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Differential diagnostics of incomplete Vogt-Koyanagi-Harada syndrome (clinical case)

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Abstract---Introduction. According to literature sources, choroidal detachment is considered mainly as a complication of surgical treatment. At the same time, bilateral choroidal detachments in combination with retinal detachment are extremely rare. Spontaneous bilateral detachments are mentioned even less frequently. Purpose: To describe and analyze a clinical case of spontaneous bilateral subtotal detachment of choroid, to differentiate the diagnosis. Materials and methods. A 62-year-old patient was urgently hospitalized to the neurological department of Bor Central Clinical Hospital with complaints of severe headache accompanied by repeated vomiting. The computer tomography of brain, B-scanning, optical coherence tomogram were performed. There were ultrasonic results on the next day after the hospitalization: bilateral subtotal detachment of choroid, IOP = 10-11 mm Hg. Results. At the release: A slight local flat choroidal detachment was observed, OD profile of the retina was without pathology, partial detachment of the hyaloid membrane and vitreous body, OS retinal profile was a serous detachment of the neuroepithelium in the macular region. The decreased vision in both eyes was observed at the control examination two months later. The cystic macular edema of both eyes and progression cataract were diagnosed. Conclusions. In our opinion, this clinical case can be defined as an incomplete Vogt-Koyanagi-Harada syndrome based on the anamnesis, absence of severe somatic pathologies, abrupt onset, bilaterality of the lesion and course of the disease.

Keywords---bilateral choroidal detachment, Vogt-Koyanagi-Harada syndrome, uveomeningoencephaloptic syndrome.

Introduction

According to literature sources, choroidal detachment is considered mainly as a complication of surgical treatment (Belyy, Tereshchenko, Plakhotniy. 2015; Kozina, Gololobov, Chesheyko et al., 2015). Two stages can be distinguished in the mechanism of ciliochoroidal detachment (CCD): initial choroidal detachment emerging as a result of IOP difference and hemodynamic changes, and formation of obstinate and extensive CCD compensating the eye bulb volume decrease. By etiological factors all CCD can be split into 6 groups: iatrogenic, traumatic, inflammatory, vascular, oncological, initial scleropathies (Petrov, Podgornaya, Aslamazova, 2015). A more detailed classification is given in Table 1. An eye normally preserves the equilibrium between the hydrostatic pressure gradient, i.e. the difference between the intravascular arterial pressure and intraocular pressure, and choriocapillaris osmotic pressure gradient. This pressure gradient draws the liquid into the blood vessels and maintains the relative dewatering of the suprachoroidal space due to the low extravascular colloid concentration. The choroid fenestrated capillaries provide the albumin output into the extravascular space to support the colloid osmotic gradient. This process is facilitated by the intraocular pressure. The equilibrium of liquids in the choroid layers can be interfered by some factors influencing one or several components of this complex system. To reproduce CCD in experimental models on animals the availability of not less than two pathophysiological factors is required (Astakhov, Kuznetsova, Khripun et al., 2014). At the same time, bilateral choroidal detachments in combination with retinal detachment are extremely rare. This phenomenon is described with uveal effusion syndrome and it is also characteristic for Vogt-Koyanagi-Harada syndrome.

Purpose of the research

To describe and analyze a clinical case of spontaneous bilateral subtotal detachment of choroid, to differentiate the diagnosis.

Materials and Methods

A 62-year-old patient was urgently hospitalized in the neurological department of Bor Central Clinical Hospital with complaints of severe headache accompanied by repeated vomiting.

