, Badri Shengelia. Tbilisi State Medical University, Tbilisi, Georgia

One of the crucial roles in the treatment of ophthalmic diseases is played by pharmacotherapy, which aims to maintain the normal physiological state.

In ophthalmic practice, the local use of drugs by instillation into the conjunctival pocket or application has a long history. Recipes for eye medications are found in Egyptian papyrus. Liquid dosage forms were known as «collyria» and are believed to be the pre-version of eye drops. Until the 40s of the 20th century, ophthalmic drugs were mainly prepared «as needed» at a pharmacy.

In 1953, the US Food and Drug Administration decided that all non-sterile ophthalmic dosage forms were adulterated, and in 1955, the requirement for sterility was included in the US Pharmacopoeia. The next stage was the Japanese scientist S. Hosaka and others' discovery of the effectiveness and prolonged action of timolol maleate when used as an eye gel based on gellatin and xanthan gum [1,2].

In the 1990s, the role of gelling agents in the modified release of active pharmaceutical ingredients (API) was established. The inclusion of polymers in ophthalmic preparations increased the contact of active pharmaceutical ingredients (API) with the corneal surface, which became a prerequisite for increasing its bioavailability [3,4,5].

In modern ophthalmology, biopharmaceutical factors, including the dosage form, its administration, frequent instillation, etc., are considered to be one of the hindering factors of effective pharmacotherapy. [2].

In this way, it is appropriate to determine a convenient and long-acting dosage form, namely an eye in situ gel formulation, and develop a technology for administration and use in ophthalmological practice. The dosage form of the mentioned drug will be the drops, which are convenient to take, and under the influence of endogenous stimulation, the drops will be transformed into a mucoadhesive gel, which will adhere closely to the cornea of the eye and release API for a long time.

The aim of the study was to develop a composition of thermosensitive polymers and mucoadhesives and to determine the prospects of its use for the delivery of eye drops.

Based on the conducted experimental studies, a composition containing thermosensitive polymers and mucoadhesives, consisting of poloxamer 407, poloxamer 188, chitosan and polyacrylic acid, is provided in the condition of drops, which when taken (in situ) forms a mucoadhesive gel. The preparation technology of composition has been developed, quality indicators have been determined.

In order to determine the prospects of using the provided composition for the delivery of API in eye practice, the main characteristics were studied and it was determined that the adhesion force is $235 \pm 8.6\%$ compared to the standard, the temperature of the beginning of the transition from strip to gel is $30.3 \pm 1.30^{\circ}\text{C}$, and the endings - $32.1 \pm 1.10^{\circ}\text{C}$, gel formation time - $32.3 \pm 10\text{s}$, pH - 7.2 ± 0.14 , and the rheological characteristics of the strip and gel It is within the optimum range.

According to the research conducted on experimental animals, it is determined that the provided composition is not allergic, toxic and does not have a local irritating effect.

The composition developed as an active pharmaceutical ingredient includes an anti-inflammatory non-steroidal substance - diclofenac sodium, for reducing the side effects of it and prolonged action, a complex compound was synthesized of with API with pectin.

The release of diclofenac sodium and its complex compound from the in situ eye gel has been studied and it is established that diclofenac sodium is released within 2 hours, and from the provided complex compound within 6 hours.

The results of the conducted experiment prove that it is appropriate to continue the research on the basis of the provided composition to obtain an in situ gel containing active pharmaceutical ingredients of different nature.

OCULAR SURFACE OPTIMIZATION PRIOR TO INTRAOCULAR SURGERIES

Tamar Chitadze M.D.

Tbilisi State Medical University Eye Clinic “Akhali Mzera”, Tbilisi, Georgia

Purpose: Ocular Surface Disease (OSD) adversely affects preoperative planning for cataract and refractive surgery. The compromised ocular surface status can interfere with preoperative keratometry and biometry for intraocular lens (IOL) power calculation, corneal topography and aberrometry data for refractive surgery planning. We present our protocol for the combined treatment of OSD prior to surgery. As OSD pathogenesis is complex with its core mechanism tear hyperosmolarity, its treatment requires complex approach.

Methods: Before implementing Intense Pulsed Light (IPL) treatment modality into our practice, we have been using traditional treatment options along with manual expression of meibomian glands. In cases of anterior blepharitis before we proceed to the IPL therapy, we usually perform AB Max (Anterior MicroBlepharoExfoliation) in-office procedure for the removal of the debris. In our algorithm of OSD treatment the second step is IPL procedure followed by the Low-Level Light Therapy (LLLT). The efficacy of the treatment algorithm was assessed by the Ocular Surface Disease Index (OSDI) questionnaire, tear meniscus height (TMH), tear break-up time (TBUT) and findings on slit-lamp examinations.

Results: Although, satisfactory results were achieved with the traditional treatment, they were short-term and with the implementation of novel treatment protocol patients experienced long-lasting improvement. The efficacy of the treatment algorithm is depended on the number and frequency of the procedures. Not only the symptoms, but parameters of the ocular surface were improved following the combined treatment procedures that enabled us to obtain accurate preoperative data for the precise postsurgical results.

Conclusion: Maintaining a healthy ocular surface is essential for achieving the best visual outcome in cataract and refractive patients. Ocular surface preparation is beneficial not only in patients with established ocular surface disease, but also in those with minimal signs or symptoms of the disease. IPL therapy as a stand-alone procedure or in combination with other treatment modalities is a Gold Standard and is considered to be safe for the treatment of the MGD improving the tear film stability and hence, can optimize surgical outcomes.

DISORDERS OF THE LACRIMAL SYSTEM IN PATIENTS WITH UNDERLYING “GRAFT-VERSUS-HOST” DISEASE

Sergei Astakhov, Evgeny Akopov, Natalia Beldovskaya, Natalia Chistiakova, Alla Lisochkina Pavlov First State Medical University of St. Petersburg

Background. Actually, in most of the modern protocols of therapy of malignant and non-malignant hematological diseases, the *allogeneic hematopoietic stem cell transplantation* (allo-HSCT) from a genetically compatible donor is included as an effective treatment method. According to regional statistics, about 1800 bone marrow transplantation are performed per year, and during last 5 years, the number increased by 45%. The main complication of allo-HSCT is a “graft-versus-host” (GVH) reaction. Ocular GVH disease occurs no less frequently than GVH disease of other localizations, both in acute period and in chronic one. In patients with GVH, the eyes are involved in 40-76% of cases, and the structures of the ocular anterior surface and of the eye adnexa - eyelids, conjunctiva and lacrimal apparatus (LA) - suffer most commonly. In the literature, conjunctival lesions of different severity (in acute GVH disease, which proceeds as toxic-like syndrome), and the development of the dry eye syndrome involving meibomian glands and cornea are described. The disorders of lacrimal passages are underexplored. Very frequently such signs as redness, discomfort sensation, and feeling of ocular dryness, appearance of a discharge and photophobia are considered as mild ones, and are ignored both by patients and hematologists, due to severe systemic status of patients. At the very best, the treatment is performed by artificial tears alone. With time, the symptoms and signs progress, and the patient seeks ophthalmological attention already having serious problems of the lacrimal system. The opportunity of preventive care, timely diagnosis, and administration of optimal treatment in patients of this group is missed.

The aim of the study. Evaluation of the lacrimal system status in patients with underlying “graft-versus-host” reaction.

Materials and methods. 230 patients with history of allo-HSCT performed from 2018 through 2022 were included in our study. Apart from standard ophthalmological examination, the dry eye syndrome diagnostics was carried out (tear break-up time test, Schirmer I test - before HSCT and at different time points after it), as well as the lacrimal drainage system testing - traditional dacryologic tests, probing, and cone beam computed tomography of the lacrimal drainage system.

Results. The disorders of the lacrimal system were revealed in 127 cases (55.2 %). At the acute period, in 27 patients (21.2 %), the impairments of lacrimal secretion, mostly of mild degree, without any significant tear production lack were diagnosed. In chronic GVH disease, in 100 patients, besides increasing dryness and atrophy of the ocular mucosa, what led to the development of the dry eye syndrome (DES) already of moderate and severe degree in 59 patients (59.0 %), in 38 patients (38.0 %), concomitantly to the DES, fibrosis and inflammation of the lacrimal drainage system were found. The diagnosis of lacrimal drainage disorders in GVH disease was often hampered by the non-specificity of clinical signs of these conditions. In 3 cases (3.0 %), patients complained of tearing related only to the impairment of the tear drainage. In some cases, the impairment of tear drainage was of transient character.

Conclusions. The lacrimal drainage disorders in chronic GVH disease in more than 35 % of cases are accompanied by simultaneous insufficient tear production and by various tear drainage impairments. The treatment tactics in patients with tear drainage disorders in GVH disease is different from the care of patients with tearing of other origin, demands joint efforts of transplantologists, hematologists, and ophthalmologists. Earliest possible ophthalmological intervention is necessary to prevent serious ocular complications.

ICL PHAKIC IOLS FOR VISION CORRECTION IN CHALLENGING CASES (OUR 20-YEAR EXPERIENCE)

*Prof. Merab Dvali M.D.; Nana Tsintsadze M.D.; Bella Sirbiladze M.D.
Tbilisi State Medical University Eye Clinic Akhali Mzera, Tbilisi, Georgia*

PURPOSE: To determine the efficacy and advantages of phakic IOLs wide range possibilities in correction of different ametropia types.

MATERIAL and METHODS: More than 2000 surgical interference was done using phakic IOLs. To the retrospective study were included cases with Myopia Myopic Astigmatism $N > 1450$; Hyperopia, Hyperopic Astigmatism $N > 350$, vision correction in keratoconus patients $N > 150$ (after Linking and ISCR implantation); correction of residual refraction after Lasik

– 50 cases, about 30 cases with Bioptic methods; Follow-up period from 1 month to 20 YEARS; Patients' age 18-46 yy.

The full ophthalmological examination, aberometry as well as the patients subjective feeling and satisfaction were considered to assess the Efficacy of treatment.

RESULTS: Almost in all the cases emetropic or near-emetropic refraction were achieved as a results: sphere +/-0.5 D; astigmatism 0.5-1.25 D. In 4 cases of High Myopia posterior capsular cataract developed 15 years after surgery. It must have been due to high Myopia in relatively young age (<50).

CONCLUSIONS: Phakic IOL implantation for different kind of ametropia correction is effective, safe and predictable procedure. High range of refractive errors' levels, less aberration problems, kept natural accommodation, low risks of complications are not full range of advantages phakic IOLs' implantation for vision correction.

CORNEAL COLLAGEN CROSSLINKING AS A PLANNED PROCEDURE POST-LASIK

Nino Dvali, M.D.; Prof. Merab Dvali M.D.; Nana Tsintsadze M.D.

Tbilisi State Medical University Eye Clinic "Akhali Mzera", Tbilisi, Georgia

Introduction/Purpose:

Corneal collagen crosslinking (CXL) has completely revolutionized our ability to treat keratoconus and prevent its natural progression. Simply stated, CXL can be defined as the creation of bonds that connect one polymer chain to another. CXL is a physiological process that occurs naturally with aging via enzymatic pathways such as transglutaminase and lysyl oxidase – an explanation to why keratoconus progression stops with age.

As a therapeutic procedure, CXL is performed by utilizing riboflavin as a naturally occurring photosensitizer and Ultraviolet-A light to release free radicals that increase the formation of intra- and inter-ocular carbonyl-based covalent bonds through the process of photopolymerization.

On the other hand, CXL has been used as a treatment of infectious keratitis and as an "emergency treatment" of post-LASIK ectasia. However, in our

clinic we have effectively used CXL for several years as a scheduled procedure in patients who are predisposed to developing keratoconus post-LASIK, based on their corneal preoperative data.

Methods:

In this presentation, we present cases of patients who were likely to develop keratoconus, but successfully underwent LASIK and planned CXL in 3 month and preserved high UCVA. There are 3 main criteria according to which the patients are scheduled CXL. These are:

Suspicious corneal parameters: (assymetric bowtie, inferior steep or skewed radial axis) – these patients never develop keratoconus, their corneas are completely healthy, unless corneal biomechanics is altered by LASIK-induced stress and change of architecture.

Forme fruste keratoconus

Subclinical keratoconus or Stage I keratoconus – when high BCVA is achieved and RSB is < 300 microns.

Conclusion:

Corneal collagen crosslinking (CXL) can and should be used as a planned intervention in patients who exhibit high risk of developing keratoconus and are planning to undergo LASIK. Patients should be informed that this second procedure serves dual purpose - hinders the development of a disease and aids in preservation of high UCVA post-LASIK.

Keywords: Corneal Collagen Crosslinking, Keratoconus, Forme fruste keratoconus, LASIK

AN ALTERNATIVE APPROACH TO FIXATION OF DISLOCATED INTRAOCULAR LENSES: A NOVEL METHOD.

Tornike Otiashvili, Dr.George Chichua. Chichua medical center "Mzera". Georgia, Tbilisi.

Introduction: The fixation of dislocated intraocular lenses (IOLs) poses challenges attributed to various factors, including incorrect sizes, luxation, transparency changes, patient dissatisfaction, complicated cataract cases, and post-operative trauma. Addressing these concerns requires careful consideration of factors influencing operational interventions. Objective: This study explores and introduces an alternative method for IOL fixation, developed and implemented at the Chichua Medical Center "Mzera" in Tbilisi, Georgia. Methods: Six primary factors influencing the choice of operational interventions are identified, including the position of the IOL, condition of the capsule, zonular stiffness, type of IOL, surgeon's preference, and other subjective circumstances. Existing techniques, such as Yamane, Canabrava, Hoffmann, Chariot, and Carnevale IOL, are briefly discussed. Proposed Alternative Method: The alternative method involves specific criteria for applicability, including intracapsular IOL location, intact capsule with continuous curvilinear capsulorhexis (CCC), partial subluxation allowing manipulation, and the absence of contraindications. The procedure includes scleral tunnels, manipulation between the iris and anterior capsule using an iris retractor, stabilization, excess length removal, and the creation of a cap with a thermocoagulator. The retractor head is inserted into the sclera and covered with conjunctiva. Results: This technique was implemented and successfully used in our clinic for the uncomplicated cases. No serious complications, such as post-operative infections, have been observed. Advantages: The proposed method offers advantages, including performance without vitrectomy equipment, suitability for experienced anterior segment subspecialty surgeons, effectiveness, simplicity, quick intervention, and financial competitiveness in specific cases. Conclusion: While not intended to replace basic techniques, the alternative fixation method provides a practical and effective solution for specific, uncomplicated cases, as evidenced by its successful application at the Chichua Medical Center over the past 6-7 years.

BINOCULAR PSEUDOPHAKIC PRESBYOPIA CORRECTION WITH ARTIS SYMBIOSE IOLS (PRELIMINARY REPORT)

Prof. Merab Dvali, M.D. Gogrichiani Nino, M.D.

Tbilisi State Medical University Eye Clinic "Akhali Mzera", Tbilisi, Georgia

PURPOSE: Presbyopia has become a global problem affecting the world's aging population and its treatment has become a major research focus in ophthalmology. Among various treatments, cataract phacoemulsification and intraocular lens implantation have become the most popular and widely accepted methods of presbyopia correction. During the twentieth century IOLs have undergone significant innovation and advancements to meet the patient's high demands for functional vision at all distances. The purpose of study is to evaluate the efficacy of Cristalens's two complementary implants (IOL) with continuous phase to treat cataract and presbyopia, case report.

