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SOLITARY IDIOPATHIC CHOROIDITIS. POSSIBLE RELATIONSHIP WITH MICROBIOTA (CLINICAL CASE)

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SUMMARY

The clinical case of a patient with solitary idiopathic choroiditis is presented in the article. The patient received systemic treatment with antibiotics and corticosteroids.

This study included a case report with ophthalmologic examination, optical coherence tomography, treatment options and review of the relevant literature.

The patient underwent repeated tests: Venereal Disease Research Laboratory test for syphilis and chest X-ray. Other tests included investigations for *Toxoplasma gondii*, *Toxocara canis*, *Bartonella henselae* and rheumatoid factor.

We report the case of a 28-year-old woman who presented with loss of visual acuity and distortion in the right eye (OD) for 2 weeks; she was diagnosed with Solitary Idiopathic choroiditis. Before her vision

deteriorated, the patient suffered from severe back pain and menstrual irregularities. She was treated with sequential use of Ceftriaxone and Dexamethasone for a week. After treatment, a significant improvement in visual acuity was observed. The observation lasted 1.5 year.

In the case we presented, it was preceded by back pain. Systemic treatment with antibiotics and corticosteroids led to the stable remission of the disease. An important point is the brief systemic use of antibiotics with the continuation of the administration of dexamethasone. The positive effect of the systemic use of antibiotics with corticosteroids is possibly associated with the continuing latent disturbances of the genitourinary microbiota a literature review of similar cases is provided.

Key words: *choroiditis, retina, inflammation, microbiota*

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SOLİTAR İDİOPATİK XOROİDİT. MİKROBİOTA İLƏ MÜMKÜN ƏLAQƏ (KLİNİK HAL)**XÜLASƏ**

Məqalədə solitar idiopatik xoroiditi olan pasiyentin kliniki halı təqdim edilir. Xəstə antibiotik və kortikosteroidlərlə sistem müalicə alıb.

Tədqiqata oftalmoloji müayinə, optik koherent tomoqrafiya, müalicə və müvafiq ədəbiyyatın nəzərdən keçirilməsi daxildir.

Xəstə zöhrəvi xəstəliklər laboratoriyasında sifilis üçün təkrar analizlərdən və döş qəfəsinin rentgenoqrafiyasından keçib. Digər testlərə *Toxoplasma gondii*, *Toxocara canis*, *Bartonella henselae* və revmatoid faktor üçün tədqiqatlar daxildir.

İki həftə ərzində sağ gözündə görmə itiliyini itirən 28 yaşlı xəstəyə solitar idiopatik xoroidit diaqnozu qoyuldu. Görmə itiliyi pisləşməzdən əvvəl xəstə şiddətli bel ağrılarından və menstruasiya pozuntularından əziyyət çəkirdi. Bir həftə ardıcıl seftriakson və deksametazonla müalicə olunduqdan sonra görmə itiliyində yaxşılaşma müşahidə edilmişdir. Müşahidənin davamiyyəti 1,5 il təşkil etmişdir.

Təqdim etdiyimiz pasiyentdə görmənin pisləşməsi bel ağrılarından sonra müşahidə edilmişdir. Antibiotik və kortikosteroidlərlə sistem müalicə xəstəliyinin stabil

remissiyasına gətirib çıxardı. Əhəmiyyətli bir məqam, deksametazonun davamlı istifadəsi ilə antibiotiklərin qısa müddətli istifadəsidir. Antibiotiklərin

kortikosteroidlərlə istifadəsinin müsbət təsiri sidik-cinsiyət sisteminin mikrobiotasında davamlı latent pozğunluqlarla əlaqələndirilə bilər.

Açar sözlər: *xoroidit, iltihab, retina, mikrobiota*

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СОЛИТАРНЫЙ ИДИОПАТИЧЕСКИЙ ХОРОИДИТ. ВОЗМОЖНАЯ СВЯЗЬ С МИКРОБИОТОЙ (КЛИНИЧЕСКИЙ СЛУЧАЙ)

РЕЗЮМЕ

В статье представлен клинический случай пациентки с солитарным идиопатическим хороидитом. Пациентка получала системное лечение антибиотиками и кортикостероидами.

