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Clinical Manifestation of Self-Limiting Acute Retinal Necrosis

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Background: The purpose of this paper was to present a case series of self-limiting, peripheral acute retinal necrosis and to demonstrate efficacy of treatment with valacyclovir in patients resistant to acyclovir. The diagnosis was made on ophthalmoscopic examination and positive serum tests for herpes viruses.

Material/Methods: Ten patients (6F and 4M) aged 19–55 years were diagnosed and treated for self-limiting acute retinal necrosis (ARN). The following endpoints were reported: visual outcomes, clinical features, disease progression, treatment, and complications. Patients received only symptomatic treatment because they did not consent to vitreous puncture.

Results: Peripheral, mild retinitis was diagnosed in all eyes at baseline. Initially, all patients were treated with systemic acyclovir (800 mg, 5 times a day), prednisone (typically 40–60 mg/day), and aspirin in an outpatient setting. In 6 patients, treatment was discontinued at 6 months due to complete resolution of the inflammatory process. Four patients with immune deficiency showed signs and symptoms of chronic inflammation. Two patients did not respond to acyclovir (2 non-responders); however, those patients were successfully treated with valacyclovir. Complete resolution of inflammatory lesions was observed in 8 patients. In 2 patients, the disease progressed despite treatment – 1 female patient after kidney transplant who stopped the prescribed medications, and 1 male patient with SLE and antiphospholipid syndrome who experienced breakthrough symptoms on-treatment. He died due to cerebral venous sinus thrombosis. Neurological complications (encephalitis and meningitis) were observed in 2 female patients. Prophylactic laser photocoagulation was performed in 1 subject.

Conclusions: A series of cases of self-limiting acute retinal necrosis (ARN) is presented. This clinical form of ARN can resemble toxoplasmic retinitis in some cases. Oral antiviral medications provide an effective alternative to intravenous formulations in patients with self-limiting ARN. Retinitis is associated with the risk of encephalitis.

MeSH Keywords: **Acyclovir – analogs & derivatives • Acyclovir – standards • Acyclovir – therapeutic use • Central Nervous System Viral Diseases – cerebrospinal fluid • Central Nervous System Viral Diseases – etiology • Retinitis**

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Background

Acute retinal necrosis (ARN) has been known for 40 years. It is a viral inflammatory condition that manifests itself by the following symptoms: vitreitis, severe retinal vasculitis, and progressive peripheral retinal necrosis. The diagnostic criteria for fulminant ARN were established by the American Uveitis Society in 1994 [1,2].

Two forms of ARN have been described: fulminant ARN, which is characterized by rapidly progressing inflammation leading to retinal detachment; and mild ARN, which is usually a stable, non-progressive disease of the peripheral retina [2–5]. A mild, peripheral, isolated form of ARN was first described by Matsuo in 1988. He found whitish-yellow focal necrotic lesions in the peripheral retina in 6 patients that did not show any tendency to detach from underlying tissue. It is very likely that early treatment with corticosteroids and antiviral agents inhibited progression of the disease. Matsuo suggested that acute retinal necrosis should be classified from mild to standard, fulminant ARN [4].

Recently, the term 'necrotizing herpetic retinopathies' (NHR) has been proposed due to a variety of clinical manifestations of viral retinal infections that range in intensity from mild to progressive, depending on the patient's immune status, as this term can convey the whole spectrum of ophthalmoscopic findings in viral retinitis [3,6].

British epidemiological data suggest that the annual incidence of acute retinal necrosis is 1 per 2 000 000 population [7].

The etiological factors of ARN include infections with certain DNA viruses (HSV, VZV, CMV, and EBV). HSV-2 is more common in younger patients, and VZV or HSV-1 infections are prevalent in patients over 50 years of age. There have also been very rare reports on ARN-like lesions associated with toxoplasmic retinitis [3,7–10].

Many different immunological or genetic tests have been performed in patients with ARN to find out why clinical presentation of the disease may significantly vary among patients [3,11]. Up to 16% of all ARN patients experience symptoms of abnormal cellular immunity [3].