METHODS/CASE REPORT: A 59-year-old woman presents to the ophthalmologist complaining of deterioration of vision at far and near distance. Immature cataract and presbyopia were diagnosed. Patient underwent cataract surgery (under topical anesthesia using phacoemulsification and 2.0 mm. incision), using a new trifocal lens system, the Artis Symbiose. The mix and match set consists of a complementary apodized hybrid (multifocal/EDOF) aspheric diffractive pair of lenses, Mid and Plus, designed to be implanted in different eyes of the same patient. One lens, the Plus, is designed for increased near vision and implanted in the nondominant eye. The other lens, the Mid, is designed to provide relatively more intermediate vision and implanted in the contralateral dominant eye. These IOLs are designed with progressive depth of field complementary in binocular vision to provide "full focus" vision from 40 to 90 cm. without compromising distance vision. Both lenses use a 6 mm. optical zone in which the central 4.2 mm. zones contain the diffractive rings (10 for the Mid IOL, 12 for Plus IOL), whereas the outer ring zone (from 4.2 to 6.0 mm) is purely refractive. The material of IOLs is hydrophobic acrylic with refractive index 1.54. It's a one-piece square edge on 360 system with overall diameter of 10.79 mm. Both IOLs are preloaded, lens intended for implantation in the capsular bag. The power of IOLs was calculated using Artis Symbiose calculator with an A-constant 119.7.

CONCLUSION: The both Artis Symbiose lenses are a set of a complementary lenses designed to offer patients postoperative spectacle independence with a continuous and sharp vision from 40 cm. to infinity. It is essential to emphasize the key point that the “continuous phase” results in clear sharp and contrasted vision across all distances, unlike other lenses that may cause blurry vision despite a good contrast at certain distances.

OUR EXPERIENCE INTRODUCTION OF REFRACTIVE LENTICULAR EXTRACTION INTO CLINICAL PRACTICE USING THE SMARTSIGHT METHOD

*S.I. Pushkar, I.A. Remesnikov, L.Zh. Nazarova, D.K. Almukhambetova.
ASTANA VISION LLP, Astana, Republic of Kazakhstan.*

The aim of the work is to analyze the clinical features of refractive lenticular extraction using SmartSight technology in patients with myopia and astigmatism, as well as to develop recommendations on the surgical technique of performing SmartSight surgery.

Materials and methods. 257 patients (514 eyes) were examined and treated using the SmartSight technique using the ATOS SCHWIND eye-tech-solutions femtosecond laser aged 18 to 40 years with myopia with MRSE from -2.00 to -8.50 D and astigmatism up to -2.75 D, with a range of keratometry parameters 41.00–46.00 D and pachymetric indicators of the smallest corneal thickness at least 500 μm , without contraindications to laser vision correction.

Results. The analysis of the clinical and functional results of correction of myopia and astigmatism using the technology of refractive extraction of the lenticula performed using ATOS SCHWIND eye-tech-solutions femtosecond laser demonstrated the high efficiency, safety, predictability of this technique. The MRSE within ± 0.50 D was achieved in 98%. The efficiency index was 1.02 ± 0.18 . There was no any case with comparative loss of 2 or more lines of BCDVA. No intraoperative complications were recorded.

Conclusion. The SmartSight technique using the ATOS SCHWIND eye-tech-solutions femtosecond laser is a promising new development of re-

fractive lenticular extraction technology for the correction of myopia and myopic astigmatism.

Keywords: refractive lenticular extraction, keratorefractive surgery, myopia, astigmatism.

Актуальность. В последние годы рефракционная экстракция линтикулы (далее - РЭЛ) стала одной из ведущих технологий в лазерной кераторефракционной хирургии и пользуется заслуженным доверием как самих хирургов, так и пациентов. В настоящее время методика РЭЛ стала серьезной альтернативой таким, уже общепризнанным методикам, как ФемтоЛАЗИК и фоторефракционная кератэктомия (далее - ФРК) [1, 2, 3]. РЭЛ предполагает использование фемтосекундного лазера с ультракороткими импульсами для формирования в толще роговицы контура определённого объема ткани в виде линзы с положительной оптической силой и имеющую, при необходимости, также и астигматический компонент. Сформированная фемтосекундным лазером линтикула далее хирургом подвергается элиминации (экстракции) через канал(-ы) для доступа, что и обеспечивает необходимый объём запланированной коррекции миопической аномалии рефракции. До недавнего времени в клинической практике в мире, а также и в нашей сети клиник «AstanaVision», использовалась только единственная фемтосекундная лазерная установка VisuMax 500 (С. ZEISS MEDITEK, Germany). Сравнительный анализ некоторых параметров выполнения лазерной коррекции зрения, применяемых ранее в сети клиник «Astana Vision», представлен в Таблице 1, где представлены методики: ФРК (PRK), методика топографически-ориентированного ФемтоЛАЗИК (TG Femto-LASIK), а также методика РЭЛ в виде ReLEx SMILE.

Таблица 1.

Различия между методиками выполнения лазерной коррекции зрения.

	PRK	TG Femto-LASIK	ReLEX SMILE
Болевой синдром	+++++	++	+
Скорость восстановления	+	+++++	++++
Принцип ремоделирования роговицы	Прямая фотоабляция	Субслоскнутая фотоабляция	Удаление лентиккулы
Автоматическая центрация на зрительную ось	+/-	+	-
Контроль циклоторсии	+/-	+	-
Персонализация воздействия	+/-	+++	-
Асферичность воздействия	+/-	+	+
Снижение риска ССГ	+/-	-	+
Уровень инвазивности	+++++	++	+
Количество применяемых хирургических установок	1	2	1

Не так давно для клинического применения стала доступна новая модификация РЭЛ в виде операции под названием SmartSight с использованием фемтосекундного лазера ATOS компании SCHWIND eye-tech-solutions (Германия) [4, 5].

Цель работы — проанализировать клинические особенности рефракционной экстракции лентиккулы по технологии SmartSight у пациентов с миопией и астигматизмом, а так же разработать рекомендации по хирургической технике выполнения данной операции.

Материалы и методы. При выполнении процедуры SmartSight фемтолазер работает в режиме плазменно-опосредованной абляции, чуть выше порога индуцированного лазером оптического пробоя и значительно ниже режима фотодеструкции с использованием энергии в импульсе 85 нДж, частотой повторения до 4 МГц, расстоянием между пятнами импульсов и дорожками сканирования около 4 мкм. Кроме того, весь аппаратный комплекс включает в себя возможность интраоперационной регистрации рисунка радужки/лимба для автоматического контроля циклоторсии для повышения точности астигматической коррекции, одновременно с автоматическим центри-

рованием, управляемым устройством трекинга. Данные аппаратные функции реализованы на основе предварительного картирования диагностических изображений, полученных, опционально, на корнеотопографе, совмещённом с Шаймпфлюг-камерой SIRIUS компании SCHWIND eye-tech-solutions (Германия). Наличие активной интраоперационной аппаратной центрации и контроля циклоторсии снимает некоторые уязвимые моменты в предыдущей модификации РЭЛ. Профиль формирования лентикулы при выполнении процедуры SmartSight включает рефракционную прогрессивную переходную зону, аналогично тому, что используется в эксимерном лазере AM-ARIS компании SCHWIND eye-tech-solutions (Германия), что плавно сужает лентикулу к краю переходной зоны, без необходимости в формировании бокового, оптически «нейтрального» слоя лентикулы, увеличивающего её общую толщину.

Обследовано и прооперировано 257 пациентов (514 глаз) по методике SmartSight в возрасте от 18 до 40 лет (средний возраст 28.5 лет) со стационарной миопией сферозэквивалентном рефракции от -2,00 до -8,50 дптр (средний сферозэквивалент $-4,50 \pm 0,92$ дптр) и астигматизмом до -2.75 дптр, имеющих бинокулярный характер зрения, с диапазоном параметров кератометрии 41,00–46,00 дптр и пахиметрическими показателями наименьшей толщины роговицы не менее 500 мкм, без противопоказаний к лазерной коррекции зрения. Активная интраоперационная аппаратная центрация и контроль циклоторсии были осуществлены в 100% выполненных процедур SmartSight. Срок наблюдения после операции на 210 глазах пациентов составил не менее 3 мес.

Результаты. Интраоперационных осложнений не зафиксировано. Выполнение данной процедуры достаточно не сложно осваивается хирургами, имеющими предварительный опыт лентикулярной лазерной кераторефракционной хирургии. Анализ клинико-функциональных результатов коррекции миопии и астигматизма по технологии РЭЛ по методике SmartSight, выполненной с помощью фемтосекундного лазера ATOS продемонстрировал высокую эффективность, безопасность, предсказуемость данной методики. Сферозэквивалент рефракции в пределах $\pm 0,50$ дптр достигнут в 98%. Индекс эффективности составил $1,02 \pm 0,18$. Ни в одном случае не

получена сравнительная потеря строк максимально скорректированного зрения для дали на 2 и более строки.

Нами разработаны ряд особенностей выполнения операции по методике SmartSight: нанесение микрокапли BSS на апекс очищенной роговицы перед докингом для адекватного контакта интерфейса лазера с роговицей для минимизации риска формирования «Blask Spots», использование острого факочоппера для адекватного формирования входа в верхнюю и нижнюю плоскости линтикулы. Нами также внедрена возможность удаления линтикулы без пинцетной фиксации глазного яблока, вследствие очень легкой диссекции линтикулы, что значительно повышает комфорт пациента в ходе выполнения данной хирургической процедуры и полностью устраняет риски формирования микрогипосфагм на конъюнктиве пациента в местах пинцетной фиксации, что, в свою очередь, обеспечивает максимальный эстетический эффект данной кераторефракционной процедуры. В настоящий момент, после окончания первоначального этапа освоения процедуры, хронометраж от момента начала докинга, включая время необходимое для осуществления аппаратной центрации и контроля циклоторсии, до момента завершения экстракции хирургом линтикулы, составляет в среднем менее 5 минут. Кроме того был произведен сравнительный анализ параметров лазерных установок, доступных для клинического применения в мире для выполнения операций лазерной коррекции зрения по методике РЭЛ (Табл. 2).

Таблица 2.

	VisuMax 500	VisuMax 800	ATOS	Femto LDV Z8	ELITA
Производитель	C. ZEISS MEDITEC (Germany)	C. ZEISS MEDITEC (Germany)	SCHWIND eye-tech-solutions (Germany)	Ziemer Ophthalmics (Switzerland)	Johnson & Johnson Vision (USA)
Название процедуры	ReLEx SMILE	SMILE Pro	SmartSight	CLEAR	SILK
Длительность импульса	220-580 сек ⁻¹⁵	220-580 сек ⁻¹⁵	225 сек ⁻¹⁵	250 сек ⁻¹⁵	100-200 сек ⁻¹⁵
Частота репетиций импульсов	500 кГц	2 МГц	4 МГц	5 МГц	10 МГц
Уровень энергии в импульсе	50-420 нДж	50-420 нДж	85 нДж	100 нДж	50 нДж
Размер пятна, мкм	1 мкм	1 мкм	1 мкм	2 мкм	< 2 мкм
Вогнутый PI	+	+	+	-	-
Аблация роговицы в ходе процедуры	-	-	-	+	+
Полуавтоматическая центрация на зрительную ось	-	+	+	-	-
Автоматический контроль циклоторсии	-	+	+	-	-
Визуальный контроль формирования линтукулы	Прямой/ на мониторе	Прямой	На мониторе	На мониторе	На мониторе

Сравнительная таблица фемтосекундных установок для лазерной коррекции методом РЭЛ.

Представленные данные позволяют оценить одно из преимуществ фемтосекундного лазера ATOS компании SCHWIND eye-tech-solutions, заключающегося в наличии системы Eye Centering & Cyclo-torsion Control, которая позволяет максимально правильно в полуавтоматическом режиме позиционировать воздействие лазера на глаз и, соответственно, повышает точность и предсказуемость результатов хирургической процедуры.

Выводы. Методика SmartSight, с применением фемтосекундного лазера ATOS компании SCHWIND eye-tech-solutions, является новым, многообещающим развитием технологии РЭЛ для коррекции миопии и миопического астигматизма.

Список литературы:

- Tülü Aygün B, Çankaya Kİ, Ağca A, Yıldırım Y, Yıldız BK, Sucu ME, Kandemir Beşek N, Demirok A. Five-year outcomes of small-incision lenticule extraction vs femtosecond laser-assisted laser in situ keratomileusis: a contralateral eye study. *J Cataract Refract Surg.* 2020 Mar;46(3):403-409. doi: 10.1097/j.jcrs.0000000000000067. PMID: 32142498.
- Ganesh S, Brar S, Patel U. Comparison of ReLEx SMILE and PRK in terms of visual and refractive outcomes for the correction of low myopia. *Int Ophthalmol.* 2018 Jun;38(3):1147-1154. doi: 10.1007/s10792-017-0575-6. Epub 2017 May 27. PMID: 28551832.
- Song J, Cao H, Chen X, Zhao X, Zhang J, Wu G, Wang Y. Small Incision Lenticule Extraction (SMILE) Versus Laser Assisted Stromal In Situ Keratomileusis (LASIK) for Astigmatism Corrections: A Systematic Review and Meta-analysis. *Am J Ophthalmol.* 2023 Mar;247:181-199. doi: 10.1016/j.ajo.2022.11.013. Epub 2022 Nov 19. PMID: 36410469.
- Pradhan KR, Arba-Mosquera S. Three-Month Outcomes of Myopic Astigmatism Correction With Small Incision Guided Human Cornea Treatment. *J Refract Surg.* 2021 May;37(5):304-311. doi: 10.3928/1081597X-20210210-02. Epub 2021 May 1. PMID: 34044692;
- Pradhan KR, Arba Mosquera S. Twelve-month outcomes of a new refractive lenticular extraction procedure. *J Optom.* 2023 Jan-Mar;16(1):30-41. doi: 10.1016/j.optom.2021.11.001. Epub 2021 Dec 20. PMID: 34949535; PMCID: PMC9811368.

Сведения об авторах

Альмухамбетова Дания Кужахметовна, рефракционный офтальмохирург, клиника «ASTANA VISION»

Ремесников Игорь Александрович, кандидат медицинских наук, рефракционный офтальмохирург, медицинский директор Ассоциации клиник «ASTANA VISION»;

Пушкарь Станислав Игоревич, заведующий рефракционным отделением, клиника «ASTANA VISION»;

Назарова Лаззат Жалдыбаевна, рефракционный офтальмохирург, клиника «ASTANA VISION»;

Казахстан, Астана, ТОО ASTANA VISION

Daniya_83@bk.ru

Information about the authors

Daniya Almukhambetova, refractive ophthalmic surgeon, ASTANA VISION clinic

Igor Remesnikov, refractive ophthalmic surgeon, Candidate of Medical Sciences, medical director of the Association of clinics ASTANA VISION

Stanislav Pushkar, head of refractive dept, ASTANA VISION clinic

Lazzat Nazarova, refractive ophthalmic surgeon ASTANA VISION clinic

Kazakhstan, Astana, ASTANA VISION

НАШ ОПЫТ ВНЕДРЕНИЯ РЕФРАКЦИОННОЙ ЭКСТРАКЦИИ ЛЕНТИКУЛЫ ПО МЕТОДИКЕ SMARTSIGHT

Д.К. Альмухамбетова, И.А. Ремесников, С.И. Пушкарь, Л.Ж. Назарова.

ТОО ASTANA VISION, г. Астана, Республика Казахстан

Цель работы — проанализировать клинические особенности рефракционной экстракции лентиккулы по технологии SmartSight у пациентов с миопией и астигматизмом, а так же разработать рекомендации по хирургической технике выполнения операции SmartSight.

Материалы и методы. Обследовано и прооперировано 257 пациентов (514 глаз) по методике SmartSight с применением фемтосекундного лазера Schwind ATOS в возрасте от 18 до 40 лет со стационарной миопией и сферозэквивалентом рефракции от -2,00 до -8,50 дптр и астигматизмом до -2,75 дптр, с диапазоном параметров кератометрии 41,00–46,00 дптр и пахиметрическими показателями наименьшей толщины роговицы не менее 500 мкм, без противопоказаний к лазерной коррекции зрения.