Проведено комплексное офтальмологическое обследование с использованием когерентной томографии и обзор соответствующей литературы. Также были проведены исследования на сифилис, рентгенография органов грудной клетки. Другие тесты включали исследования на *Toxoplasma gondii*, *Toxocara canis*, *Bartonella henselae* и ревматоидный фактор.

Описывается случай внезапной потери зрения у женщины 28 лет после имеющихся болей в спине и нарушением менструального цикла. При обследовании выявлен солитарный идиопатический хороидит. Лечилась последовательным приёмом

цефтриаксона и дексаметазона в течение недели. После лечения наблюдалось значительное улучшение остроты зрения. Наблюдение продолжалось 1,5 года.

В представленном нами случае ухудшению зрения предшествовала боль в спине. Системное лечение антибиотиками и кортикостероидами привело к стойкой ремиссии заболевания. Важным моментом является кратковременное системное применение антибиотиков с последующим приёмом дексаметазона. Положительный эффект системного применения антибиотиков с кортикостероидами, возможно, связан с нарушением равновесия между микробиотой мочеполовой системы и окружающими их антителами. Приводится литературный обзор похожих случаев.

Ключевые слова: *хороидит, воспаление, сетчатка, микробиота*

Choroiditis usually occurs as multifocal lesion, often with signs of generalized ocular inflammation [1]. Sometimes, however, choroiditis can manifest as a solitary lesion. Conditions known to manifest as a solitary choroidal granuloma include sarcoidosis, tuberculosis toxocariasis, or several other diseases. In many instances, however, solitary choroiditis remains idiopathic, in spite of extensive systemic evaluation [2,3]. Even when uveal granulomas are subjected to detailed histopathologic studies, no cause can be determined in many cases [2]. Such solitary idiopathic choroiditis (SIC) can simulate clinically an amelanotic choroidal tumor, like nevus, melanoma, metastasis, or osteoma, or a retinal tumor like retinoblastoma or astrocytic hamartoma [4-6].

We would like to present a clinical case of idiopathic choroiditis in a 28-year-old woman.

Clinical case

A 28-year-old woman came to the clinic with complaints of poor vision in her left eye since childhood. On examination her best corrected visual acuity was 20/20 in the right eye and 20/100 in left eye. Anterior segment examination was normal, intraocular pressure recorded by Goldmann applanation tonometer was 16 mmHg in both eyes. Fundus photograph of the right eye was absolutely normal. Fundus photograph of the left eye shows multiple chorioretinal atrophic patches with hyperpigmentation suggestive of healed choroiditis lesions. A yellowish grey membrane above the fovea is seen with surrounding macular edema and subretinal bleed suggestive of choroidal neovascular membrane (Fig.1).

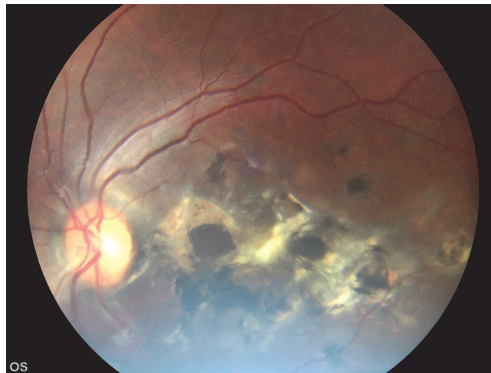


Figure 1. Fundus photograph of the left eye shows multiple chorioretinal atrophic patches with hyperpigmentation suggestive of healed choroiditis lesions

The optical coherence tomography (OCT) line scan of right eye was normal. The OCT line scan of left eye passing through the fovea with loss of photoreceptors and RPE temporal and nasal to fovea with intermittent RPE clumpin along with hyperreflectivity of the choroid with evident shrinking of the choroidal vasculature suggestive of a chorio-retinal scar (Fig. 2).

The patient underwent investigations to determine the etiology of the lesion: for *Toxoplasma gondii*, *Toxocara canis*, *Bartonella henselae*, and *Borrelia burgdorferi* serology, antinuclear antibodies, rheumatoid factor. Systemic studies have not revealed any causes of choroiditis.

Apparently, the woman suffered from multifocal choroiditis, as a child, which she did not know about. No treatment was prescribed.

One and a half years later, this woman came to our clinic again with complaints of a sudden decrease of visual acuity in her right eye. On examination her best corrected visual acuity (BCVA) was 20/63 in the right eye and 20/100 in left eye.