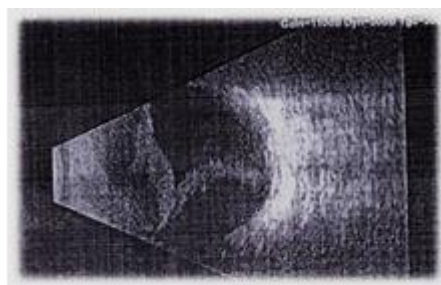


Fig.1 B-scan: subtotal detachment of OD choroid

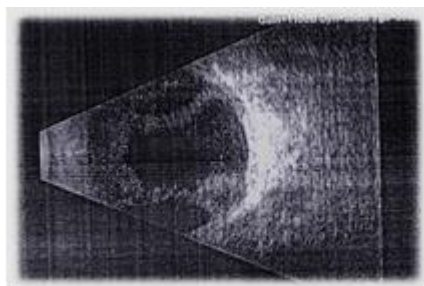


Fig.2 B-scan: subtotal detachment of OS choroid

The computer tomography of the brain was performed with the result of diffusive atrophic changes in the cerebrum cortex and postcranial fossa. Based on the results of the blood biochemical analysis, the indexes of white and red blood were normal. On the next day after the hospitalization the eyesight suddenly deteriorated, she was examined by the oculist in the home area. On the results of the objective examination: IOP of both eyes = 35 mm Hg, the anterior chamber was practically absent on both eyes. The pupil diameter was about 3 mm. Fotil forte (timolol+pilocarpin) and diacarb were prescribed. On the next day she was hospitalized to Municipal Hospital №35 of Soviet District of Nizhny Novgorod. During the examination: IOP of both eyes = 17 mm Hg, the anterior chamber was of uneven depth, abundance of precipitants, fibrin strands, iris color was unnaturally bright green, circular iris adhesion. Vis OD = 0.04 with sph+2.0D = 0.09, VIS OS = 0.01(not corrected). According to the patient, at the medical examination 3 months before the eyesight had been 1.0 OU. The UST results: bilateral subtotal detachment of choroid. The pulse therapy (dexamethasone following the decreasing scheme starting from 32 mg), cycloplegics to try to break the iris adhesions, NSAIDs and antibiotics locally were prescribed.

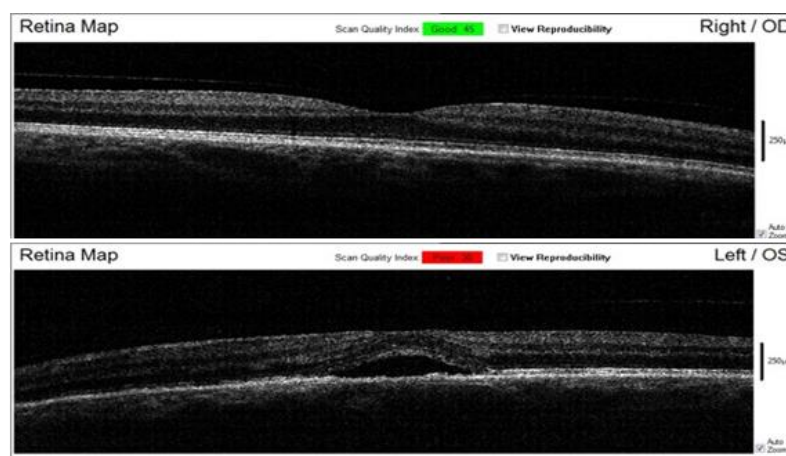


Fig. 3. OCT of the macular area at the time of the patient's release. OD retinal profile is without pathology, there is a partial detachment of the hyaloid membrane and vitreous body, OS retinal profile - serous detachment of the neuroepithelium in the macular zone

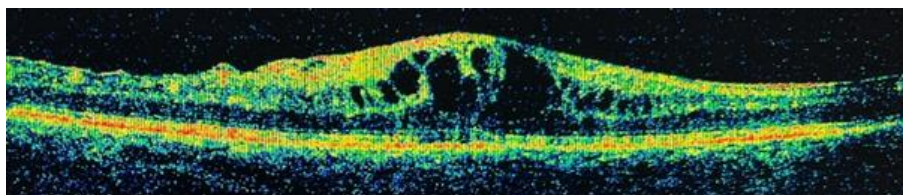


Fig. 4. OCT of OD after the surgical treatment (membrane peeling) and series of intravitreal injections of anti-VEGF drug

The UST results on the next day: bilateral subtotal detachment of choroid, IOP = 10-11 mm Hg. The issue on sclerotomy was raised for faster choroidal detachment arresting. However, following the consensus results it was decided to proceed with the pulse therapy without the surgical treatment. By the end of the treatment course carried out the positive dynamics was observed. At the release: a slight local flat choroidal detachment was preserved, OD profile of the retina was without pathology, partial detachment of the hyaloid membrane and vitreous body, Vis OD = 0.1 with sph +3.0D = 0.2, OS retinal profile was a serous detachment of the neuroepithelium in the macular region, Vis OS = 0.02 with sph +2.5D = 0.2. Affected by the inflammation, sharp IOP difference within a short time period and episodes of critical shallowing of the anterior chamber, the partial lenticular capacity of both eyes was developed. The iris dystrophy and pigmental interface destruction with the pupil deformation were also observed.