Studies of HLA antigens by Holland et al. demonstrated higher incidence of ARN in patients with HLA-DQw7 antigen and phenotype Bw62 in the U.S. population. However, HLA-Aw33, -B44 and -DRw6 antigens were more commonly expressed among Japanese patients, and fulminant ARN is associated with HLA-DR9 [7,12,13].

The authors hypothesized that immunogenetic predisposition may be responsible for abnormal immune response, impaired immunity or increased susceptibility to infection.

Rochat et al. demonstrated abnormal cellular and humoral immune response and skin test anergy in 11 patients with ARN. The magnitude of immune deficiency was positively correlated with the severity of ocular inflammation and corresponded to different clinical presentations of ARN, which ranged from mild retinitis to progressive acute retinal necrosis (PORN). Similar findings were reported by Yan Guex-Crosier [3,11].

An early diagnosis and implementation of systemic empirical treatment while awaiting test results are of the utmost importance.

The analysis of fluid samples obtained from the anterior chamber or the vitreous cavity is very valuable as it enables the clinician to determine appropriate targeted therapeutic strategy [3,8,14].

Viral DNA in ocular fluid can be analyzed by standard qualitative and quantitative polymerase chain reaction (PCR), as well as by real-time PCR [3,7,8]. Real-time PCR enables an accurate assessment of repeatability of measurements and is used to monitor treatment efficacy [8].

Treatment guidelines were developed many years ago by the American Uveitis Society; since then, they have been subjected to numerous modifications [14].

The usual, standard treatment of viral retinitis involves intravenous acyclovir 10/kg daily, given in divided doses, usually for 2–3 weeks, followed by oral acyclovir at a dose of 800 mg 5×/d for at least 6–16 weeks. Treatment with oral acyclovir at a dose of 800 mg 5×/d for several months may be effective in mild ARN [2,15–18].

In patients without significant systemic comorbidities (especially without renal failure), Kawaguchi recommends acyclovir at a dose of 15 mg/kg tid, since VZV-induced ARN is more common and is associated with more severe and turbulent symptoms compared to HSV retinitis. This dose can be decreased to the standard dose if HSV is identified by PCR analysis of ocular fluid [19]. Treatment with acyclovir may be ineffective in some ANR patients because of different causative agent of viral retinitis, as well as low bioavailability of the drug and resistance development [20–22].

In certain cases, new antiviral agents such as oral acyclovir derivatives, valacyclovir, and famciclovir, can be an alternative treatment options to intravenous acyclovir for patients with ARN. The main advantage of these novel medicines is their prodrug formulation, which provides improved bioavailability as compared to conventional preparations [7,20].

Modifications in drug formulation resulted in increased assimilability of these new antiviral agents. Therefore, their

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Table 1. General condition, ophthalmological state and applied treatment in observed patients.

Patient #	Age	Gender	VA – first visit	VA – last visit	Comorbidities	Affected eye	Initial treatment for ARN	Observation time	Follow-up	Further treatment	Complications
1	19	F	20/20	20/20	No	1	Oral acyclovir	11 years	Mild inflammation	Oral valacyclovir	Diagnosed with SM during the follow-up
2	55	M	16/20	8/20	History of interferon treatment for hepatitis C	1	Oral acyclovir	5 years	Mild inflammation	Oral valacyclovir	Cataract
3	54	F	20/100	Light perception	History of kidney transplantation	2	Oral acyclovir *	2 years	Progression	Discontinued due to progressive renal failure	Bilateral retinal detachment, neuroinfection
4	26	F	1/100	1/100	Pigmentary retinopathy	1	Oral acyclovir	3,5 years	Healed	No	No
5	42	M	18/20	18/20	No	1	Oral acyclovir	2,5 years	Healed	No	No
6	32	F	18/20	18/20	No	1	Oral acyclovir	6 years	Healed	No	No
7	47	M	16/20	18/20	No	1	Oral acyclovir	4 years	Healed	No	No
8	28	F	14/20	14/20	No	1	Oral acyclovir	2,0 years	Healed	No	No
9	30	F	20/20	20/20	Concomitant with herpes zoster	1	Oral acyclovir	2,5 years	Healed	No	No
10	30	M	16/20	Hand movements	SLE/antiphospholipid syndrome	1	Oral acyclovir**	5 month	Progression	No	Progression of inflammation