Before the decrease in vision, the patient had been experiencing severe back pain and menstrual irregularities for 2 weeks. After this, the visual acuity in the right eye suddenly deteriorated.

Fundus photograph of the right eye shows extensive inflammatory prominent infiltrate of black and yellowish colors with unclear boundaries, 4-5 optic discs in size (Fig.3).

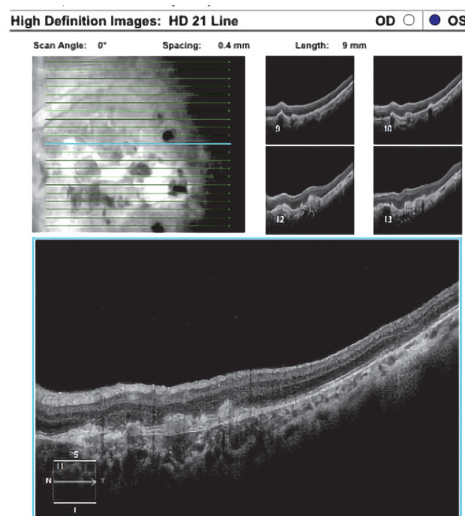


Figure 2. OCT of the macula of left eye with distorted outer retinal layers and subretinal deposits

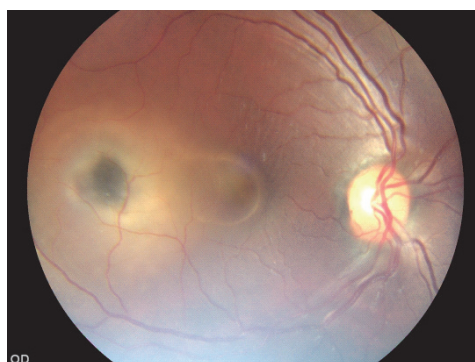


Figure 3. Fundus photography of the right eye with extensive inflammatory prominent black- yellowish color of infiltrate with local edema involving the macula with the unclear boundaries and with the size of 4-5 optic discs diameter

And the OCT of the right eye showed a multilobular serous macular detachments, with subretinal hyperreflective material within the subretinal fluid.

The patient underwent repeated tests: Venereal Disease Research Laboratory test for syphilis and chest X-ray. Other tests included investigations for *Toxoplasma gondii*, *Toxocara canis*, *Bartonella henselae*, and rheumatoid factor

Systemic studies have not revealed the cause of choroiditis. A diagnosis of Solitary Idiopathic choroiditis (SIC) of the right eye was made.

It was prescribed Ceftriaxone 1 gram intramuscularly for 3 days, followed by injections of Dexamethasone 8 mg intravenously for two days, then 4 mg intravenously for 2 days.

There was an improvement in visual acuity. After 2 weeks, visual acuity in the right eye became 20/25. The edema in the fundus has decreased sharply. The boundaries of the lesion became clearer (Fig.5).

For a long time BCVA remained 20/25. A repeat examination a year and a half later showed that the BCVA in the right eye was 20/25, and in the left eye 20/100.

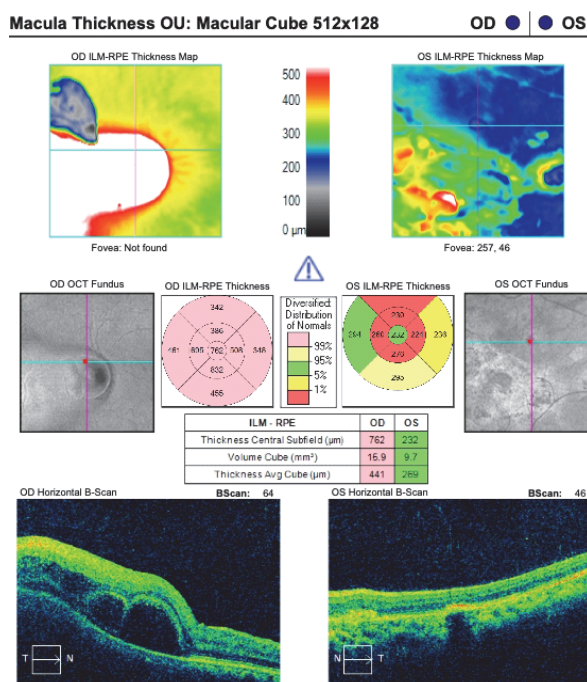


Figure 4. The OCT of the right eye with a multilobular serous macular detachments and subretinal hyperreflective material within the subretinal fluid