Результаты. Анализ клинико-функциональных результатов коррекции миопии и астигматизма по технологии рефракционной экстракции лентиккулы SmartSight, выполненной с помощью фемтосекундного лазера ATOS компании SCHWIND eye-tech-solutions, продемонстрировал высокую эффективность, безопасность, предсказуемость данной методики. Сферозэквивалент рефракции в пределах $\pm 0,50$ дптр достигнут в 98%. Индекс эффективности составил $1,02 \pm 0,18$. Ни в одном случае не получена сравнительная потеря строк максимально скорректированного зрения для дали на 2 и более строки. Интраоперационных осложнений не зафиксировано.

Заключение. Методика SmartSight с применением фемтосекундного лазера ATOS компании SCHWIND eye-tech-solutions является новым многообещающим развитием технологии рефракционной экстракции лентиккулы для коррекции миопии и миопического астигматизма.

Ключевые слова: рефракционная экстракция лентиккулы, кераторефракционная хирургия, миопия, астигматизм.

TREATMENT OF “IOL-CAPSULAR BAG” OPACIFICATION

Anna Vlasenko-ophthalmologist, MD, PhD, Pirogov National Medical and Surgical Center, Moscow, Russia

Alexander Verzin- ophthalmologist, MD, PhD, Svyatoslav Fyodorov Eye Microsurgery Federal State Institution, Moscow, Russia

Sergey Kopayev - Head of the Department of Lens Surgery and Intraocular Correction, MD, PhD, Svyatoslav Fyodorov Eye Microsurgery Federal State Institution, Moscow, Russia

Posterior capsule opacification is the most common late complication of phacoemulsification with intraocular lens (IOL) implantation. Nevertheless, there are other reasons for vision disturbance after cataract surgery, such as anterior capsule fibrosis, IOL opacification and accumulation of turbid fluid inside the capsular bag- capsular block syndrome.

Purpose - to evaluate treatment approaches for various types of ‘IOL-capsular bag’ opacification in the late post-operative period using laser and surgical methods.

In case of anterior capsule opacification with constriction of the anterior capsulectomy opening (capsular phimosis) YAG-laser radial anterior capsulotomy was performed (case N 1), in case of total occlusion of the capsulorhexis opening surgical dissection of fibrous tissue was performed (case N 2). The patient with clinically significant IOL opacification underwent IOL exchange (case N 3).

Using optical coherence tomography we suggested differential criteria of the capsular block syndrome and proposed 4 types of this complication according to opacification of the capsular bag contents and posterior capsule. Most patients with capsular block syndrome were treated with YAG-laser posterior capsulotomy (case N 4). In case of total filling of the capsular bag with substance of high optical density surgical removal of this material was performed using bimanual irrigation-aspiration system (case N5).

Conclusion

Laser and surgical methods provide effective treatment options for patients with ‘IOL-capsular bag’ opacification.

CLINICAL CASE OF CHANGES IN METABOLISM OF STRIATE CORTEX IN EARLY GLAUCOMA

Anastasia Rozhko, Ilmira Gazizova

N. Bekhtereva Institute of Human Brain

Russian Academy of Sciences, Saint-Petersburg, Russia

Most neuroimaging studies of glaucoma are of advanced stages. Glaucoma is chronic disease that progresses slowly over many years, so we need early measurements to identify biomarkers in the brain. The area and volume of the gray matter of the visual cortex do not correlate with the severity of the disease according to neuroimaging data. Studies of terminal glaucoma have also found no correlation between V1 volumetric atrophy and duration of blindness. Sensitive and specific, clinically accessible markers are required to improve the management of glaucoma and prevent irreversible vision loss. Positron emission tomography (PET) is used to identify neurochemical changes that occur in the visual system of the brain during glaucoma. Impaired cerebral glucose metabolism is a pathophysiological feature that may even precede structural pathological changes.

Purpose: to describe a case of determining functional, structural and metabolic neuroimaging patterns of the striate cortex of the occipital lobe of the brain in patient with the initial stage of primary open-angle glaucoma.

Material and methods. Male, aged 59.7 years, with newly diagnosed initial stage of primary open-angle glaucoma, without family history of the disease. Gonioscopically, the anterior chamber angles were open.

Ophthalmotometry, static automated perimetry, optical coherence tomography, magnetic resonance imaging, and 2-[¹⁸F]-*thio*-2-deoxy-D-glucose (FDG) PET/computed tomography (CT) of the brain were performed. The striate cortex of the occipital lobe was the area of interest. The striate cortex is the primary visual cortex, and when stimulated by visual input, it transmits information to the parastriate (association) visual cortex, which connects to the parietal, temporal and frontal lobes on the same side and, through the posterior part of the corpus callosum, the opposite side.

Results. Perimetric index MD was -2.12/-2.46 dB, intraocular pressure was 17/16 mmHg, with prostaglandin analogue instillation. The total thickness of the retinal nerve fiber layer was 98/106 microns.

Tractography revealed no changes. No specific changes in the cerebral parenchyma were observed on the CT image. At the same time, relatively reduced, exceeding limits of physiological variability, FDG metabolism was

observed in the striate visual cortex. PET/CT fusion images in the axial, coronal, and sagittal planes confirmed decreased FDG distribution in the area of interest of the brain, without significant asymmetry.

The obtained neuroimaging data indicate that metabolic and structural abnormalities and/or functional changes may not always occur in the same patient or may occur at different periods in the development of the disease. This suggests that disturbance of cerebral glucose metabolism may be a pathophysiological feature that precedes structural pathological changes in the visual cortex, and PET findings add additional information. Taking into account the multifactorial nature of the disease, any categorical conclusions about the primacy of any changes in the pathogenesis of glaucoma are unlikely to be fair.

Conclusion. Clinical case of documentation of changes in the metabolism of the striate cortex in the absence of structural and functional changes in this area in early glaucoma showed that PET patterns provide additional information. This should influence the future development and application of neuroimaging techniques to identify early mechanisms of glaucoma, detect and monitor pathophysiological events, and determine the relationships between the eye and the brain. If the mechanisms of glaucomatous brain changes are reliably identified, new neurotherapeutics targeting parameters beyond intraocular pressure reduction may hold promise for reducing disease progression.

Conflict of interest: none.

INTRAVITREAL BEVACIZUMAB INJECTION COMBINED WITH EX-PRESS MINI GLAUCOMA SHUNT IMPLANTATION IN THE TREATMENT OF NEOVASCULAR GLAUCOMA: 2 YEAR EXPERIENCE

L. Nemsadze, E. Bugashvili, N. Ravindran
New Vision University Hospital, Tbilisi, Georgia

Abstract

Background/Aims: Neovascular glaucoma is a severe form of secondary glaucoma. Recently, anti-VEGF factors have been used alone or in combination for the treatment of neovascular glaucoma. This study was to determine the efficacy of intravitreal bevacizumab combined with Ex-Press Mini Glaucoma Shunt implantation for the treatment of neovascular glaucoma.

Methods: In this prospective non-randomized study, 36 neovascular glaucoma patients (42 eyes) were assigned to receive either 1.25mg/0.05ml intravitreal bevacizumab for 14 days before Ex-Press Mini Glaucoma Shunt implantation and repeated IVB injection 14 days after surgery (injection group) or Ex-Press Mini Glaucoma Shunt implantation with intraoperative intracameral bevacizumab injection (control group). The patients were followed up for 2 years. Differences in surgical success rate, intraocular pressure, best corrected visual acuity, anti-glaucoma medications and changes in RNFL thickness were compared between the two groups. Surgical success was defined as IOP ≥ 6 mm Hg and ≤ 21 mm Hg, with or without the use of anti-glaucoma medications, and without severe complications or reoperation.

Results: Success rate was 96.8 % vs. 72.7 % at 12 months and 93.5 % vs. 81.8 % at 24 months in the injection group and the control group respectively. IOP was significantly decreased in injection group vs. control group at 2 weeks, 12 or 24 months (injection group: baseline 35.4 ± 4.9 mmHg, 2 weeks 14.7 ± 1.8 mmHg, 12 month 18.1 ± 2.1 mmHg, 24 month 18.3 ± 1.7 mmHg; control group: baseline 36.5 ± 5.8 mmHg, 2 weeks 28.0 ± 9.9 mmHg, 12 month 21.6 ± 5.7 mmHg, 24 month 22.0 ± 8.0 mmHg). The number of postoperative antiglaucoma medications was significantly lower in injection group (injection group: baseline 2.9 ± 0.2 , 2 weeks 0.1 ± 0.2 , 12 month 1.4 ± 0.8 , 24 month 1.6 ± 0.7 ; control group: baseline

2.9 ± 0.3, 2 weeks 1.9 ± 1.4, 12 month 2.3 ± 0.8, 24 month 2.4 ± 0.7). There were no significant differences in the two groups with respect to best corrected visual acuity or RNLF thickness at 12 months or 24 months.

Conclusion: The study revealed that intravitreal bevacizumab injection 14 days before Ex-Press Mini Glaucoma Shunt implantation and repeated IVB injection 14 days after surgery was an effective and safe treatment for NVG. Rate of intraoperative complications, in early postoperative period IOP stable levels, decreased usage of antiglaucoma drugs determined success rate of our scheme. Also, surgical success rate and IOP level over the long-term (>2 y) was favorable.

CHALLENGES IN DIAGNOSING AND MANAGING NORMAL TENSION GLAUCOMA IN COMPLEX CLINICAL CASES

Jikurashvili T.

Chichua Medical Center Mzera

No financial disclosure

Abstract:

Normal tension glaucoma poses a significant challenge for ophthalmologists in terms of both diagnosis and treatment. This challenge becomes particularly intricate when normal tension glaucoma is suspected in combination with other associated pathologies. In this study, we present two distinct clinical cases where normal tension glaucoma is suspected in conjunction with other forms of neuropathy.

Materials and Methods:

Clinical Case 1: A patient with high myopia and monocular vision, with the other eye enucleated due to endophthalmitis resulting from complicated cataract surgery 20 years ago. The patient initiated the use of anti-glaucomatous medications a decade ago but discontinued them after one month. Only two months ago, the patient started using a prostaglandin analogue. Throughout this period, high intraocular pressure has never been observed, and an oblique entrance of the optic nerve makes a comprehensive evaluation of the retinal nerve fiber layer (RNFL) challenging.

Clinical Case 2: The son of the same woman, aged 48, also presenting myopia. Diagnosed with glaucoma at the age of 13, he additionally has Ehlers

Danlos syndrome. Surgical intervention was considered to treat glaucoma due to pronounced neuropathy, as reported by the parent. However, no surgery was performed. Over the years, the patient remained untreated and struggled with drug abuse for 25 years. Presently, he exhibits a significant narrowing of the visual field, with intraocular pressure within the normal range, along with pronounced neuropathy.

Results/Conclusion:

Both patients are currently undergoing anti-glaucomatous monotherapy. This study raises questions regarding the accuracy of the “Normal Tension Glaucoma” diagnosis in each case and prompts consideration of the recommended clinical approach in such complex situations, whether to opt for overtreatment or under-treatment.

INCIDENCE AND PREVALENCE OF GLAUCOMA IN GEORGIA

Salome Tabatadze Nino Tkhelidze

Aim: To estimate incidence and prevalence of glaucoma in Georgia in 2007-2022 by regions and to create an epidemiological map of glaucoma in Georgia.

Method: Using data analysis with the information accepted from National Centre for Disease Control and Public Health (NCDC) from 2007 to 2022. Incidence and prevalence of Glaucoma in the population of Georgia and by regions was analyzed.

Results: All types of glaucoma in 2007-2012 crude rate per 100 000 persons was 96.5, in 2013-2019 crude rate per 100 000 persons was 343.5 and 2020- 2022 crude rate per 100 000 persons 61.2, was analyzed by age and Gender Crude rate per 100,000 population at the age group of 50-59, there are 41.7 cases in female population, and 68.1 cases in male population. Crude rate per 100,000 population at the age in the age of 60-69 146 cases in female and 243.1 in male population. The amount of glaucoma cases in age group 70-79, glaucoma cases per 100,000 population in female population was 209.3 and in male population-425.6.

Prevalence of all types of glaucoma estimate for Georgian regions 2007-2012 the highest was in Samtskhe-Javakheti - 178.3 per 100 000 people. In 2013-2019 crude rates of glaucoma per 100 000 people are dramatically increased – 643.3 in Imereti. In 2020-2022 the rate of glaucoma will decrease, as well as the rates of other nosology. The high rate of glaucoma cases remains in Imereti 84.4 and compared to other regions it is high in Tbilisi 83.9, Shida Kartli 79.5 and Kakheti 67.1 per 100 000 individuals.

Conclusion: The incidence of Glaucoma in Georgia is higher in Male then in Female and it is rising with the age. In the age of 60-69 number of glaucoma cases was 3.5 times more compared to the previous age (50-59) in both sexes. The amount of glaucoma cases continues to increase in the next age group 70-79 .The study was conducted with data from2007 to 2022 which was accompanied by changes in the health care system and the Covid-19 pandemic, so it requires the further assessment. Epidemiological map of glaucoma in Georgia was made.

Toric IOL implantation in patients with keratoconus and previous corneal transplantation: a case series Tinatin Kazaishvili, Halina Sitnik. The Institute of Advanced Training and Retraining of Healthcare Personnel of Educational Institution “Belarusian State Medical University”, Minsk, Belarus.

Cataract is one of the most common reversible causes of decreased visual acuity in patients after successful corneal transplantation. The formation or progression of cataracts is related to surgical trauma and the longtime use of topical corticosteroids. A combination of penetrating keratoplasty (PKP) with extracapsular cataract extraction and IOL implantation, known as a “triple procedure,” is absolutely indicated in cases when lens opacification is diagnosed along with corneal pathology. Otherwise, the decision to exchange the lens during keratoplasty should be approached individually. Phacoemulsification and toric IOL implantation can be one of the effective ways to improve visual acuity in cases of high post-keratoplasty astigmatism or in patients with stable keratoconus. But these surgeries can be demanding due to difficulties in selecting the type of intraocular lens (IOL), the predictability of the refractive outcome, and the long-term stability of the results. The purpose of our study was to analyze the results of cataract surgery with toric IOL implantation in patients with stable keratoconus and previous corneal transplantation. Materials and methods. 15 patients (15 eyes) with decreased visual acuity due to cataract were included in the study,

5 patients previously underwent PKP, 5 patients – DALK, 5 patients had stable keratoconus. There were 6 men, 9 women, mean age was 48,4 y.o., which varied from 29 to 74 y.o. The follow-up period was from 4 months to 3 years. A thorough ophthalmological examination was performed before surgery and during follow-up and included autorefractometry, UCVA and BCVA, IOP, funduscopy, keratopography, OCT, endothelial cell density. The refraction in all cases was myopic. Keratopography revealed high with-the-rule post-keratoplasty astigmatism in 9 cases, moderate post-keratoplasty astigmatism in 2 cases, irregular astigmatism in 4 keratoconus patients. The median value of Ks was 49.7 D (min 44 D, max 56.7), Kf – 43.5 D (min 39 D, max 48.3), cylinder – 5.4 D (min 2.62 D, max 10,6 D). Preop VA varied from hand movement to 0.1, endothelial cell density (ECD) varied from 1284 to 2443 cells/mm.² The central corneal thickness varied from 395 to 550 mkm. We used several tools for IOL calculation: Verion, IOL-Master, online calculator for toric lenses proposed by the manufacturer. IOL EnVista toric was implanted in 14 eyes, and the cylinder value varied from 2.5 to 5.75 D. IQ Acrysof Toric was implanted in 1 case, cylinder value 1.5 D. Results. The surgery and post-op period were uneventful. In 14 cases, the axis of the cylinder was determined by the results of keratopography; in 1 case, we used the results of keratopography for the calculation of the spherical component of the IOL. Prolonged use of topical steroids for prevention of corneal rejection was administered during 3 months postop. Corneal transplants remained clear, and ECD was stable in all 10 cases. The final VA was checked three months postop, the stability of the VA was proved on the last visit, and it remained stable. The best optical results were found in patients who had previously undergone DALK: 4 out of 5 had BCVA 0.9. Generally, 8 patients gained more than 4 lines of UCVA in Snellen chart, 3 patients added 3 lines, in 4 patients UCVA improved less than 3 lines. BCVA varied from 0.7 to 1.0 in 11 eyes, from 0.3 to 0.6 in 4 eyes. All patients were satisfied with the changes of the quality of their vision and were able to tolerate glasses. The residual astigmatism depended on the initial value before the surgery and consisted of 1.25–4.75D. Conclusions. Cataract surgery in patients with previous corneal transplantation or stable keratoconus requires additional preop examinations and predicting refractive outcomes is difficult. Prolonged medical treatment, including topical steroids, helps to control postoperative intraocular inflammation.

mation and save the clarity of the corneal transplant. Toric IOL implantation showed good, stable outcomes, even in cases of high post-keratoplasty astigmatism, with considerable improvement in both UCVA and BCVA. In most cases, patients may need additional optical tools (glasses or lenses) after the surgery to correct residual cylinder, but the tolerance of astigmatic correction improved considerably.