* 400 mg b.i.d. – because of renal failure; ** patient died due to the complications of antiphospholipid syndrome.

concentrations in the vitreous humor after oral administration are comparable to those of intravenous acyclovir and are sufficient to inhibit growth and replication of HSV-1, HSV-2, and VZV. Furthermore, these drugs have a relatively long elimination half-life, which is necessary to maintain a constant level of the medicine in the vitreous humor with twice-daily dosing [5,7,20–24].

Treatment with valganciclovir is recommended in patients with CMV-induced retinitis. However, this medicine has much more serious adverse effects (e.g., neutropenia, anemia, and diarrhea) compared to acyclovir. Moreover, its use is significantly limited by mutagenic, teratogenic, and carcinogenic effects and reproductive toxicity [20].

Valacyclovir, an oral acyclovir derivative, can be used both as a first-line treatment and as a preferred second-line therapy in non-responders to acyclovir [5,22,23]. Intravitreal foscarnet or ganciclovir (Vitrasert) are also sometimes used in patients with very severe ARN [2,7].

The purpose of this article is to present a case series of empirically treated patients with peripheral acute retinal necrosis.

Material and Methods

The research included 10 Caucasian patients (6F and 4M) aged 19–55 years (mean age of 36.3±12.3 years), who were diagnosed with ARN based on the clinical presentation, after exclusion of other potential causes of chorioretinitis. The patients were followed up between 1996 and 2014. For 9 subjects, the follow-up period was 2–11 years (mean follow-up duration of 4.2±2.8) (Table 1).

Comorbid medical conditions included blood hypertension (2 patients) and history of immunosuppressive treatment (3 patients: 1 patient after kidney transplant, 1 patient who previously received combination treatment with interferon and ribavirin due to hepatitis C, and 1 patient with systemic lupus erythematous/antiphospholipid syndrome). Additionally,

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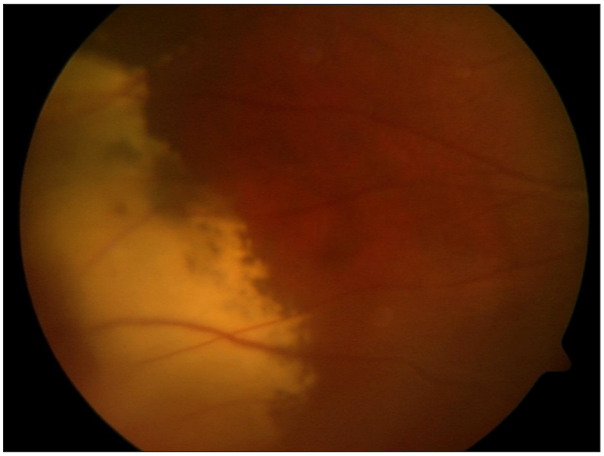

Figure 1. Peripheral retinal necrosis of the RE in otherwise healthy 42-year-old man.

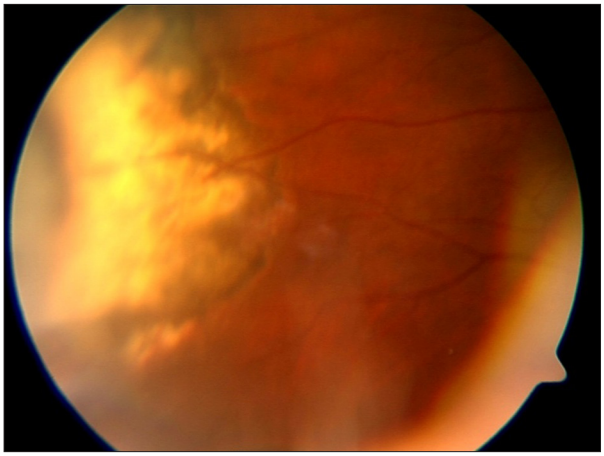

Figure 2. Resolution of retinitis after 6 months of therapy in the same patient. Abnormal scar tissue on the retina, with areas of considerable pigment dispersion.