Figure 5. Fundus picture 2 months after sequential treatment with Ceftriaxone and Dexamethasone. There is a decrease in edema and the boundaries of the lesion have become clearer

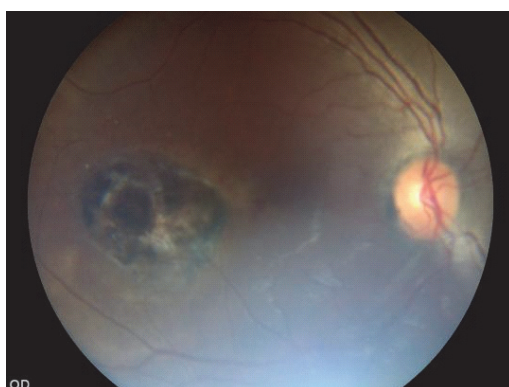


Figure 6. Fundus picture one and a half years after sequential treatment with Ceftriaxone and Dexamethasone

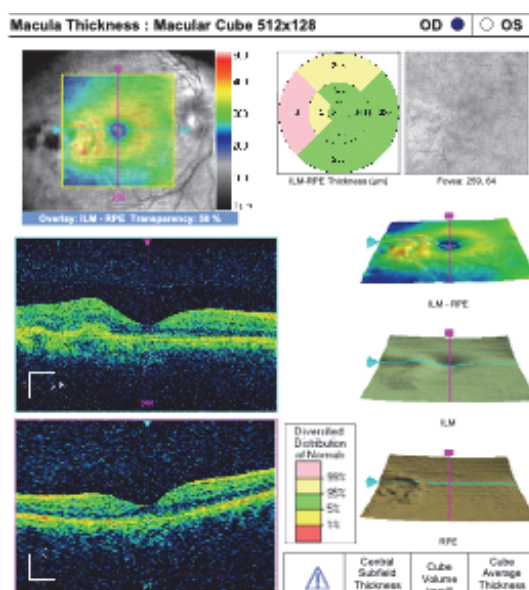


Figure 7. The OCT of the right eye 1.5 years after treatment demonstrated small subretinal hyperreflectivity and improvement of the aforementioned inflammatory changes with improved outer retinal layers

Discussion

In recent years, much has been written about the connection between eye diseases and oral microbiota. The authors note the connection between dry eye syndrome [7,8], glaucoma and oral microbiota disorders [9,10].

Some authors discuss the “gut-eye axis” and the interrelationship between intestinal/ocular microbiota and several ophthalmic diseases, such as autoimmune uveitis, age-related macular degeneration (AMD), glaucoma, and other ocular disorders. Finally, the therapeutic potential of targeting commensal microbiota is evaluated [11].

Before the rapid vision deterioration, our patient had severe back pain and menstrual irregularities. Then these phenomena passed and the vision of the right eye suddenly decreased. No infections were found in the body. Could there be a connection between a disorder of the genitourinary tract in which the microbiota is located and focal choroiditis.

There is evidence in the literature about a possible connection between these diseases. The authors noted a connection between Punctate internal choroidopathy and spontaneous abortion of the pregnancy [12], between Acute posterior multifocal placoid pigment epitheliopathy (APMPPE) and disorders of the urogenital tract [13].

If the occurrence of retinal diseases is associated with microbiota, then treatment should be carried out in order to restore the balance between the microbiota and the surrounding immune cells.

The use of antibiotics for a short time (3 days) will slightly weaken the microbiota without causing it to completely change.

A changing in the composition of the microbiota forces the body to stimulate a new immune response. New antibodies begin to be produced against a new antigen. These antibodies may have varying degrees of avidity or affinity. That is, not only microbes, but also the antibodies surrounding them are a factor that provokes inflammation.

The action of corticosteroids is a strong anti-inflammatory therapy. There are still huge gaps in our knowledge about the action of glucocorticosteroids. Steroids profoundly influence the inflammatory response through vasoconstriction, decreased chemotaxis, and interactions with macrophages [4].