MODERN RETINAL LASER THERAPY - PATTERN SCAN LASER PHOTOCOAGULATION

Shalva Skhirtladze MD, Nino Tavberidze MD PHD;

Tbilisi State Medical University Eye Clinic „Akhali Mzera“, Tbilisi, Georgia

Medical lasers are a standard source of light to produce retinal tissue photocoagulation to treat retinovascular disease. The Diabetic Retinopathy Study and the Early Treatment Diabetic Retinopathy Study were large randomized clinical trials that have shown beneficial effect of retinal laser photocoagulation in diabetic retinopathy and have dictated the standard of care for decades. However, current treatment protocols undergo modifications. Types of lasers used in treatment of retinal diseases include argon, diode, dye and multicolor lasers, micropulse lasers and lasers for photodynamic therapy. Delivery systems include contact lens slit-lamp laser delivery, indirect ophthalmoscope based laser photocoagulation and camera based navigated retinal photocoagulation with retinal eye-tracking. Selective targeted photocoagulation could be a future alternative to panretinal photocoagulation.

Keywords: Retinal Laser, Photocoagulation, Therapy, Pattern laser, Micropulse laser, Navigated laser

RARE VISUAL SYMPTOMS OF RETINAL COMPLICATIONS OF PAPILLEDEMA

*Vadim Turgel, Svetlana Tultseva, Sergei Astakhov, Evgeny Akopov
Pavlov First State Medical University of St. Petersburg*

Introduction. Papilledema (PE) is often one of the early objective signs of intracranial hypertension (IH). However, for a long time it can occur without visual symptoms, especially in young patients. The causes of visual dysfunction in patients with IH with PE may be either progressive optic atrophy or rare retinal complications. Retinal damage during PE defines specific visual symptoms, and can also determine the visual prognosis after eliminating the cause of IH.

Aim. To analyze the main retinal complications of PE and associated visual symptoms.

Materials and methods. The cases of three patients diagnosed with complicated PE who had visual symptoms at the time of examination are presented. All patients underwent an ophthalmological examination, including optical coherence tomography of optic disc and macula. Neuroimaging data confirmed hydrocephalus and IH, which in 1 of 3 cases is a manifestation of an intracranial neoplasm.

Results.

1. Patient M., 28 y.o., presented at an ophthalmology service with complaints of a central blur in her right eye. PE, complicated by subretinal fluid in the fovea was found. The diagnosis was frontal lobe astrogloma, the ventriculoperitoneal shunting (VPS) was performed. Complete resolution of PE and of macular edema, residual neuroepithelium disruption.

2. Patient K., 32 y.o., being under neurological follow-up, was sent to the ophthalmologist with a complaint of floaters in her right eye. PE, complicated by multiple intraretinal hemorrhages in the macula and peripapillary retina was revealed. The diagnosis was idiopathic IH; VPS was performed. Partial resolution of PE and resorption of hemorrhages.

3. Patient V., 35 y.o., was referred to the ophthalmologist by neurologist with a metamorphopsia of both eyes. PE with massive chorioretinal folds was detected. The diagnosis was idiopathic IH; VPS was performed. Resolution of PE, metamorphopsia persisted.

Conclusion. It is necessary to keep vigilance towards retinal symptoms in patients with unspecified or challenging neurological history.

DRY EYE DISEASE MANAGEMENT AFTER FACIAL COSMETIC PROCEDURES

Natia Beroshvili, M.D.

Tbilisi State Medical University Eye Clinic "Akhali Mzera", Tbilisi, Georgia

Introduction: Dry eyes are common in the general population and are one of the most common complications of blepharoplasty. According to a 2020 research review, studies have reported dry eyes in up to 26.5% of people who undergo blepharoplasty. Blepharoplasty may lead to eye dryness as a result of changes in tear composition. Botox injections around the eye area may worsen existing eye health concerns, including eye dryness. Experts think this may happen due to the weakening of the orbicularis oculi muscles that help with eyelid closure. This can interfere with distributing a smooth, even tear film across the eye, leading to dryness. Also, botulinum toxin injections reduce tear secretion from the lacrimal gland, which is the reason for the exacerbation of dry eye disease. After under eye facial filler injections eyelid tissues may be somewhat compromised, and the patient may experience other significant symptoms such as blurry vision, eye pain, tearing, burning, dry eyes.

Methods: Dry eye disease is treated in our clinic with a combined and individual approach with the aim to improve the characteristics of the tear film. For this we use the Intense Pulsed Light (IPL) and Low-Level Light Therapy (LLLT) devices together with medical treatment.

Conclusion: Periorbital cosmetic procedures such as botulinum toxin injections, fillers, and blepharoplasty may cause dry eye disease. Cosmetic procedures in the periorbital area should be performed and/or managed by an ophthalmologist in order to avoid ophthalmic complications or provide the correct treatment.

FUNDAMENTALS OF REFRACTIVE SURGERY: A GUIDE FOR YOUNG OPHTHALMOLOGISTS

Dr. Baha Toygar, M.D.

BAU School of Medicine, Ophthalmology Department & Etiler Dünya Eye Hospital, Istanbul, Turkey

Objective: This lecture aims to provide young ophthalmologists with a comprehensive overview of refractive surgery, including its principles, techniques, patient selection criteria, and post-operative care.

Introduction (2 minutes):

- Brief history of refractive surgery.
- Importance of refractive surgery in contemporary ophthalmology.

Basic Principles of Refractive Surgery (3 minutes):

- Overview of the eye's refractive mechanism.
- Understanding refractive errors: myopia, hyperopia, astigmatism, and presbyopia.

Common Techniques in Refractive Surgery (6 minutes):

- LASIK (Laser-Assisted In Situ Keratomileusis): Procedure, indications, and outcomes.
- PRK (Photorefractive Keratectomy): Differences from LASIK, ideal candidates.
- SMILE (Small Incision Lenticule Extraction): Latest advancements, benefits, and limitations.
- Phakic IOLs (e.g., ICL - Implantable Collamer Lens): Indications, procedure, advantages for certain patient profiles, and comparison with corneal refractive surgery.

Patient Selection and Preoperative Assessment (4 minutes):

- Criteria for patient selection: Age, corneal thickness, and health, refractive stability.
- Importance of thorough preoperative assessment: Corneal topography, pachymetry, and ocular history.

Postoperative Care and Complications (4 minutes):

- Managing patient expectations and postoperative care.
- Common complications: Dry eyes, halos, under/over-correction, and specific considerations for ICL.
- Strategies for complication prevention and management.

Conclusion and Future Directions (2 minutes):

- Summarize key takeaways.
- Emerging technologies and future trends in refractive surgery.

CURRENT STATE OF COREAL CROSS-LINKING IN OPHTHALMOLOGY

As. Prof. Cristina Nicula, M.D.

“Iuliu Hațieganu” University of Medicine and Pharmacy; Cluj-Napoca, Romania

Keratoconus (KCN) is a non-inflammatory corneal ectatic disease characterised by a progressive central thinning of the cornea changing it from dome-shaped to cone shaped, irregular astigmatism and in late stages decreased visual acuity. It starts at puberty and has a high progression in the second life decade. That is why is of major importance to stop or arrest the disease progression. Crosslinking therapy (CXL) is actually the single method which can stop KCN progression. CXL means the photopolymerisation of the stromal collagen tissue, in order to increase their stiffness and resistance to the corneal ectasia, through the combined action of the photosensitizing substance (riboflavin – B2) with the irradiation of the UV light performed with an illuminator in a solid state of UVA kind. Contraindications of CXL are: cornea thinner than 400 μm , non-progressive KCN (exception age between 12-20 years), herpetic keratitis history, pregnancy and severe dry eye. There are several types of CXL: Epithelium-off techniques (Epi-off conventional CXL (Dresden protocol) and Epi-off accelerated CXL), Epithelium-on techniques (Transepithelial CXL and Iontophoresis-assisted CXL), modified techniques for thin corneas (Contact Lens –assisted CXL-Jacobs procedure, Lenticule-assisted CXL and Adapted technique CXL). Moreover,

CXL can be combined with keratorefractive surgeries (intracorneal ring implantation, PRK guided topographically and implantation of toric posterior chamber implants).

Key words: keratoconus, crosslinking, progression

CLINICAL DIAGNOSIS AND MANAGEMENT OF INFECTIOUS KERATITIS

*Prof. Mahmoud Ismail, M.D.
University of Al-Azhar, Cairo, Egypt*

Infectious Keratitis entitles a wide range of pathologies. Essentially it should be differentiated to may or may not be associated with an infection. Non-infectious keratitis can be caused by a relatively minor injury by foreign body, chemical burn and systemic disease such as Rheumatoid arthritis. Infectious keratitis can be caused by bacteria, viruses, fungi and parasites. Early diagnosis of such diseases is hallmark of recovery.

LATEST INNOVATIONS IN GLAUCOMA

*Dr. Vasyl Shevchyk, M.D.
LLD "Shevchyk Vasyl Eye Microsurgery", Chernihiv, Ukraine*

PURPOSE: To update our knowledge about current management of glaucoma from initial diagnosis to treatment options - eye drops, laser or surgical techniques.

METHODS: This abstract will summarise the up-to-day information about glaucoma management based on national guidelines, literature review and congresses presentations.

RESULTS: The main point in making diagnosis and treatment of glaucoma still remain intraocular pressure (IOP) and its diurnal fluctuation. Our strategy is to decrease IOP to sufficient level that allow patients save their vision during

whole life. Also, we need to reduce IOP fluctuation up to 3-4 mm Hg, because larger level is a significant risk factor of glaucoma progression. We can control diurnal IOP with rebound Self-Monitoring technology - Home tonometer. Gonioscopy - is a crucial examination for further strategy of glaucoma treatment. New technology (ultrasound biomicroscopy, anterior segment optical coherence tomography or Scheimpflug photography) cannot replace gonioscopy.

Close angle during gonioscopy:

Primary Angle Closure Suspect (PACS) is defined as ≥ 180 degrees of iridotrabecular contact (ITC) without (IOP) elevation, peripheral anterior synechiae (PAS), or optic nerve damage - recommended only observation

Primary Angle Closure (PAC) - PACS and IOP elevation or presence of PAS - lens extraction or iridotomy

Primary angle closure glaucoma - PAC and additional optic nerve damage

Acute angle crisis - recommended Paracentesis - Laser Iridotomy - Lens extraction

Chronic - hypotensive eye drops. Lens extraction is superior to iridotomy

Open angle glaucoma during gonioscopy

1. The pigmentation of the angle 0 to I grade - recommended hypotensive eye drops. Preference is given to eye drops with ability to reduce night peak of IOP - prostaglandins, carbonic anhydrase inhibitor
2. The pigmentation of the angle II to IV grade - Selective laser trabeculoplasty (SLT) as a 1-st line treatment.

According to Laser in Glaucoma and Ocular Hypertension (LiGHT) trial SLT allow to reach target IOP in 78.2% patient without eyedrops after first procedure.

Also, after SLT IOP fluctuations was <3 mm Hg in 87% of treated eyes and SLT reduce nocturnal spike of IOP as well.

Microinvasive glaucoma surgery (MIGS) devices are no superior to SLT for IOP reduction but required long study curve and have more complications

Deep sclerotomy - as a last choice of surgical glaucoma treatment when eye drops and/or SLT were not successful. This procedure is effective as a trabeculectomy but has less intra- and postoperation complications.

CONCLUSIONS: The management of glaucoma is still a creative process but required obligatory following of principal rules.

VITREOUS FLOATERS - LASER OR VITRECTOMY?

Prof. Athanasios Nikolakopoulos, M.D.

Thessorasi, Thessaloniki, Greece

Dr. K. Nikolakopoulos, M.D., Switzerland

Floater are a very common phenomenon due to Vitreous Syneresis and usually appears at an older age or in vitreous degeneration on a high myope or after a posterior infection. They are not usually significant but they sent patients to ask us, especially if they are post-surgical worried patients afraid for a complication. Usually, they are reassured by their doctors that there is nothing to worry and that symptom will change and go away later. BUT There are some people of a certain anxiety to it that THEY cannot tolerate at all and go from one Dr to Another. Internet has shown us that they even form a society looking for a solution. Another category is the big in size that they seem like a curtain and there are also professions and patients who can see clear with the other eye and ask you to do something. So, our impression is that finally the patient is the one that chooses to be treated. In our presentation we examine the literature and details of the latest Yag Floaterectomy Lasers.

The results the safety and the cost comparing the small 27g Vitrectomy.

STRABISMUS MANAGEMENT AND TIMING OF THE SURGERY IN CHILDREN AND ADOLESCENTS

Prof. Huban Atilla, M.D.

Ankara University Faculty of Medicine, Ankara, Turkey

Prevalence of strabismus in general population is approximately 4%. While 90-95% of strabismus is observed in childhood, this rate is 5-10% in adults. In childhood during development of visual system, strabismus will interfere with healthy development and amblyopia and binocular dysfunctions will result. The rate of amblyopia due to strabismus is as high as 30-50%. Therefore, strabismus should be diagnosed and treated as early as possible

in childhood. Examination is difficult in the preverbal period due to the lack of cooperation and objective examination methods such as evaluation of fixation pattern, red reflex test, retinoscopy and fundus examination are the main diagnostic methods and have great importance. Correction of refractive errors and patching treatment are mainstay of initial treatment and in cases with deviation disabling fusion and binocular vision surgery should be considered. The aim of the strabismus surgery is to achieve binocular vision and prevent amblyopia in children. In adults, in addition to gaining binocular vision, it is also performed to correct diplopia and for cosmetic purposes. Even though functional outcome is the primary goal, especially in sensory cases the cosmesis is the main concern. Botulinum toxin can also be used prior to surgery or instead of surgery in some cases.

CASED-BASED NEUROOPHTHALMOLOGY - CONDITIONS YOU SHOULD NOT MISS

Dr. Tea Abramia, M.D.