1 patient had active herpes zoster skin lesions. The remaining patients did not report any history of systemic conditions. Three patients had been previously treated for toxoplasmic retinitis in other health care centers. Basic ocular examination was performed in all patients. Additional tests, such as fluorescein angiography, OCT, USG, and MRI (if the lesions were proved to be bilateral),were performed in some patients, depending on clinical manifestation.

Chest X-rays and serological tests for herpes, toxoplasmosis, toxocariasis, and Lyme borreliosis were also performed.

All patients received long-term treatment with a topical steroid and mydriatic, as well as systemic therapy with antiviral, anti-inflammatory, and anticoagulant drugs. The following medications were used: Heviran (acyclovir), Valtrex (valacyclovir), Encorton (prednisone), and aspirin (acetylsalicylic acid).

Results

Baseline visual acuity (VA) ranged from 1/100 to 20/20. VA was correlated with the severity of vitreous exudates or concomitant pigmentary degeneration of the retina rather than with the location of inflammatory lesions, which usually involved the peripheral retina. Three patients were previously treated with Daraprim (pyrimethamine) and prednisone in another health care center due to a positive toxoplasmosis test result, but the treatment was ineffective.

Accumulation of inflammatory exudates in the vitreous was found in all patients at the initial eye examination. Additionally, single whitish-yellow focal inflammatory lesions and signs of periarteritis were present in 2 subjects (Patient 3 and Patient 10). In 1 patient, retinal changes were associated with uveitis and typical corneal endothelial deposits.

The diagnosis was based on the clinical presentation and positive serological test results for herpes viruses. Patients did not consent to invasive diagnostic procedures (i.e., anterior chamber or vitreous cavity puncture), most likely due to relatively good visual acuity and concerns about potential complications.

All patients were treated with systemic acyclovir (800 mg, 5 times a day), prednisone (typically 40–60 mg/day), and aspirin in an outpatient setting. In 6 patients, treatment was discontinued at 6 months due to complete resolution of inflammatory process.

The evolution of fundus lesions in a generally healthy 42-year-old man are presented in Figures 1 and 2.

Treatment with valacyclovir and prednisone was continued in 2 patients due to the incomplete healing of inflammatory lesions. One of these patients had a history of 2 episodes of retinitis and was followed up for 11 years. The first episode occurred in 2003. Inflammatory lesions resolved after 6-month treatment with acyclovir and prednisone, and the patients did not develop abnormal scar tissue on the retina with areas of considerable pigment dispersion.

The second episode occurred in 2009. The disease manifested itself by vitreitis and reactivation of previous inflammatory lesions. The disease progressed after several months despite continued treatment with acyclovir and prednisone. A small decline in visual acuity was also observed in the fellow eye, which was consistent with the severity of vitreous exudate. Diagnostic tests revealed evidence of meningitis, and single demyelinating lesions were also found on brain MRI. Serum (>30 NTU) and CSF (18 NTU) IgG antibodies to HSV were increased. The CSF cell count was 18 cells/1 µL (93% of cells were the lymphocytes).

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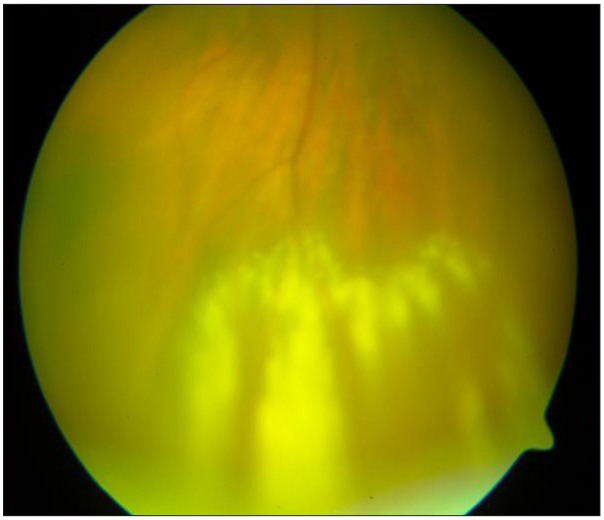

Figure 3. Peripheral retinal necrosis of the RE in an otherwise healthy female patient (2003).

