

DOI: <https://doi.org/10.57231/j.ao.2024.10.4.007>

УДК 617.731-07-08-089(075.8)

PEARLS IN THE DIAGNOSIS AND TREATMENT OF RETINAL AND CHOROÏDAL DISEASES

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Annotation. Relevance. Retinal and choroidal diseases of the eye are common health issue among people who suffer with environmental insults and systemic diseases. **The aim of the study:** to highlight the practical challenges in diagnosing and treating retinal diseases. **Material and methods.** The choroid and retina are highly vascularized, express a very high metabolic activity, and are prone to be affected by minor environmental insults and systemic diseases. These layers' delicate, small structural sizes present similar aspects and signs due to various local and distant pathologies. Advances in diagnostic tools have enabled clinicians to identify subtle changes within the posterior segment layers, leading to accurate diagnosis and treatment. However, to fulfill their role effectively, clinicians must ask the right questions, conduct thorough evaluations, and possess in-depth knowledge. **Results and conclusion.** Through the presentation of different cases, common pitfalls will be discussed to help simplify the complexity of diagnosis and facilitate appropriate treatment.

Key words: retinal diseases, choroidal diseases, diagnosis and treatment.

For citation:

Öner Gelişken. Pearls in the diagnosis and treatment of retinal and choroidal diseases. Advanced Ophthalmology. 2024;10(4): 22-23.

ОСНОВНЫЕ МОМЕНТЫ В ДИАГНОСТИКЕ И ЛЕЧЕНИИ ЗАБОЛЕВАНИЙ СЕТЧАТКИ И СОСУДИСТОЙ ОБОЛОЧКИ ГЛАЗА

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Аннотация. Актуальность. Заболевания сетчатки и сосудистой оболочки глазного яблока являются один из распространенной проблемой со здоровьем среди людей, страдающих от воздействия окружающей среды и системных заболеваний. **Цель исследования:** определить практические проблемы диагностики и лечения заболеваний сетчатки. **Материалы и методы.** Хориоидея и сетчатка сильно васкуляризованы, демонстрируют очень высокую метаболическую активность и подвержены влиянию незначительных экологических воздействий и системных заболеваний. Эти слои тонкие, структурно небольшие по размеру, имеют схожие аспекты и признаки, обусловленные различными местными и отдаленными патологиями. Достижения в области диагностических инструментов позволили врачам выявлять самые начальные изменения в слоях заднего сегмента, что приводит к точной диагностике и лечению. Однако для эффективного выполнения своей роли врачи должны задавать правильные вопросы, проводить тщательные оценки и обладать глубокими знаниями. **Результаты и заключение.** Посредством представления различных случаев будут обсуждаться распространенные ошибки, которые помогут упростить сложность диагностики и способствовать надлежащему лечению.

Ключевые слова: заболевания сетчатки, заболевания сосудистой оболочки, диагностика и лечение.

Для цитирования:

Онер Гелишкен. Основные моменты в диагностике и лечении заболеваний сетчатки и сосудистой оболочки глаза. Передовая Офтальмология. 2024;10(4): 22-23.

КО'ZNING TO'R PARDASI VA HOROIDAL KASALLIKLARINI TASHXISLASH VA DAVOLASHDA ASOSIY FIKRLAR

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Annotasiya. Dolzarbligi. Ko'zning to'r parda va tomirli qavat kasalliklari atrof muhit va tizimli kasalliklar tasirida aziyat chekayotgan insonlar orasida eng keng tarqalgan sogliq muammolaridan biridir. **Tadqiqot maqsadi.** Retinal kasalliklarni tashxislash va davolashning amaliy muammolarini ta'kidlashdir. Material va usullari. Horioid va retina yuqori darajada moddalar almashinuvi sodir bo'ladi juda yuqori metabolik faollikni ko'rsatadi va kichik ekologik ta'sirlar va tizimli kasalliklarga ta'sir qiladi. Ushbu qatlamlar ingichka, strukturaviy jihatdan kichik bo'lib, turli xil mahalliy va uzoq patologiyalar tufayli o'xshash jihatlari va xususiyatlarga ega. Diagnostika vositalaridagi yutuqlar shifokorlarga orqa segment qatlamlaridagi eng dashtabki o'zgarishlarni aniqlashga imkon berdi, bu esa aniq tashxis qo'yish va davolashga olib keladi. **Natijalar va xulosasi.** Turli xil holatlarni taqdim etish orqali diagnostikaning murakkabligini soddalashtirishga va tegishli davolanishni rag'batlantirishga yordam beradigan keng tarqalgan xatolar muhokama qilinadi.