Ophthalmology Department, Tbilisi State Medical University, Tbilisi, Georgia

Neuroophthalmic disorders may mimic benign entities and can be seen in comprehensive ophthalmologist's office. General ophthalmologists are expected to recognize and refer if they will see those patients. Four potentially vision or life threatening neuroophthalmic conditions will be discussed which should not be missed: giant cell arteritis (GCA) - typically presenting as visual loss in the elderly; Pituitary apoplexy - condition presenting as acute severe headache and bilateral visual loss; Posterior communicating artery (PCA) aneurysm - a painful, pupil involving third nerve palsy; Arterial dissection of the vertebral or carotid artery producing an acute painful Horner syndrome with or without visual loss. All ophthalmologists should be aware of those neuroophthalmic conditions that none of us can afford to miss.

IMPROVING PATIENT FLOW IN AN OUTPATIENT OPHTHALMIC CLINIC

Dr. Jahid Shahbazov, M.D.

Caspian International Hospital, Baku, Azerbaijan

This article explores strategic measures to optimise patient flow in outpatient ophthalmology clinics, emphasising the integration of state-of-the-art technology and experienced surgeons to improve service quality and patient circulation.

Introduction: Outpatient eye clinics are crucial in providing timely and effective eye care. This article proposes a comprehensive approach to improve clinic efficiency, emphasising the use of the latest technology and the importance of having experienced surgeons perform surgeries.

Organisation of Patient Appointments: Efficient scheduling remains important in clinic optimisation. Grouping similar procedures on set days optimises resource allocation, minimises downtime and enables faster and more organised performance of surgeries involving the latest technological advances.

Patient Grouping Strategies: Investigation of patient grouping strategies becomes even more important when harmonised with the use of advanced surgical technologies. This not only speeds up clinical processes, but also emphasises the positive impact of synergy between the latest tools and the skills of experienced surgeons on the overall patient experience and satisfaction.

Pre- and Postoperative Debriefing: Comprehensive patient education before and after surgery is an integral part of optimising outpatient care. The use of advanced tools for debriefing sessions is consistent with a commitment to patient well-being, reducing anxiety and encouraging patient participation. Patient compliance will also increase the success of surgery.

Patient Education and Engagement: The active participation of patients in health care is further facilitated by the use of the latest technology. Interactive education sessions and the provision of patient information leaflets prior to the day of surgery empower patients and increase their compliance with the process.

Technology Integration and Surgical Expertise: Integration of the latest technology and collaboration with experienced surgeons contribute signi-

cantly to the optimisation of outpatient ophthalmic clinics. The use of the latest surgical tools creates a positive feedback loop that improves precision and results, raising the clinic's quality of service and patient circulation.

Conclusion: Strategic organisation of appointments, careful patient grouping, comprehensive pre- and post-operative information dissemination and integration of the latest technologies with the skills of experienced surgeons contribute to the optimisation of ophthalmology clinics. The adoption of these measures promotes operational efficiency, improves resource utilisation and enhances both the quality of service and the patient experience.

CONTROL OF MYOPIA: IMPLEMENTATION OF AN INNOVATIVE OPTICAL CORRECTION METHOD IN ARMENIA. CLINICAL CASES.

Zhasmen Harutyunyan Lumiere optics Yerevan, Armenia

According to WHO data, the prevalence of myopia is increasing worldwide, and by 2050, every second person on the planet will suffer from myopia, every tenth with a high degree and complications. Therefore, the control of myopia is an important field in ophthalmology. Stellest spectacle lenses, based on H.A.L.T. technology, are designed for myopia control and slow down the elongation of the eyeball by an average of 60% compared to single-focus lenses. This has been clinically and scientifically proven. Stellest lenses have been successfully used in Armenia for about two years with high efficiency, as evidenced by the clinical cases presented in the report.

“CONTROL OF MYOPIA: IMPLEMENTATION OF AN INNOVATIVE OPTICAL CORRECTION METHOD IN ARMENIA. CLINICAL CASES.”

Jasmen Harutyunyan

Control of Myopia: Implementation of an Innovative Optical Correction Method in Armenia. Clinical Cases. According to WHO data, the prevalence of myopia is increasing worldwide, and by 2050, every second person on the planet will suffer from myopia, every tenth with a high degree and complications. Therefore, the control of myopia is an important field in ophthalmology. Stelvest spectacle lenses, based on H.A.L.T. technology, are designed for myopia control and slow down the elongation of the eyeball by an average of 60% compared to single-focus lenses. This has been clinically and scientifically proven. Stelvest lenses have been successfully used in Armenia for about two years with high efficiency, as evidenced by the clinical cases presented in the report.

LATEST UPDATES ON EVIDENCE-BASED MYOPIA MANAGEMENT.

M. Tsertsvadze, Roniko Ophthalmological Center Tbilisi, 2023

Myopia type of clinical refraction, in which the focus of the optical system is located in front of the retina .Multifactorial disease with hereditary predisposition

Myopia, is the most common human eye disorder in the world, affecting 85% to 90% of young adults in some Asian countries such as Singapore and Taiwan, and between 25% and 50% of older adults in the United States and Europe. Almost 1 billion will have high myopia, becoming the world's leading cause of permanent blindness. Burden: The economic cost of myopia is estimated at an annual US\$268 billion worldwide. Not only is there a socio-economic burden, there is a significant increased odds ratios for myopic maculopathy, retinal detachment, cataracts, and glaucoma, even for low and moderate levels of myopia and these odds ratios increase further with higher levels of myopia Causes : Genetic Factors, decreased out-

doors time, increased nearwork. Interventions to Retard the Progression of Myopia What Probably Does Not Work. Undercorrection: Data from prospective clinical trials suggest that undercorrection of myopia either increases or has no effect on myopia progression. Undercorrection does not slow myopia progression and should no longer be advocated. Bifocals: Randomized, clinical trials in the US, Finland, and Denmark showed no significant slowing of myopia with bifocals alone. Progressive Lenses: The use of progressive addition lenses (PALs) has produced relatively small treatment effects. Contact Lenses: Randomised clinic trials showed that soft contact lenses and rigid gas permeable lenses (RGP) were not effective in retarding myopia progression

What Might Work: The exact mechanism of action of atropine in controlling myopia is unknown, but atropine is thought to inhibit thinning or stretching of the sclera and therefore eye growth. Systematic review of 12 randomized controlled trials published between 2019 and 2021. In two studies, low-dose atropine 0.01% was ineffective in reducing the progression of AL. Treatment with a low dose of atropine 0.05% showed good efficacy. Orthokeratology - reduction of myopia (up to -6 D) is achieved due to thinning of the central epithelium of the cornea, thickening of the middle peripheral epithelium and stroma. Randomized clinical trials on orthokeratology control of myopia showed significantly slower axial elongation in children wearing orthokeratology lenses than in children wearing monofocal glasses. Overall, Ortho-K reduces the progression of myopia by approximately 40%. There are no well-controlled long-term studies demonstrating a sustained myopia control effect, and there are no washout data. Peripheral retinal defocus: The Stellest lens is the latest lens designed for myopia control which makes use of the broad concept of peripheral defocus. Several researches have shown that lenses with myopic peripheral defocus are able to reduce the rate of myopia progression. With Stellest lenses, instead of a single myopic defocus plane, they constructed a volume of myopic defocus (VoMD) where the defocusing plane is stretched over a segment. Clinical trials have shown that Stellest lenses were 67% more effective at slowing myopia progression compared to single vision lenses. Using patented Repetitive Low Red Light (RLRL) technology, the Eyerising Myopia Management Device gently stimulates fundus blood flow to relieve scleral hypoxia and control axial elongation that causes myopia. An

extensive clinical trial program has established the impressive effectiveness and safety of using repeated low red light therapy (RLRL) and the Eyerising myopia management device to treat myopia. Multi-ethnic clinical trials are currently underway in Australia and the United States, and clinical trials in high myopia and adults are underway in Japan. Achieving myopia control efficacy up to 87.7% with patient compliance >75% Outdoor time and myopia. Changes in children's lifestyles leading to them spending more time indoors have made them more vulnerable to the progression of myopia. The study found a statistically significant negative directional association between outdoor activity and myopia. Increasing outdoor activity every hour per day had a protective effect on the progression of myopia.

Conclusions: Myopia, is the most common human eye disorder in the world. By 2050, the predicted explosion of this degenerative condition will affect 1 in 2 people, or 5 billion globally. Treatment efficacy with low-dose atropine of 0.05% showed good efficacy. Orthokeratology results in approximately a 40% reduction in myopia progression. Unfortunately, since 2001, more than one hundred cases of severe microbial keratitis associated with orthokeratology have been reported. Stellest were 67% more effective at slowing myopia progression compared to single vision lenses. Repeated Low-Level Red-Light (RLRL) therapy achieving up to 87.7% myopia control efficacy when patient has >75% compliance. The issue of slowing the rate of progression of myopia is very important, since inhibition of the progression of myopia by 1 D in childhood will lead to a 40% reduction in the risk of developing complications in old age. («Myopia Control: Why Each Diopter Matters» (, N. A. Brennan. *Vis Sci* 2019;96:463–465))

Keywords: Myopia, progression, atropine , Orthokeratology , Peripheral retinal defocus , Repetitive Low Red Light , complications.

ПЕРВЫЙ ОПЫТ ВВЕДЕНИЯ ИНТРАВИТРЕАЛЬНЫХ ИНГИБИТОРОВ АНГИОГЕНЕЗА У ПАЦИЕНТОВ С УВЕАЛЬНОЙ МЕЛАНОМОЙ

Малакшинова Е.О./Malakshinova E.O., Яровой А.А./Yarovoaya A.A., Яровая В.А./Yarovoaya V.A, Письменская В.А./Pismenskaya V.A.

Москва

ФГАУ «НМИЦ «МНТК «Микрохирургия глаза» им. акад. С.Н. Федорова» Минздрава РФ/ S.N. FEDOROV NMRC «MNTK «EYE MICROSURGERY»

malakshinovaekaterina@yandex.ru

Актуальность. Одним из частых осложнений лечения увеальной меланомы (УМ) лучевыми методами терапии (ЛТ) является лучевая ретинопатия (ЛР), сопровождающаяся макулярным отеком (МО). Отражаясь на остроте зрения (ОЗ) пациента, ЛР ухудшает качество его жизни. По данным современной зарубежной литературы, интравитреальные ингибиторы ангиогенеза (ИВВИАГ) могут улучшать или стабилизировать ОЗ у данных пациентов, снижая высоту МО.

Цель: представить первый опыт введения ИВВИАГ при ЛР, развившейся после ЛТ УМ.

Материалы и методы: ИВВИАГ при ЛР выполнено у 70 пациентов (70 глаз), из них 24 (34%) пациентов были мужчины, 46 (66%) – женщины. Средний возраст пациентов составил 54 года (от 14 до 89 лет). Брахитерапия с Ru-106 была проведена в 66 случаях, стереотаксическая радиохirurgия «Гамма-нож» - в 9. Время до возникновения МО в среднем составляло 12 месяцев (от 0 до 64). Средняя ОЗ до лечения составляла 0,37 (от 0,001 до 1,0). Параметр Thickness central (ТН) составлял 411 ± 172 , Macula cube (МС) – $11,5 \pm 1,8$. ИВВИАГ проводили по стандартной схеме согласно аннотации к препаратам. Среднее количество инъекций у пациента составило 2 (от 1 до 7).

Результаты: Улучшение или стабилизацию ОЗ отмечали в 43% и 32% соответственно. Средний показатель ОЗ после ИВВИАГ в момент последнего визита в среднем повысился и составил 0,43 ($p=0,03$). Среднее значение ТН после лечения определено на уровне 297 ± 119 мкм ($p<0,001$), МС - $10 \pm 1,56$ ($p<0,001$). В течение наблюдаемого периода ни в одном случае не выявлено осложнений.

Выводы: ИВВИАГ при лечении ЛР снижает высоту МО, улучшая или стабилизируя ОЗ.

Relevance. One of the frequent complications of uveal melanoma (UM) treatment with radiation therapy (RT) is radiation retinopathy (RR), accompanied by macular edema (ME). Reflecting on the patient's visual acuity (VA), RR worsens the quality of his life. According to modern foreign literature, anti-vascular endothelial growth factor (anti-VEGF) can improve or stabilize the VA in these patients, reducing the height of ME.

Purpose: to present the first experience of anti-VEGF administration IN RR after RT UM.

Materials and methods: anti-VEGF in RR was performed in 70 patients (70 eyes), of which 24 (34%) patients were men, 46 (66%) were women. The average age of patients was 54 years (from 14 to 89 years). Brachytherapy with Ru-106 was performed in 66 cases, stereotactic radiosurgery "Gamma knife" - in 9. The time before the occurrence of ME was on average 12 months (from 0 to 64). The average VA before treatment was 0.37 (from 0.001 to 1.0). The Thickness central (TC) parameter was 411 ± 172 , Macula cube (MC) – 11.5 ± 1.8 . Anti-VEGF was performed according to the standard scheme according to the annotation to the preparations. The average number of injections in the patient was 2 (from 1 to 7).

Results: Improvement or stabilization of VA was noted in 43% and 32%, respectively. The average VA index after anti-VEGF at the time of the last visit increased on average and amounted to 0.43 ($p=0.03$). The average TC value after treatment was determined at the level of 297 ± 119 microns ($p<0.001$), MS - 10 ± 1.56 ($p<0.001$). During the observed period, no complications were detected in any case.

Conclusions: anti-VEGF in the treatment of LR reduces the height of ME, improving or stabilizing the VA.

EFFICIENCY OF TRANSPUPILLARY THERMOTHERAPY IN SMALL AND MEDIUM-SIZED CHOROIDAL MELANOMA (5 YEAR FOLLOW-UP)

Kardava T. - ophthalmologist, MD, PhD; LTD "New Hospitals", Tbilisi, Georgia – 2021

Choroidal melanoma (ChM) is a "lethal" intraocular tumor characterized by a high rate of metastasis to various organs. The interest is caused by the increase the disease incidence and represents almost 88% of the primary malignant intraocular tumors. In the conditions of modern medicine, in ophthalmology, priority is given to organ-save treatments, which allows to preserve the eyeball cosmetically and partially functionally and determines the patient's quality of life.

PURPOSE: to evaluate efficacy of transpupillary thermotherapy (TTT) of small and medium-sized choroidal melanoma made in 2018-2023.

METHODS: There was performed TTT on 23 patients with ChM in the ophthalmology department of "New Hospitals" in 09.2018-11.2023. 10 men (43.5%), 13 women (56.5%). Average age 57 ± 10.2 years. Of these, 3(13%) patients were post-brachytherapy (BT) status (T3a-bN0M0), the rest - T1aN0M0. 4(17.4%) patients with tumor localization in the paracentral and upper segment, to reduce the risk of complications of TTT, transpupillary photocoagulation of the retinal border was performed beforehand. 7(30.4%) patients underwent 2 TTT sessions, 11(47.8%) patients needed 3 interventions, 3(13%) patients - 4, and after BT 1(4.4%) patient - 5 and 1(4.4%)-7.

RESULTS: during the observation period (5years) recurrence was noted in 1(4.5%) patient, who violated the doctor's prescription and it made necessary to perform radical surgical treatment - enucleation of the eyeball; In 1(4.5%) patient, we obtained a solid incomplete effect, that's why endoresection was performed under general anesthesia with preservation partial vision. 1(4.5%) patient, who underwent TTT after BT required endovitrealsurgery because of hemophthalmus without recurrence. Also, 1(4.5%) after BT patient developed metastasis in the target organs 1.5 years after treatment and died of secondary complications, although in this case, the process did not progress locally. In the rest of the patients, no recurrence or secondary complications were detected by local control during this time.

CONCLUSIONS: TTT is quite effective and does not lose its relevance both as monotherapy and in combination with other methods (in particular BT) in small and medium-sized choroidal melanomas.