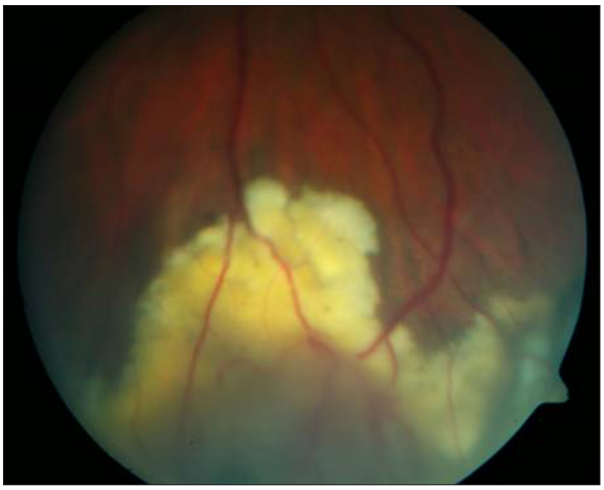

Figure 4. Progression of retinitis in the same patient 6 years later (2009). Comorbid systemic conditions: meningitis, demyelinating disease of the CNS. The patient was diagnosed with MS in 2011.

Intravenous acyclovir was introduced in compliance with Uveitis Study Group guidelines, followed by valacyclovir at a dose of 1.0 g t.i.d. and prednisone at a daily dose of 40 mg. Two years later, follow-up MRI scans demonstrated an increased number of demyelinating lesions. Currently, the patient is diagnosed with MS because she meets all diagnostic criteria for the disease. Laser photocoagulation was performed after resolution of all inflammatory lesions. Clinical progression of acute retinal necrosis is shown in Figures 3–5.

The patient who had previously been treated with interferon and ribavirin for hepatitis C did not show clinical response to acyclovir. Although symptoms of vitreitis improved with acyclovir and prednisone, inflammatory lesions did not resolve

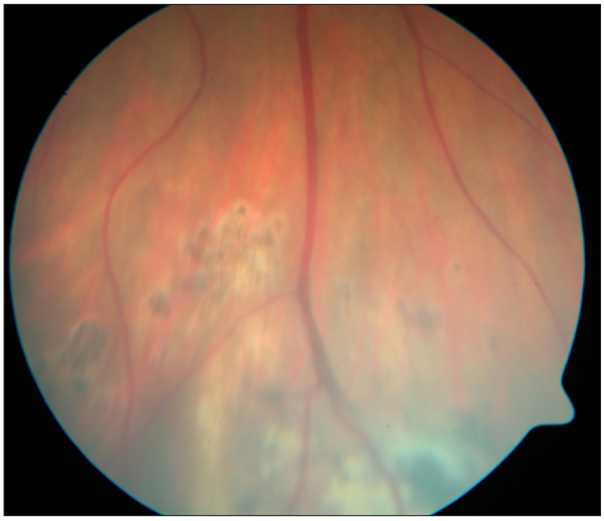

Figure 5. Resolution of retinitis in the same patient, 10 years after the first episode (2013).

completely. Therefore, acyclovir was replaced with valacyclovir at the initial dose of 1.0 g t.i.d., and prednisone (40 mg) was added to the antiviral therapy. That patient had been previously treated for toxoplasmic retinitis, with no clinical improvement. The evolution of retinal lesions is shown in Figures 6 and 7.

Because of pre-existing inflammatory conditions, the doses were tapered very slowly in both patients according to the disease activity, as measured by ophthalmoscopic and angiographic findings. Antiviral therapy with acyclovir followed by valacyclovir was continued for 1 year. Duration of treatment was long because of persistent vitreitis and evidence of active inflammation on angiography.