Kalit so'zlar: retinal kasalliklar, xoroid kasalliklari, diagnostika va davolash.

Iqtibos uchun:

Oner Gelishken. Ko'zning to'r pardasi va horoidal kasalliklarini tashxislash va davolashda asosiy fikrlar. Ilg'or Oftalmologiya. 2024;10(4):...

Relevance. Retinal and choroidal diseases of the eye are common health issue among people who suffer with environmental insults and systemic diseases. The choroid plays an essential role in various physiological processes in the eyes and has been implicated in a range of pathologies. For example, age-related macular degeneration (AMD) is a leading cause of vision loss worldwide, which is associated with choroidal neovascularization in its advanced stages. In recent years, a condition called pachychoroid has attracted attention, whereby choroidal blood vessels dilate, which may damage the retinal pigment epithelium (RPE) and diminish retinal function. One of the pachychoroid related diseases is central serous chorioretinopathy (CSC), a non-inflammatory condition in which fluid accumulation between the retina and choroid leads to a retinal detachment and visual impairment.¹ Accordingly, the noninvasive in situ visualization of the choroid, accompanied by a robust three dimensional (3D) quantification of choroidal vasculature, will be of fundamental importance for understanding and diagnosing a range of sight-threatening conditions and helping to develop new therapeutic strategies. The choroid has also been implicated in glaucoma and myopia,^{2–6} which are major causes of visual dysfunction affecting, respectively, over 80 million and 1.4 billion individuals worldwide.^{7,8} Previously, it was reported that patients with glaucoma had thicker choroid at the macular or peripapillary area than healthy subjects.^{2,3} For myopia, recent investigation suggests that choroidal thinning is only partially explained by axial elongation and that additional active mechanisms lead to choroidal thinning in myopia, such as alterations in blood vessels.⁴ Obtaining information about the status of choroid also has relevance for Vogt-Koyanagi-Harada disease (VKH) and sympathetic ophthalmia (SO), autoimmune, and inflammatory conditions with a similar pathogenesis that affect the choroidal vascular system.⁹ Recent reports have also indicated that imaging tissues deep in the eyes, such as the retina, choroid, and optic disc, can aid the diagnosis of nonocular pathologies, including autoimmune disease,

hypertension, and diabetes.¹⁰

Choroidal tissue cannot be satisfactorily studied using conventional imaging methods, such as slit-lamp microscopy or the use of a fundus camera owing to the proximity of the RPE. Rather, indocyanine green angiography (ICGA) and optical coherence tomography (OCT) are the preferred techniques for evaluating the fine structure of the choroid and its vasculature.^{11,12} ICGA relies on the injection of dye to visualize blood flow in the choroid, followed by the collection of a series of time-lapse 2D images. As such, it lacks 3D information and also carries the risk of inadvertent leakage of the dye. Choroidal imaging by OCT has the advantage of being noninvasive, but the potential of imaging artifacts induced by the proximity of the retina may adversely affect the data. A recent work showed a 3D visualization of the choroidal vessels using OCT in comparison to ICGA.¹³ Here, we show how we can achieve 3D choroidal vessel volume visualization to interrogate the choroidal vasculature in a quantitative manner. Importantly, the technology can be applied to existing OCT datasets, offering widespread applicability.

The aim of the study: to highlight the practical challenges in diagnosing and treating retinal diseases.

Material and methods. The choroid and retina are highly vascularized, express a very high metabolic activity, and are prone to be affected by minor environmental insults and systemic diseases. These layers' delicate, small structural sizes present similar aspects and signs due to various local and distant pathologies. Advances in diagnostic tools have enabled clinicians to identify subtle changes within the posterior segment layers, leading to accurate diagnosis and treatment. However, to fulfill their role effectively, clinicians must ask the right questions, conduct thorough evaluations, and possess in-depth knowledge.

Results and conclusion. Through the presentation of different cases, common pitfalls will be discussed to help simplify the complexity of diagnosis and facilitate appropriate treatment.

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