ტრანსპუპილარული თერმოთერაპიის ეფექტურობა მცირე და საშუალო ზომის ქორიოიდალური მელანომისას (5 წლიანი დაკვირვება)

თ. ქარდავა- ოფთალმოლოგი, მედიცინის დოქტორი;
კლინიკა „ნიუ ჰოსპიტალსი“, თბილისი - 2023წ.

ქორიოიდალური მელანომა(ქმ) არის „ლეტალური“ თვალსშიდა სიმსივნე, რომელსაც ახასიათებს მეტასტაზირების მაღალი მაჩვენებელი სხვადასხვა ორგანოებში. მისდამი ინტერესი გამოწვეულია სტატისტიკურად დაავადების შემთხვევის მატებით და წარმოადგენს თითქმის 88% პირველად ავთვისებიან თვალსშიდა სიმსივნეებს შორის. თანამედროვე მედიცინის პირობებში პრიოპრიტეტი ენიჭება ორგანოს შემანარჩუნებელ მკურნალობებს, რაც საშუალებას იძლევა შევინარჩინოთ თვალის კაკალი როგორც კოსმეტიკურად, ასევე ნაწილობრივ ფუნქციონალურადაც, და განსაზღვრავს პაციენტის ცხოვრების ხარისხს.

მიზანი: შეფასდეს 2018-2023წწ. ჩატარებული მცირე და საშუალო ზომის ქორიოიდალური მელანომის ტრანსპუპილარული თერმოთერაპით (ტპთთ) მკურნალობის ეფექტურობა.

მასალა და მეთოდი: კლინიკა „ნიუ ჰოსპიტალსის“ ოფთალმოლოგიურ განყოფილებაში 09.2018-11.2023წწ. ტპთთ ჩაუტარდა 23პაციენტს დიაგნოზით ქმ; მამაკაცი 10 (43,5%), ქალი-13(56,5%). საშუალო ასაკი $57 \pm 10,2$ წ. აქედან 3(13%) პაციენტი იყო ბრახითრაპიის(ბტ) შემდგომი მდგომარეობა (T3a-bN0M0), დანარჩენი-T1aN0M0. 4(17,4%) პაციენტს, სიმსივნეს პარაცენტრალური და ზედა სეგმენტში ლოკალიზაციით, ტპთთ-ის გართულების რისკის შესამცირებლად, წინასწარ ჩაუტარდათ ბადურის შემოსაზღვრითი ტრანსპუპილარული ფოტოკოაგულაცია. 7(30,4%) პაციენტს ჩაუტარდა ტპთთ 2 სეანსი, 11(47,8%) პაციენტს დასჭირდა 3 ჩარევა, 3(13%) პაციენტს-4, ხოლო ბტ-ს შემდგომ პაციენტებიდან 1(4,4%)პაციენტს- 5 და 1საც(4,4%)-7.

შედეგი: დაკვირვების პერიოდში (5 წელი) რეციდივი აღენიშნა 1(4,4%) პაციენტს რომელმაც დაარღვია ექიმის მითითება და საჭირო გახდა რადიკალური ქირურგიული მკურნალობის - ენუკლეაციის ჩატარება; 1(4,4%) პაციენტთან მივიღეთ მყარი არასრული ეფექტი, რის გამოც ჩატარდა ენდორეზექცია ზოგადი ანესთეზით ნაწილობრივ მხედველობის შენარჩუნებით. 1(4,4%)პაციენტს, რომელსაც ტპთთ ჩაუტარდა ბტ-ს შემდგომ, დასჭირდა ენდოვიტრეალური ქირურგიული ჩარევა

ჰემოფთალმის გამო, რეციდივის გარეშე. ასევე, 1(4,4%) ბტ-ს შემდგომ პაციენტთან განვითარდა მეტასტაზი სამიზნე ორგანოებში მკურნალობიდან 1,5წელში და დაიღუპა მეორადი გართულებებით, თუმცა ამ შემთხვევაშიც ლოკალურად პროცესის პრგრესირება არ დაფიქსირებულა. დანარჩენ პაციენტებში ამ დროის განმავლობაში ლოკალური კონტროლით რეციდივი ან მეორადი გართულებები არ გამოვლენილა.

დასკვნა: ტპთთ საკმაოდ ეფექტურია და არ კარგავს აქტუალურობას როგორც მონოთერაპია ასევე კომბინაციაში სხვა მეთოდებთან (კერძოდ ბტ-სთან) მცირე და საშუალო ზომის ქორიოიდალური მელანომებისას.

METASTATIC CHOROID LESION: CLINICAL AND DIAGNOSTIC FEATURES ACCORDING TO 10 YEARS OF EXPERIENCE

Miroshnikov V.I., Yarovaya V.A., Volodin D.P., Yarovoy A.A., Galbatsova A.G. S.N. FEDOROV NMRC "MNTK "EYE MICROSURGERY"

Relevance.

The vascular membrane is the most common localization of ocular metastasis. In the last decade, the frequency of metastasis to the choroid has increased significantly. This is due to the increase in oncological morbidity, an increase in the life expectancy of patients treated for primary malignant tumors, as well as the introduction of new techniques into clinical practice and improvement of the quality of diagnosis.

Objective: to present the clinical and diagnostic features of metastatic lesions of the choroid on the basis of their own experience.

Materials and methods.

The analysis of medical documentation and examination results of 47 patients who were diagnosed with metastatic choroid lesion in the conditions of the S.N. FEDOROV NMRC "MNTK "EYE MICROSURGERY" for the period from 2013 to 2022. The average age of patients was 55 years (from 20 to 90 years). At the same time, there were 10 men and 37 women. The patients underwent a complete ophthalmological examination using both standard and special research methods: visometry, tonometry, perimetry, biomicroscopy,

ophthalmoscopy, ultrasound (ultrasound in B-scan mode) with determination of the localization and size of the tumor focus, as well as the presence and height of secondary retinal detachment (SRD), optical coherence tomography (OCT). In 8 cases, a fine needle aspiration biopsy (FNAB) was performed for morphological verification using the proposed technology.

The majority of patients (n=39, 83%) had a primary focus at the time of diagnosis of metastatic choroid lesion: breast cancer (n=23), lung cancer (n=7), intraocular lymphoma (n=3), skin melanoma (n=2), ovarian cancer (n=1), kidney cancer (n=1) alveolar soft tissue sarcoma (n=1), thyroid cancer (n=1). In 17% of cases (n=8) metastatic lesion of the choroid preceded the diagnosis of systemic cancer.

Results.

Clinical characteristics of metastatic lesions of the choroid, in 100% of cases, are represented by central localization, low height and large extent of the focus, high SRD.

According to the B-scan data, the average height of the tumor was 4.27 mm (from 1.7 to 6.84 mm), the average length of the tumor was 9.4 mm (from 2.1 to 16.7 mm). SRD was detected in all cases, and its height varied from 0.2 to 5.3 mm (in MS. - 2.75 mm). According to the results of OCT, neuroepithelial detachment was detected in 17 patients, detachment was combined with neuroepithelial edema in 18 patients, and OCT data were absent in 12 patients. In addition, in all cases, the characteristic wavelike profile of the anterior surface of the tumor and changes in the adjacent retinal pigment epithelium («lumpy bumpy» symptom) were determined.

Most often in our study, namely in 26 patients, metastatic choroid lesion was associated with breast cancer (55%). The second place in the frequency of occurrence was occupied by metastasis of lung cancer - in 12 patients (25%). Metastases of other tumors to the choroid were much less common: two patients had metastasis of melanoma of the skin (4%), one case accounted for cases of metastasis of thyroid cancer (n=1, 2%), alveolar sarcoma of soft tissues (n=1, 2%), kidney cancer (n=1, 2%) and ovarian cancer (n=1, 2%).

In the case of morphological verification of the intraocular focus (n=6 (13%)) during transvitreal FNAB, the diagnosis of metastatic lesion was con-

med in all cases: metastasis of breast cancer – in one patient, lung cancer – in three, kidney cancer – in one patient and ovarian cancer – in one case. The period from the moment of diagnosis of the primary tumor to the diagnosis of intraocular neoplasm varied from 0 to 3 months.

Conclusion.

Due to the high frequency of occurrence of metastases in the choroid, they must be included in the diagnostic search for the detection of intraocular neoplasm. When choosing a diagnostic algorithm, the oncological history should be taken into account. At the same time, it must be remembered that the clinical picture of tumor metastases of various localization is largely similar. In the absence of an identified primary focus, a possible and appropriate tactic is to conduct a FNAB for morphological verification of metastatic lesions of the choroid.

СТЕРЕОТАКСИЧЕСКАЯ РАДИОХИРУРГИЯ «ГАММА-НОЖ» В ЛЕЧЕНИИ УВЕАЛЬНОЙ МЕЛАНОМЫ: МНОГОЛЕТНИЙ ОПЫТ.

*Галбацова А.Г. Яровая В.А., Голанов А.В., Костюченко В.В., Яровой А.А.
galbatsova.aiza@mail.ru*

*ФГАУ «НМИЦ «МНТК «Микрохирургия глаза» им. акад. С.Н. Федорова Минздрава России., Москва/ The S. Fyodorov Eye Microsurgery Federal State Institution.
Russian Federation, Moscow.*

Аннотация

В настоящее время даже увеальные меланомы (УМ) больших размеров могут быть успешно пролечены с использованием хирургических подходов и методов лучевой терапии, одним из которых является стереотаксическая радиохirurgия «Гамма-нож» (СТРХГН). В настоящее время СТРХГН выступает методом лечения УМ альтернативным энуклеации.

Цель: представить результаты лечения УМ с помощью СТРХГН

Материалы и методы: с использованием СТРХГН пролечено 81 пациент (81 глаз) с УМ. Женщин было 46 (56%), мужчин – 35 (44%) Средний возраст пациентов составил 47 лет (от 13 до 77 лет). МКОЗ до лечения варьировалась от 0,01-1,0 (средняя 0,5), предметное зрение (>0.3) имело место в 44 случаях. Высота опухоли до лечения

в среднем составила 8 мм(от 3,1мм до 10,8мм), протяжённость – 13,8мм (от 8,7мм до 20мм).Предписанная доза облучения составила 30Гр@50% в 62 случаях, 35 Гр@50% - в 12, 40 Гр@50% - в 5. и 50 Гр@50% - в 3 случаях. В исследовании оценивали дозы, приходящиеся на критические структуры. Так, максимальная лучевая нагрузка на хрусталик составила 35,5 Гр, на цилиарное тело - 53Гр, на зрительный нерв – 62 Гр и макулу 65 Гр.

Результаты: У 97% пациентов удалось сохранить пролеченный с УМ глаз (n=70). Контроль опухоли достигнут в 97% случаев (n=70): у 16 пациентов достигнута клинически полная регрессия опухоли, у 62 - частичная, в 4 выявлен продолженный рост/рецидив. После СТРХГН средняя высота опухоли составила 5,8 мм (от 1,6мм до 11,5мм), протяженность. Степень редукции опухоли после СТРХГН в среднем составила 30%. Средний показатель МКОЗ после СТРХГН варьировался от 0,001 до 1,0 (средний - 0,2). Среди осложнений в 33 (41%) случаях выявляли катаракту, увеит лучевого генеза, ретинопатию (от макулярного отека до экссудативной отслойки сетчатки), нейропатию, гемофтальм, а также неоваскулярную глаукому. Метастазы УМ были выявлены в 3 случаях через 4, 36 и 81 месяц после СТРХГН соответственно.

Заключение: СТРХГН является эффективным и безопасным методом лечения УМ, позволяющим нередко в «патовых» ситуациях не только сохранить глаз, но и зрение.

STEREOTACTIC RADIOSURGERY “GAMMA KNIFE” IN THE TREATMENT OF UVEAL MELANOMA: MANY YEARS OF EXPERIENCE.

Galbatsova A.G. Yarovaya V.A., Golanov A.V., Kostyuchenko V.V., Yarovoy A.A. galbatsova.aiza@mail.ru FSAU “NMIC “MNTC “Eye Microsurgery” named after Academician S.N. Fedorov of The Ministry of Health of Russia., Moscow/ The S. Fyodorov Eye Microsurgery Federal State Institution, Russian Federation, Moscow.

Annotation

Currently, even large-sized uveal melanomas (UM) can be successfully treated using surgical approaches and methods of radiation therapy, one of which is

stereotactic radiosurgery “Gamma knife” (STRCGN). Currently, STRCGN is an alternative treatment method to enucleation.

Purpose: to present the results of the treatment of UM with the help of STRCGN

Materials and methods: 81 patients (81 eyes) were treated with the use of SRCGN. There were 46 (56%) women, 35 (44%) men. The average age of patients was 47 years (from 13 to 77 years). MCI before treatment ranged from 0.01-1.0 (average 0.5), objective vision (>0.3) occurred in 44 cases. The height of the tumor before treatment averaged 8 mm (from 3.1mm to 10.8 mm), the length was 13.8 mm (from 8.7 mm to 20mm). The prescribed radiation dose was 30 G@50% in 62 cases, 35 G@50% in 12, 40 G@50% in 5. and 50 G@50% in 3 cases. The study assessed the doses attributable to critical structures. Thus, the maximum radiation load on the lens was 35.5 G, on the ciliary body - 53 G, on the optic nerve - 62 G and the macula 65 G.

Results: 97% of patients managed to keep the eye treated with UM (n=70). Tumor control was achieved in 97% of cases (n=70): clinically complete tumor regression was achieved in 16 patients, partial in 62, and continued growth/recurrence was detected in 4. After STRCGN, the average height of the tumor was 5.8 mm (from 1.6mm to 11.5mm), the length. The degree of tumor reduction after STRCGN averaged 30%. The average ICOS after STRCGN varied from 0.001 to 1.0 (average - 0.2). Among the complications in 33 (41%) cases, cataracts, radiation-induced uveitis, retinopathy (from macular edema to exudative retinal detachment), neuropathy, hemophthalmos, and neovascular glaucoma were detected. UM metastases were detected in 3 cases 4, 36 and 81 months after STRCGN, respectively. Conclusion: STRCGN is an effective and safe method of treating the tumor, which often allows in “stalemate” situations not only to preserve the eye, but also vision.

INFERIOR OBLIQUE PALSY - DIAGNOSIS AND SURGICAL TREATMENT

Natalia maghlakelidze. MD, PhD. Associate Professor. "Georgian-American University". "Aversi Clinic".

Isolated inferior oblique palsy is a rare clinical condition. The possible etiology for this entity may be congenital or acquired. The main clinical features of isolated inferior oblique palsy consists of hypotropia and limited elevation in adduction of the affected eye. Forced duction test is negative. Vertical deviations increase on gaze to the unaffected side. Increased hypotropia in contralateral head tilt. Superior oblique overaction of the involved eye. Presence of an A pattern strabismus. Head tilt toward the paralytic side, face rotation to the unaffected side an elevated chin.

Surgical management of inferior oblique palsy includes weakening of the ipsilateral superior oblique muscle, sometimes with contralateral superior rectus recession.

MOEBIUS SYNDROME

Tarash Dolidze, Nikoloz Gagua, Ekaterine Eradze. New Hospitals, Inova Clinic, Tbilisi, Georgia.

Introduction:

Moebius Syndrome, a rare congenital neurological disorder, presents a unique set of challenges, particularly in the realm of ophthalmology. This presentation delves into the distinctive ophthalmic manifestations of Moebius Syndrome, aiming to enhance our understanding of its impact on visual health and shed light on potential therapeutic interventions.

Objective:

This thesis seeks to comprehensively examine the ocular implications of Moebius Syndrome, with a specific focus on cases involving surgical interventions for strabismus in Moebius Syndrome-affected children. By addressing the complexities associated with Moebius Syndrome, we aim to contribute valuable insights for ophthalmologists, pediatrics, researchers, and healthcare professionals attending this esteemed event.