During the patient's control examination after two months the eyesight deterioration of both eyes was observed. OCT was performed, on the results of which the cystoid macular edema of both eyes was diagnosed. Besides, the cataract was rapidly progressing. Phacoemulsification with intraocular lens implant were performed on the left eye in March 2020, and on the right eye – in April of the same year. Starting from February and during the whole following year the patient was regularly receiving the anti-VEGF therapy (two injections with lucentis, and with eylea after that) into both eyes with a short insignificant dynamics. The epiretinal fibrosis of the right eye was also rapidly progressing, which could predispose the pathology aggressive flow and lack of response to the therapy received. In this regard, the decision on the surgical treatment was made, namely, the membrane peeling. In the postsurgical period – narrowing of visual fields to tunnel, there was no positive dynamics in arresting the macular edema. Currently the patient regularly undergoes the anti-VEGF therapy into both eyes to preserve the vision functions (for the last 6 months – aflibercept, eylea). Today: Vis OD = 0.4 with cyl -1.0 ax 155 = 0.6, Vis OS = 0.3 with sph +2.0 = 0.5.

Results and Discussion

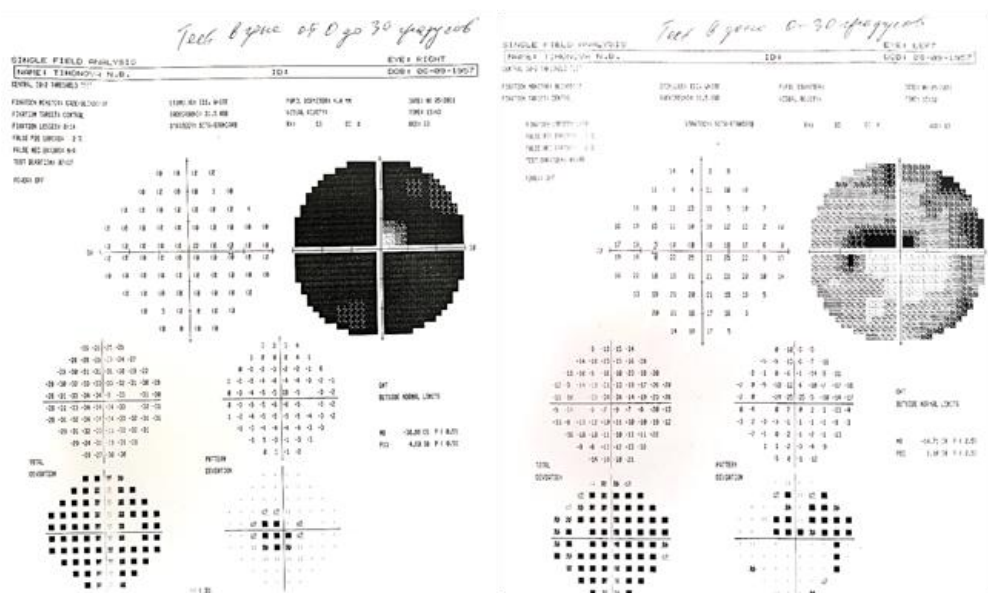


Fig 5. The result of the perimetry of both eyes after membrane peeling on the right eye. Narrowing of visual fields to tunnel on the operated eye.

Based on the anamnesis, absence of severe somatic pathologies, abrupt onset, bilaterality of the lesion and course of the disease, such syndromes as Vogt-Koyanagi-Harada syndrome and uveal diffusion syndrome were the first to be considered in the diagnostic search. Vogt-Koyanagi-Harada syndrome (VKH), initially known as uveomeningoencephalitic syndrome, was for the first time described in 1932. It belongs to rare diseases: its incidence varies from 1% up to 9% of people in different parts of the world. Idiopathically it corresponds to autoimmune multisystem granulomatosis affecting tissues abundant with melanocytes, such as eyes, meninges and skin. Chronic granulomatous

panuveitis in combination with retinal serous detachment, swollen disk and possible vitritis are characteristic for it. Activated CD4⁺ T-cells initiate the inflammatory process through the formation of cytokines IL-17 and IL-23. Proteins of the families of tyrosinases and gp100 present in melanocytes are the targets. Thus, first of all, eyes, skin and cochlea atrium suffer from the inflammation (Sorokin, Voronina, Avramenko et al., 2015; Astakhov, Kuznetsova, Khripun et al., 2014; Betancourt, Betancourt, Soler et al., 2020).