By reducing chemotaxis, corticosteroids apparently indirectly reduce the aggressive effect of antibodies produced on the changed microbiota and protect the epithelial cells of the mucous membranes of the eye, intestinal and genitourinary epithelium from “huge” unnecessary antigen-antibody complexes.

Conclusion

Thus, in acute retinal diseases, including Solitary Idiopathic choroiditis, parenteral administration of Ceftriaxone and Dexamethasone in a certain sequence can lead to rapid relief of the process.

REFERENCE:

1. Nussenblatt, R.B. Uveitis / R.B.Nussenblatt, S.M.Whitcup, A.G.Palestine // *Fundamentals and Clinical Practice*. St Louis, Mo Mosby–Year Book Inc., – 1996. – p.155-385.
2. Margo, C. Idiopathic solitary granuloma of the uveal tract / C.Margo, L.Zimmerman // *Arch. Ophthalmol.*, – 1984. 102(5), – p.732-735.
3. Hong, P.H. Unifocal helioid choroiditis / P.H.Hong, L.M.Jampol, D.G.Dodwell [et al.] // *Arch. Ophthalmol.*, – 1997. 115(8), – p.1007-1013.
4. Shields, J.A. Differential diagnosis of posterior uveal melanoma: chorioretinal granuloma. *Intraocular Tumors: A Text and Atlas* / J.A.Shields, C.L.Shields // Philadelphia, Pa WB Saunders Co., – 1992. – p.145-146.
5. Shields, J.A. Lesions simulating posterior uveal melanoma: choroidal granuloma. *Atlas of Intraocular Tumors* / J.A.Shields, C.L.Shields // Philadelphia, Pa Lippincott Williams & Wilkins, – 1999. – p.146-147.

6. Gunduz, K. Presumed choroidal granuloma with vitreous hemorrhage resembling choroidal melanoma / K.Gunduz, C.L.Shields, J.A.Shields [et al.] // *Ophthalmic Surg Lasers*, – 1998. May; 29(5), – p.422-425. PMID: 9599367.
7. Chisari, G. Aging Eye Microbiota in Dry Eye Syndrome in Patients Treated with *Enterococcus faecium* and *Saccharomyces boulardii* / G.Chisari, E.M.Chisari, A.M.Borzi [et al.] // *Curr. Clin. Pharmacol.*, – 2017. 12(2), – p.99-105. DOI: 10.2174/1574884712666170704145046.
8. Moon, J. Can Gut Microbiota Affect Dry Eye Syndrome? / J.Moon, C.H.Yoon, S.H.Choi [et al.] // *Int. J. Mol. Sci.*, – 2020. Nov; 10. 21(22), – p.8443. DOI: 10.3390/ijms21228443.
9. Huang, L. The role of the microbiota in glaucoma / L.Huang, Y.Hong, X.Fu [et al.] // *Molecular Aspects of Medicine*, – 2023. – p.94. DOI:10.1016/j.mam.2023.101221
10. Yoon, B.W. Analysis of oral microbiome in glaucoma patients using machine learning prediction models / B.W.Yoon, S.H.Lim, J.H.Shin [et al.] // *Journal of Oral Microbiology*, – 2021. 13(1). [https://DOI:10.1080/20002297.2021.1962125](https://doi.org/10.1080/20002297.2021.1962125)
11. Xue, W. Microbiota and Ocular Diseases / W.Xue, J.J.Li, Y.Zou [et al.] // *Front Cell Infect Microbiol.*, – 2021. Oct; 21.11, – p.759333. DOI: 10.3389/fcimb.2021.759333.
12. Shchadnykh, M. Punctate inner choroidopathy and spontaneous abortion of the pregnancy // *Ophthalmology Cases & Hypotheses*, – 2020. 1(1), – p.5. DOI: 10.30546/2788-516X.2020.1.1.5.
13. Mammadkhanova, A. Acute posterior multifocal placoid pigment epitheliopathy (APMPPE), its possible relationship with urogenital tract disorder and treatment // *Ophthalmology Cases & Hypotheses*, – 2021. 2(2), – p.9. DOI: 10.30546/2788-516x.2021.2.2.9.
14. Claman, H.N. How corticosteroids work // *J. Allergy Clin. Immunol.*, – 1975. Mar; 55(3), – p.145-151. DOI: 10.1016/0091-6749(75)90010-x.

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