Key Areas of Focus

Facial Nerve Palsy and Ocular Consequences:

Investigating the correlation between facial nerve palsy characteristic of Moebius Syndrome and its influence on ocular motor function.

Analyzing the impact of facial paralysis on facial expressions and its secondary effects on tear production and ocular surface health.

Cranial Nerve Abnormalities and Strabismus:

Examining the prevalence of strabismus in individuals with Moebius Syndrome, emphasizing the role of cranial nerve dysfunction in ocular misalignment.

Assessing the challenges in diagnosing and managing strabismus in Moebius Syndrome patients, with a focus on personalized treatment strategies.

Case Studies: Moebius Syndrome Children with Operated Strabismus:

Presenting two cases involving Moebius Syndrome children who underwent surgical correction for strabismus, highlighting the intricacies of their treatment and outcomes.

Visual Rehabilitation Strategies:

Exploring novel approaches and technologies for visual rehabilitation in Moebius Syndrome patients, considering the unique neurologic and ophthalmic features.

Highlighting interdisciplinary collaborations between ophthalmologists, neurologists, and rehabilitation specialists to optimize visual outcomes.

Conclusion:

This presentation not only aims to provide a comprehensive overview of the ophthalmic aspects of Moebius Syndrome but also offers real-world insights through the examination of cases involving surgical interventions for strabismus in Moebius Syndrome-affected children. By fostering a deeper understanding of Moebius Syndrome within the ophthalmic community, we strive to enhance patient care and contribute to the ongoing dialogue surrounding rare neurological disorders.

REVIEW OF INVENTIONS FROM PATENT DATABASES IN FIELD OF GLAUCOMA TREATMENT

Yuliya Rozhko, Ihar Hlushniou
Republican scientific research center for radiation medicine
and human ecology, Gomel, Republic of Belarus

Patent and licensing activity is priority direction for the development of medical science. Despite the many known methods of treating the disease, there is constant search for them.

Purpose: to review modern inventions for the treatment of glaucoma.

Methods. We analyzed the documents of protection issued for methods of treating various forms of glaucoma. The search for patent information was carried out according to the headings of the International Patent Classification, covering the topics of the selected area, using combinations of keywords including «glaucoma», «intraocular pressure», «treatment», «surgery» and etc. The information array of identified and analyzed security documents amounted to 428 sources issued in the RF, covering the 7 years.

Results. Of the 123 patents related to the treatment of various forms of glaucoma, 12 are utility models. Only 4 inventions relate to conservative treatment. 25 patents have been received for laser methods of treating glaucoma, including their combination with use of surgical treatment – 9, combination with inhibitor angiogenesis medicines – 4. A total of 59 inventions are related to surgical methods of treating glaucoma, including 15 using drainage devices. The combined surgical treatment of glaucoma with simultaneous cataract removal was patented by 13 teams of authors, including 3 with intraocular lens suturing. Seven patents were received for methods of modeling the filtration bleb after filtration surgery.

The authors receive documents of protection for new improved methods of diagnosing and treating glaucoma. When the subject of the application is a medical method of treatment, our patent legislation provides legal protection as inventions, in contrast to the laws of most European countries and the European Patent Office. There are fundamental differences in assessing the patentability of medical methods in America and Asia; they are interpreted differently by law.

Conclusion. Despite the many known methods of treating glaucoma, there is a constant search for them. Patent and licensing activities, focused on the

nal result, are one of the priority areas for the development of scientific and clinical potential, ensuring the progressive and dynamic development of medical science.

DETECTION OF GLUCOSE HYPOMETABOLISM IN VISUAL CORTEX IS CRITERION FOR DIAGNOSING GLAUCOMATOUS NEURODEGENERATION

Ilmira Gazizova, Anastasia Rozhko

*N. Bekhtereva Institute of Human Brain of Russian Academy of Science,
St. Petersburg, Russia*

Glaucoma is an optical neuropathy characterized by the death of retinal ganglion cells and degeneration of the optic nerve. Neuroimaging patterns demonstrated the involvement of specific brain regions in degeneration in patients with glaucoma.

The structure of the visual pathway is complex and multifunctional. The visual cortex includes the primary visual cortex (striate cortex, visual area V1) and the extrastriate visual cortex (areas V2, V3, V4, and V5). The primary visual cortex is anatomically equivalent to Brodmann area 17. The extrastriate visual cortex includes Brodmann areas 18 and 19. For every 10 stimuli coming from the retina, only four go to the cortex, the lateral geniculate nucleus functioning as a filter. The primary visual cortex of each hemisphere receives information directly from the ipsilateral lateral geniculate nucleus. All other sensitive to visual signals areas of the brain are connected to the eyes through zone V1, which belongs to the granular (sensory) type (koniocortex), localized in the calcarine sulcus of the occipital lobe of the cerebrum.

Early recognition of glaucoma symptoms is paramount to stopping the progression of the serious disease. Molecular imaging technique such as positron emission tomography (PET), which can image the brain in vivo, may be useful to detect synaptic activity in the brain.

In neurology, PET is useful adjunct test in routine clinical evaluation of wide range of neurodegenerative diseases. In addition to imaging affected areas of the brain, patterns associated with underlying disease may be iden-

ti ed. The question is whether glaucoma can be suspected by screening PET images of the visual cortex.

Purpose: to evaluate the feasibility of diagnosing the disease in patients suffering from primary open-angle glaucoma using positron emission tomography targeting the striate visual cortex of the occipital lobe of the cerebrum.

Material and methods. We retrospectively analyzed the data of 14 people (9 women, 5 men) aged 60.1 ± 5.4 years with verified diagnosis of primary open-angle glaucoma (initial stage – 4 eyes, moderate – 20 eyes, advanced – 4 eyes). The comparison group (14 people) was comparable in gender and age, without history of glaucoma or pathology of the central nervous system.

The radiotracer was 2-[¹⁸F]- fluor-2-deoxy-D-glucose (FDG), providing an index of cerebral glucose metabolic rate that is closely related to neuronal activity. Visualization was performed on premium PET/computed tomography (CT) scanner General Electric Discovery 710, sensitivity 710 kcps/MBq, spatial resolution 4,48 mm. FDG-PET images were spatially normalized to the Montreal Neurological Institute (MNI) brain mapping template using software.

Quantitative analysis of FDG-PET images involves calculation of mean FDG uptake in predefined regions or voxel-wise comparison (t-test) between patients and controls.

Statistical comparisons of indicators and indices performed using the non-parametric Mann–Whitney U test. The relationship between the presence/absence of relative indicators tested using Fisher’s exact test.

Results. Relatively reduced ¹⁸F-FDG metabolism observed in the striate visual cortex of 12 glaucoma patients, in addition to other voxels.

Fusion ¹⁸F-FDG PET/CT images in the axial, coronal and sagittal planes confirmed a decrease in tracer distribution in the above-mentioned brain region. No specific changes in the cerebral parenchyma observed on the coregistered CT image.

It was found that 2 (14.3%) patients with glaucoma remained within the healthy control receptive field during follow-up, which may indicate that these subjects are not prone to phenoconversion in the short term and have minor metabolic changes and relatively slow disease progression.

Equally important, a significant decrease in glucose metabolism in the visual cortex documented in 59.5-year-old male in control group. A target-

ed ophthalmological examination made it possible to diagnose primary open-angle glaucoma at the initial stage, with subsequent prescription of laser treatment.

Conclusion. Glucose hypometabolism in the visual cortex may be a criterion for diagnosing the disease in patients with primary open-angle glaucoma.

Conflict of interest: none.

CLINICAL CASES OF TREATMENT OF MACULAR PATHOLOGY OF VARIOUS ETIOLOGIES BY INFRARED MICROPULSE LASER EXPOSURE WITH A WIDE SPOT.

Varshavskii Arsenii Mikhailovich

Laser surgeon, head of the retinal center

International Center "Eye Institute LUCY", Almaty, Kazakhstan

Annotation.

Keywords: micropulse laser treatment, macular edema, retina, laser surgery, optical coherence tomography, confluent drusen.

Pathologies of the central zone of the retina of various etiologies are often accompanied by macular edema and lead to persistent and, in the absence of timely treatment, irreversible vision loss, which causes a decrease in the quality of life and disability of patients. As a result, it is relevant to introduce effective, minimally invasive and safe methods of treatment into practice.

The purpose of the study is to analyze clinical cases of treatment of macular pathology by infrared laser micropulse exposure and determine the effectiveness and safety of this technique.

Materials and methods - four clinical cases of patients with macular pathology of various etiologies (macular edema due to thrombosis of the central retinal vein, diabetic macular edema, detachment of neuroepithelium against the background of central serous chorioretinopathy, confluent drusen against the background of age-related macular degeneration) are presented. This patient underwent subthreshold micropulse laser exposure with a wide and small spot on the macular area of the retina. The results

were analyzed using optical coherence tomography, visometry, and fluorescein angiography.

Results - restoration of the anatomical structure of the central zone of the retina and an increase in visual functions.

Conclusion - Subthreshold micropulse laser exposure in pathologies of the macular zone of the retina is an effective, safe and non-invasive method that can be used as an alternative or addition to intravitreal injections of angiogenesis inhibitors and corticosteroids.

Relevance.

Pathologies of the central zone of the retina of various etiologies are often accompanied by macular edema and lead to persistent and, in the absence of timely treatment, irreversible vision loss, which causes a decrease in the quality of life and disability of patients.

At the moment the main method of treating such diseases is the intravitreal administration of angiogenesis inhibitors and corticosteroids, which has a number of disadvantages such as high cost, short-term effect, the need for a sterile operating room, the possibility of general somatic and infectious complications, ocular hypertension, optic nerve atrophy, pigment epithelium and neurosensory layer of the retina.

In the early 2000s in order to reduce the risk of complications after laser coagulation in the macular area, the concept of so-called subthreshold laser coagulation received impetus for development [1]. After classical (appearance of a visible burn) coagulation of the retina, complications are often diagnosed, including paracentral scotomas, subretinal fibrosis, formation of retinal folds and grooves in the macula, post-coagulation atrophy of the pigment epithelium, unwanted coagulation of the fovea, transient decrease in visual acuity and subretinal neovascularization. The concept of subthreshold laser coagulation is based on the postulate that the beneficial effects of laser coagulation can occur at irradiation powers that do not cause a visible burn and the associated risk of damage. This approach has been practically implemented in at least three methods used in practice. These are transpupillary thermotherapy (TTT), subthreshold micropulse laser exposure and subthreshold laser coagulation.

An alternative to a single high-peak energy pulse is a series of repeated low-energy micropulses.

In repetition mode, the energy of each subsequent micropulse accumulates inside the target tissue, causing a coagulation effect.

In neighboring tissues, the coagulation threshold is not reached, since they have time to cool down during the intervals between micropulses.

The duration of micropulses (“ON-period”) and the interval between them (“OFF-period”) can be arbitrarily set by the surgeon in accordance with the specific pathology and pigmentation.

Shortening the “ON-period” and lengthening the interval between micropulses helps reduce laser-induced tissue overheating, cools eye tissue and controls the effect of laser energy [2,3,4,5,6,7].

The optimal duty cycle (percentage of on-time duration or duty cycle) is from 5% to 35% depending on the laser wavelength [8]. The most commonly used radiation is in the infrared range (810 nm) and the yellow spectrum (577 nm).

Subthreshold laser coagulation of the retina in various modifications implies a reduction in time and/or radiation power by at least a third compared to the radiation parameters necessary for the formation of a classic visible coagulum of the 1st degree. The most important and responsible stage of subthreshold coagulation is testing the coagulum when choosing the laser radiation energy level. Insufficient power may not provide the necessary therapeutic effect, and an overdose may lead to unnecessary damage to the retinal pigment and neuroepithelium [9].

Subthreshold micropulse laser exposure has found application in the treatment of central serous chorioretinopathy, diabetic and postthrombotic macular edema, and confluent macular drusen [10]. Clinical cases of treatment of these pathologies are discussed in this article.

Purpose of the study.

To analyze clinical cases of treatment of macular pathology with infrared laser micropulse exposure and determine the effectiveness of this technique.

Materials and methods.

Clinical case of treatment of juxtafoveolar central serous chorioretinopathy using micropulse exposure to a filtration point with a small spot.

Patient V., 41 years old, came to the appointment with complaints of blurring, decreased visual acuity of the left eye, and curvature of straight

lines. Information from the anamnesis: complaints appeared 3 months ago against the background of an episode of a stressful situation, instilled Nevana eye drops 4 times a day in the right eye and Trusopt 2 times a day in the right eye, subjectively noted negative dynamics.

Vis OD = 0.2 (sph +1.5) = 0.4. According to optical coherence tomography (OCT) of the macula of the right eye, there is a detachment of the neuroepithelium with elevation of the pigment epithelium in the projection of the lesion point, localized in the foveal avascular zone (Figure 1A and 1B). According to fluorescein angiography, there are signs of an active lesion point juxtafoveolar (Figure 2).

Based on the examination data, a clinical diagnosis was made: Central serous chorioretinopathy. Subthreshold micropulse laser exposure with a small spot was performed on an IRIDEX IQ 810 infrared laser. Operation parameters: P (power) = 1400 mW, T test (exposure during testing) = 100 ms, T treat (exposure during treatment) = 1 sec, D test (test spot diameter) = 200 μ m, D treat = 200 μ m, Tot = 200, D/S = 10%.

A clinical case of treatment of macular edema due to thrombosis of the central retinal vein using micropulse laser exposure with a wide spot.

Patient A., 60 years old, came to the appointment with complaints of low vision in the right eye, narrowing of the visual field against the background of a jump in blood pressure. Vision has been reduced for 3 months.

Objectively: Vis OD = 0.1 n/k. According to optical coherence tomography (OCT) of the macula of the right eye, there is a picture of diffuse cystic macular edema (Figure 5). According to ophthalmoscopy and fundus photography (Figure 6), there is a picture of postthrombotic retinopathy.

Based on the examination data, a clinical diagnosis was made: Diffuse cystoid macular edema secondary to postthrombotic retinopathy.

Subthreshold micropulse laser exposure with a wide spot was performed on a Lightmed Truscan infrared laser. Operation parameters: P (power) = 1300 mW, T test (test exposure) = 100 ms, T treat (treatment exposure) = 5 sec, D test (test spot diameter) = 300 μ m, D treat (spot diameter during treatment) = 3000 μ m, Tot (Quantity) = 10, D/S (Duty ratio) = 25%.

A clinical case of treatment of macular edema due to diabetic retinopathy using micropulse laser exposure with a wide spot.

Patient K., 65 years old, came to the appointment with complaints of low vision in the right eye. Suffers from insulin-dependent diabetes mellitus type II. Vision has been reduced for 2 months.

Objectively: Vis OD = 0.4 n/k. According to optical coherence tomography (OCT) of the macula of the right eye, there is a picture of diffuse cystic macular edema (Figure 9).

Based on the examination data, a clinical diagnosis was made: Cystic diabetic macular edema.

Subthreshold micropulse laser exposure with a wide spot was performed on an IRIDEX IQ 810 infrared laser. Operation parameters: P (power) = 1100 mW, T test (exposure during testing) = 100 ms, T treat (exposure during treatment) = 5 sec, D test (test spot diameter = 300 μm , D treat = 3000 μm , Tot = 10, D/S = 20%.

A clinical case of laser coagulation of macular drusen with subsequent sub-threshold micropulse exposure to a wide spot on the macular zone of the retina.

Patient M., 67 years old, was treated for a wet form of age-related macular degeneration in his left eye. In the right eye, ophthalmoscopy revealed signs of the dry form of age-related macular degeneration. To prevent the progression of the disease, it was decided to perform laser coagulation of drusen followed by subthreshold micropulse exposure to a wide spot on the macular zone of the retina [11].