The first phase of the disease symptomatically resembles a viral infection. The main clinical implications are fever, headache, nausea, dizziness, orbital ache, runny nose, tinnitus, meningism, skin hyperesthesia and, rarely, neurological symptoms, such as mental confusion, anepia and hemiparesis. The second phase can last from some weeks up to some months. It is characterized by bilateral abrupt vision loss due to diffusive choroiditis characterized by choroidal detachment and availability of secondary exudation under the retina sensory epithelium. Swelling and hyperemia of optic disc nerve, vitritis can be also observed. The inflammation can also spread bilaterally and onto the front segment. Keratic concretions in the iris and anterior chamber, abrupt shallowing of the chamber due to the inflammation and swelling of the ciliary apparatus are characteristic for iridocyclitis. All this leads to the increased intraocular pressure, anterior chamber angle closure and acute glaucoma fit.

The third phase lasts from some months up to some years and is characterized by skin and hair depigmentation. Alopecia, poliosis, vitiligo and choroidal depigmentation, at which the eye fundus becomes orange-red in 2-3 months after the uveitis can develop in the long term. Perilimbal depigmentation known as Sugiura sign is also described. Besides, we can observe the lesions, small, round and hyperpigmented cells between de Bruch's membrane and retina pigment epithelium called Dalen-Fuchs nodules, representing the aggregation of lymphocytes and macrophages. Skin manifestations of this phase are more often observed on Asians. Vitiligo has the symmetric distribution and is more often developed in the facial region, palpebral, body and sacrum regions. With two-thirds of patients the chronic course of this disease is developed. The repeated episodes of uveitis attacks periodically emerge. This phase lasts from 6 up to 9 months after and is characterized by such complications as the proliferation of pigment epithelium, development of epiretinal fibrosis, neovascular membranes, posterior capsular cataract, iris adhesions, open-angle glaucoma and, more rarely, closed-angle glaucoma, different keratopathies, optic nerve neovascularization, arteriovenous anastomoses, choroidal neovascularization (Astakhov, Kuznetsova, Khripun et al., 2014; Lin YC, Lo KJ, Chen SJ, Hwang, 2019).

The case of revealing neurosyphilis imitating Vogt-Koyanagi-Harada syndrome is described in literature. According to OCT data, the bilateral serous retinal detachment and choroid thickening were observed. At the same time, no meningial symptoms (headache, nausea, vomiting, hyperesthesia, etc.) were identified (Smit, Berman, Nielsen, 2012). The uveal effusion syndrome became another assumption. The uveal effusion syndrome is a rare idiopathic state, mainly found with men of the average age with hyperopia and characterized by ciliochoroidal detachment with further exudative retinal detachment. For the first

time the disease was described with the patients with congenital nanophthalmos. Due to the rarity of this pathology and lack of pathognomonic indicants, the diagnostics of this disease often presents certain difficulties. Men aged 60 years and older with hyperopia most often suffer from this disease among the patients with normal dimensions of the eye ball. In the majority of cases the disease has the bilateral character (Belyy, Tereshchenko, Plakhotniy. 2015; Kozina, Gololobov, Chesheyko et al., 2015; Cagri, Besirli, Mark, 2013; Gorbunova, Pozdeeva, Gorbunova et al., 2018). The table by etiological factors is made to help in differentiating the diagnosis with the presence of choroidal detachment (Cagri, Besirli, Mark, 2013). As indicated above, several factors are usually required for the detachment development. Therefore, trying to refer the described case to some diagnosis, all possible states predisposing and initiating the aggressive bilateral pathology were studied. However, nothing of the following was confirmed with the patient.