Yellow low-threshold parafoveal laser coagulation of the macular zone was performed using a Quantel Medical Supra diode laser with a wavelength of 577.

Operation parameters: P (power) = 70 mW, T treat (treatment exposure) = 0.02 sec, D treat (treatment spot diameter) = 100 μm , Tot (Number) = 250.

After 2 weeks, subthreshold micropulse laser exposure was performed with a wide spot on the IRIDEX IQ 810 infrared laser. Operation parameters: P (power) = 1100 mW, T test (exposure during testing) = 100 ms, T treat (exposure during treatment) = 5 sec, D test = 300 μm , D treat = 3000 μm , Tot = 10, D/S = 15%.

Research results.

Clinical case of treatment of juxtafoveolar central serous chorioretinopathy using micropulse exposure to a foveal point with a small spot. A control OCT image of the right eye 3 weeks after exposure showed regression of the

elevation of the pigment epithelium, a decrease in the area and height of the neuroepithelial detachment. Visual acuity of the right eye was 0.8 (Figure 3). When re-examined 6 weeks after surgery, complete regression of neuroepithelial detachment is noted (Figures 4A and 4B). Visual acuity was 1.0.

Thus, subthreshold micropulse laser exposure with a small spot is an effective and optimal method for chronic CSC with a ltration point in the fovea. A clinical example of successful treatment of macular edema secondary to thrombosis of the central retinal vein using micropulse exposure with a wide spot.

A control OCT image of the right eye 6 weeks after surgery showed regression of macular edema and restoration of the foveal contour. Visual acuity of the right eye was 1.0 (Figure 7). When re-examined 12 weeks after surgery, complete resorption of macular edema is noted (Figures 8A and 8B). Visual acuity was 1.0.

Thus, subthreshold micropulse laser exposure with a small spot is an effective method in the treatment of post-thrombotic cystoid macular edema.

A clinical case of treatment of macular edema due to diabetic retinopathy using micropulse laser exposure with a wide spot.

A control OCT image of the right eye 6 weeks after surgery showed regression of macular edema and restoration of the foveal contour. Visual acuity of the right eye was 0.8 (Figure 9).

Thus, subthreshold micropulse laser exposure with a small spot is an effective method in the treatment of cystoid diabetic macular edema.

A clinical case of laser coagulation of macular drusen with subsequent subthreshold micropulse exposure to a wide spot on the macular zone of the retina.

When examined after 4 months, according to OCT data of the macula of the right eye (Figure 10, 11, 12), positive dynamics are visualized in the form of a decrease in local detachments of the PE, resorption of drusen, which in the future is the prevention of the progression of age-related macular degeneration and its transition to the exudative stage.

List of used literature.

- Roider J. *Laser treatment of retinal diseases by subthreshold laser effects.* // *Semin. Ophthalmology.* 1999; 14: 19-26 Pankratov MM. *Pulsed delivery of laser energy in experimental thermal retinal photocoagulation.* // *Proc. Soc. Photo. Optical. Instrum. Eng.* 1990; 1202: 205-213.

- Kampmpeter B., Jonas J.B. Central serous chorioretinopathy imaged by optical coherence tomography. *Arch Ophthalmol* 2003; 121; 742 – 743
- Roider J. Laser treatment of retinal diseases by subthreshold laser effects. // *Semin. Ophthalmology*. 1999; 14: 19-26 Pankratov MM. Pulsed delivery of laser energy in experimental thermal retinal photocoagulation. // *Proc. Soc. Photo. Optical. Instrum. Eng.* 1990; 1202: 205-213.
- Kim SY, Sanislo SR, Dalal R, Blumenkranz MS. The selective effect of micropulse diode laser upon the retina. // *Invest Ophthalmol Vis Sci*. 1996; 37 (3): 773-779
- Roider J, Hillenkamp F, Birngruber R. Microphotocoagulation: selective effects of repetitive short laser pulses. // *Proc Natl Acad Sci USA*. 1993; 90: 8643-8647.
- Friberg TR. Infrared micropulsed laser treatment for diabetic macular edema. Subthreshold versus threshold lesions. // *Semin of Ophthalmology*. 2001; 16: 19-24.
- Lanzetta P, Pirracchio A, Bandello F. Theoretical bases of non-ophthalmoscopically visible endpoint photocoagulation. // *Semin Ophthalmol*. 2001; 16(1): 8-11.
- Olk RJ, Akduman L. Minimal intensity diode laser (810 nm) photocoagulation for diffuse diabetic macular edema. // *Semin Ophthalmol*. 2001; 16 (1): 25-30.
- Dorin G. Subthreshold and MicroPulse Diode Laser Photocoagulation. // *Semin. Ophthalmol.* – 2003, 18(3):147-153.
- Балашевич Л.И. Создание и изучение эффективности применения аргонового и диодного лазеров при патологии глазного дна: Автореферат диссертации доктора медицинских наук
- Мазунин И.Ю. Способ лазерного лечения мягких макулярных друз при сенильной макулодистрофии: патент на изобретение №2340318. 2008
- Inagaki K. Sublethal Photothermal Stimulation with micropulse laser induces heatshock protein expression ARPE cells // *Ophthalmology* 2015

CHANGES IN VISUAL FUNCTIONS IN PATIENTS WITH POST-COVID SYNDROME AND THEIR RELATIONSHIP WITH RETINAL PERFUSION

Vadim Turgel, Svetlana Tultseva, Alla Lisochkina, Evgeny Akopov
Pavlov First State Medical University of St. Petersburg

Introduction. Patients who have had coronavirus infection (COVID-19) may continue to have complaints for a long time after their illness, including complaints about changes in the quality of vision. This primarily applies to patients recovering from severe COVID-19, as well as patients with post-COVID syndrome. There is a version that connects these complaints with long-term persistent microcirculatory changes in the retina.

Aim. To evaluate changes in visual functions and retinal microcirculation parameters in patients with post-COVID syndrome for 6 months follow up.

Materials and methods. 41 patients (82 eyes) were divided into 3 groups depending on the severity of COVID-19: mild, moderate and severe, as well

as 13 people (26 eyes) in the control group who did not have COVID-19. All patients underwent an ophthalmological examination, including high- and low-contrast visual acuity testing, as well as OCT angiography. All patients were examined twice, 6 months apart: at 6 and 27 weeks. Among the angiographic parameters, vessel density (VD) within the superficial capillary plexus (SCP), deep capillary plexus (DCP), and radial peripapillary capillaries (RPC) was examined. The following structural parameters were also measured: retinal thickness, retinal nerve fiber layer thickness, and ganglion cell complex thickness.

Results. High-contrast visual acuity scores did not differ between groups or within each group between visits 1 and 2. In patients with moderate and severe COVID-19, there was a significant decrease in low-contrast visual acuity compared with the control group at visit 1 (0.65 and 0.76, $P < 0.001$ and 0.69 and 0.76, $P < 0.001$, respectively), but this difference was leveled out by the 2nd visit. In the group of patients with severe COVID-19, there was a significant decrease in VD SCP and VD DCP relative to the control group ($P < 0.001$ in both cases) and these indicators decreased even more at the 2nd visit ($P < 0.001$ in both cases). At the same time, patients with moderate COVID-19 also showed a decrease in VD SCP and VD DCP relative to the control group ($P < 0.001$ in both cases), but the indicators remained stable during 6 months follow up ($P = 0.082$).

Conclusion. Patients with moderate and severe COVID-19 have a significant decrease in contrast sensitivity, which is temporary and fully recovers after 6 months. In patients with severe COVID-19, these changes coincide with the negative dynamics of retinal perfusion parameters over 6 months follow up, both in SCP and DCP. Patients with post-COVID syndrome, or those who have had COVID-19, and who have ocular complaints, need detailed ophthalmological examination using OCT angiography.

МЕТАСТАТИЧЕСКОЕ ПОРАЖЕНИЕ ХОРИОИДЕИ: КЛИНИКО-ДИАГНОСТИЧЕСКИЕ ОСОБЕННОСТИ ПО ДАННЫМ 10-ЛЕТНЕГО ОПЫТА

*Мирошников В.И., Яровая В.А., Володин Д.П., Яровой А.А., Галбацова А.Г.
ФГАУ НМИЦ «МНТК «Микрохирургия глаза» им. акад. С.Н. Фёдорова»
Министерства здравоохранения Российской Федерации*

Актуальность.

Сосудистая оболочка является наиболее частой локализацией глазного метастазирования. В последнее десятилетие частота метастазирования в хориоидею значительно увеличилась. Это связано с ростом онкологической заболеваемости, увеличением продолжительности жизни больных, прошедших лечение по поводу первичной злокачественной опухоли, а также с внедрением в клиническую практику новых методик и улучшением качества диагностики.

Цель: представить клиничко-диагностические особенности метастатического поражения хориоидеи на основе собственного опыта.

Материалы и методы.

Проведён анализ медицинской документации и результатов обследования 47 пациентов, у которых в условиях ФГАУ «НМИЦ «МНТК «Микрохирургия глаза» им.акад. С.Н.Фёдорова» был поставлен диагноз метастатическое поражение хориоидеи за период с 2013 по 2022 год. Средний возраст пациентов составил 55 лет (от 20 до 90 лет). При этом мужчин было 10, женщин - 37. Пациентам было проведено полное офтальмологическое обследование с использованием как стандартных, так и специальных методов исследования: визометрия, тонометрия, периметрия, биомикроскопия, офтальмоскопия, ультразвуковое исследование (УЗИ в режиме В-сканирования) с определением локализации и размеров опухолевого очага, а также наличия и высоты вторичной отслойки сетчатки (ВОС), оптическая когерентная томографии (ОКТ). В 8 случаях для морфологической верификации была выполнена тонкоигольная аспирационная биопсия (ТИАБ) по предложенной технологии.

У большинства пациентов (n=39, 83%) на момент постановки диагноза метастатическое поражение хориоидеи был известен первичный очаг: рак молочной железы (n=23), рак лёгкого (n=7), внутриглазная лимфома (n=3), меланома кожи (n=2), рак яичника (n=1), рак почки

(n=1) альвеолярная саркома мягких тканей (n=1), рак щитовидной железы (n=1). В 17% случаев (n=8) метастатическое поражение хориоидеи предшествовало постановке диагноза системного рака.

Результаты.

Клиническая характеристика метастатического поражения хориоидеи, в 100% случаях, представлена центральной локализацией, малой высотой и большой протяжённостью очага, высокой вторичной отслойкой сетчатки (ВОС).

По данным В-сканирования, средняя высота опухоли составила 4,27 мм (от 1,7 до 6,84 мм), средняя протяжённость опухоли – 9,4 мм (от 2,1 до 16,7 мм). ВОС выявлялась во всех случаях, а ее высота варьировалась от 0,2 до 5,3 мм (в ср. - 2,75мм). По результатам ОКТ, у 17 пациентов была выявлена отслойка нейроэпителия, у 18 пациентов отслойка сочеталась с отеком нейроэпителия, у 12 пациентов отсутствовали данные ОКТ. Кроме того, во всех случаях определялся характерный волнообразный профиль передней поверхности опухоли и изменений прилежащего пигментного эпителия сетчатки (симптом «lumpy bumpy»).

Наиболее часто в нашем исследовании, а именно у 26 пациентов метастатическое поражение хориоидеи было ассоциировано с раком молочной железы (55%). Второе место по частоте встречаемости занимал метастаз рака лёгкого - у 12 пациентов (25%). Метастазы других опухолей в хориоидею встречались значительно реже: у двух пациентов был выявлен метастаз меланомы кожи (4%), по одному случаю приходилось на случаи метастаза рака щитовидной железы (n=1, 2%), альвеолярной саркомы мягких тканей (n=1, 2%), рака почки (n=1, 2%) и рака яичника (n=1, 2%).

В случае морфологической верификации внутриглазного очага (n=6 (13%)) при проведении трансквитреальной ТИАБ диагноз метастатического поражения подтверждён во всех случаях: метастаз рака молочной железы – у одного пациента, рака легкого – у трех, рак почки – у одного пациента и рак яичника – в одном случае.

Срок от момента диагностики первичной опухоли до диагностики внутриглазного новообразования варьировался от 0 до 3 месяцев.

Заключение.

В связи с высокой частотой встречаемости метастазов в хориоидею их необходимо включать в диагностический поиск при выявлении внутриглазного новообразования. При выборе алгоритма диагностики следует учитывать онкологический анамнез. При этом, необходимо помнить, что клиническая картина метастазов опухолей различной локализации во многом является сходной. В случае отсутствия выявленного первичного очага возможной и целесообразной тактикой является проведение ТИАБ для морфологической верификации метастатического поражения хориоидеи.

ВЕДЕНИЕ ПАЦИЕНТОВ С ПОМУТНЕНИЕМ В ЗОНЕ «ИОЛ-КАПСУЛЬНЫЙ МЕШОК»

Власенко Анна Владимировна- врач-офтальмолог, кандидат медицинских наук, ФГБУ «Национальный медико-хирургический центр имени Н.И. Пирогова» Минздрава России (г.Москва)

Верзин Александр Александрович- врач-офтальмолог, кандидат медицинских наук, ФГАУ «НМИЦ «МНТК «Микрохирургия глаза» им. акад. С.Н. Федорова» Минздрава России (г. Москва)

Копаев Сергей Юрьевич- заведующий отделом хирургии хрусталика и интраокулярной коррекции, доктор медицинских наук, ФГАУ «НМИЦ «МНТК «Микрохирургия глаза» им. акад. С.Н. Федорова» Минздрава России (г. Москва)

Среди осложнений факоэмульсификации с имплантацией интраокулярной линзы (ИОЛ) в отдалённые сроки после операции самым частым является вторичная катаракта, под которой обычно понимают помутнение задней капсулы хрусталика. Тем не менее, имеют место и другие причины нарушения прозрачности в зоне «ИОЛ- капсульный мешок» такие как фиброзирование передней капсулы хрусталика, помутнение материала ИОЛ, а также наличие мутного содержимого в капсульном мешке- синдром капсульного блока. Эти ситуации требуют не только в ряде случаев дифференциальной диагностики, но и дифференцированного подхода в лечении.

Цель - на основе анализа серии клинических случаев оценить возможности дифференцированного подхода к лечению различных вариантов нарушения прозрачности в зоне «ИОЛ-капсульный мешок» в отдалённые сроки после хирургического лечения катаракты.

Для лечения пациента с помутнением передней капсулы хрусталика со стенозом кольца капсулорексиса (фимоз капсульного мешка) провели ИАГ-лазерную переднюю капсулотомию (клинический случай N 1), при тотальном заращении отверстия переднего капсулорексиса-хирургическое иссечение фиброзно-изменённой передней капсулы хрусталика в оптической зоне (клинический случай N 2). При клинически значимом помутнении материала ИОЛ выполнили замену ИОЛ (клинический случай N3).

На основе оптической когерентной томографии мы предложили дифференциально-диагностические критерии синдрома капсульного блока в позднем послеоперационном периоде, а также выделили 4 клинко-морфологических типа этого осложнения в зависимости от степени помутнения содержимого капсульного мешка и задней капсулы хрусталика. Для лечения пациентов с этим осложнением в большинстве случаев проводили ИАГ-лазерную дисцизию задней капсулы хрусталика (клинический случай N 4). В случае тотального заполнения капсульного мешка содержимым высокой оптической плотности выполнили ревизию капсульного мешка с аспирацией содержимого (клинический случай N 5).

Заключение

Дифференцированный подход в применении лазерных и хирургических методик позволяет безопасно и эффективно восстановить утраченные зрительные функции пациентам с помутнением в зоне «ИОЛ-капсульный мешок» в отдалённые сроки после хирургии катаракты.