Table 1
Possible factors for the development of exudation with the choroid and retina detachment

Scleropathies		Hydrodynamic factors			Inflammatory factors	Tumor states
Congenital	Acquired	Ocular hypotension	Increased uveal venous pressure	Malignant hypertension		
Nanophthalmos	Amyloidosis	Leakage from trauma focus	Arteriovenous abnormality		After trauma or surgery	Metastatic carcinoma
	Mucopolysaccharidosis	Perforating wound	Sturge-Weber syndrome		After photocoagulation or cryotherapy	Malignant melanoma
		Hyperfiltration	Idiopathic prominent episcleral vessels		Reaction to medications	Lymphoproliferative and melanocytic choroidal infiltration
		Cyclodialysis	Compression of whirlpool veins		Uveitis	
		Rhegmatogenous retina detachment	Valsalva maneuver		Sclerites	
		Ciliary apparatus dysfunction		Orbital cellulites		
				Orbit idiopathic inflammation		

Conclusion

This clinical case, in our opinion, can be referred to Vogt-Koyanagi-Harada syndrome despite single differences in the clinical picture. Having studied the accessible literature data, having analyzed the disease progression and anamnesis, we could not find out the reason of the patient's acute fit. None of the factors described above is referred to this case: there were no traumas in the anamnesis, no oncological diseases, systemic diseases, decompensated diabetes mellitus were revealed. The patient was also not exposed to traumatizing, she did not take in any medications before the fit. A-P dimension of both eyes was standard, sclera pathologies were also not revealed. No manifestations of vitiligo, poliosis or depigmentation were revealed in the long term, neither Dalen-Fuchs nodules nor Sugiura sign were observed yet, as well as "the sunset glow" on the eye fundus. In this case, according to the diagnosing criteria proposed in 2007, it is necessary to define the pathology as incomplete Vogt-Koyanagi-Harada syndrome (Astakhov, Kuznetsova, Khripun et al. 2014; Cagri, Besirli, Mark, 2013; Betancourt, Betancourt, Soler et al., 2020). The obtained positive response to the pulse therapy course indicates the immune system involvement into the process. As it is known, corticosteroids have immunosuppressive effect substantiating the positive result of the treatment. However, during such aggressive progression of the chronic phase, as in the described case, the forecast cannot be optimistic.

References

- Astakhov Yu. S., Kuznetsova T. I., Khripun K. V. et al. (2014). Prospects for the diagnosis and effective treatment of Vogt-Koyanagi-Harada disease. *Oftalmologicheskie vedomosti*. 7 (3): 84-92. (in Russian)
- Belyy Yu. A., Tereshchenko A. V., Plakhotniy M. A. (2015). Uveal effusion syndrome (clinical case). *Oftalmologiya*. 12 (3): 93-98. DOI 10.18008/1816-5095-2015-3-93-98. (in Russian)
- Betancourt R, Betancourt S, Soler G et al. (2020). Enfermedad de Vogt-Koyanagi-Harada. Reporte de un caso y revision de literatura. *Rev. Colomb. Reumatol*. 27:50–60. DOI: [10.1016/j.rcrue.2018.12.006](https://doi.org/10.1016/j.rcrue.2018.12.006)
- Cagri G. Besirli, Mark W. (2013). Johnson Uveal Effusion Syndrome and Hypotony Maculopathy, *Retina* (Fifth Edition). 2: 1306-1317. DOI: 10.1016/B978-1-4557-0737-9.00073-4
- Gorbunova N. Yu., Pozdeeva N. A., Gorbunova A. S., Katmakov K. I. (2018). Uveal effusion syndrome in patients with nanophthalmos and angle-closure glaucoma. *National journal of glaucoma*. 17 (2): 12-19. – DOI 10.25700/NJG.2018.02.02. (in Russian)
- Kozina E. V., Gololobov V. T., Chesheyko E. Yu. Et al. (2015). Two cases of spontaneous bilateral choroidal detachment. *Sibirskoe meditsinskoe obozrenie*. 1(91): 110-113. (in Russian)
- Lin YC, Lo KJ, Chen SJ, Hwang DK. (2019). Ocular syphilis mimicking Vogt-Koyanagi-Harada disease. *Taiwan J Ophthalmol*, 9: 271-5.
- Petrov S. Yu. Podgornaya N. N., Aslamazova A. E. (2015). Ciliochoroidal detachment. *National journal of glaucoma*. 14 (1): 94-102. (in Russian)
- Smit J, Berman DC, Nielsen H. (2012). Vogt-Koyanagi-Harada syndrome: a rare but important differential diagnosis of viral meningitis. *Scand J Infect Dis*.

- 44(2): 157-9. DOI: 10.3109/00365548.2011.611171. Epub 2011 Sep 12. PMID: 21905951.
- Sorokin E. L., Voronina N. V., Avramenko S. Yu., Pomytkina N. V. (2015). Vogt-Koyanagi-Harada syndrome (clinical observations). Vestnik oftalmologii. 131 (3): 90-98. (in Russian)