Eight patients achieved complete resolution of inflammatory lesions. No patient was diagnosed with secondary glaucoma. In 2 patients, the disease progressed despite treatment. One of those patients was a woman after kidney transplantation, who stopped the prescribed medications. In a short time, the disease involved her fellow eye.

The patient was also diagnosed with encephalitis, and detectable levels of HSV IgG in the blood and cerebrospinal fluid. However, the HSV IgM test result was negative.

A male patient with SLE and antiphospholipid syndrome, who experienced breakthrough symptoms on treatment, died due to cerebral venous sinus thrombosis.

Discussion

Many studies have demonstrated that ARN affects people with impaired humoral immunity and may be associated with

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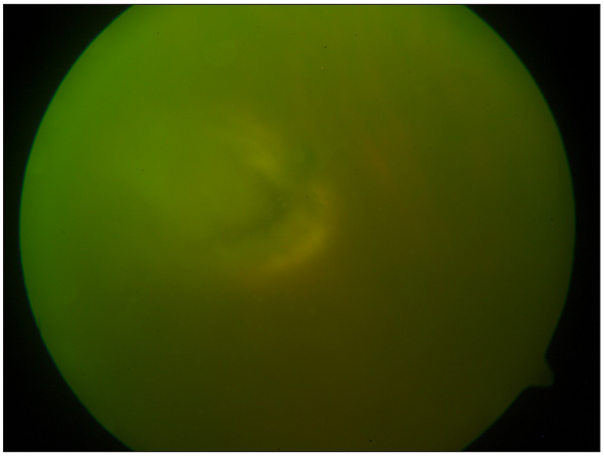

Figure 6. Peripheral retinal necrosis of the RE associated with extensive vitreous exudate in a patient with concomitant hepatitis C (previously treated with interferon and ribavirin).

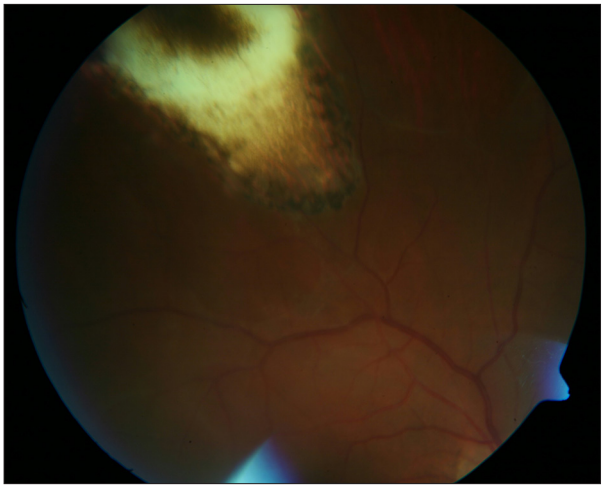

Figure 7. Resolution of retinitis in the patient with concomitant hepatitis C.

higher incidence of certain HLA antigens, which are more common in patients with ARN compared to the general population [3,7,11,12].

Ophthalmoscopic findings usually reflect immune system deficiency, so both mild and progressive disease, which eventually leads to retinal detachment, can be observed in ARN patients. These disorders may be due to immunosuppressive treatment or underlying systemic conditions associated with impaired immunity [1–3,11].

Temporal increase in IgM antibody levels in otherwise 'asymptomatic' patients indicates that virions are probably synthesized periodically [25].

A review of available literature revealed that topical or systemic corticosteroids could be associated with increased risk of ocular viral infection, including acute retinal necrosis. However, corticosteroid treatment was required for comorbid medical conditions in 2 patients who were followed up at our study center (Patient 3 and Patient 10) [1,2].

Ramatya and Rao reported a case of HSV-2-induced ARN in a patient who developed uveitis in 1 eye at 1 year following Retisert (fluocinolone acetonide intravitreal implant) implantation [26].

Shah demonstrated that among over 700 patients considered eligible for treatment with triamcinolone acetonide because of different eye problems, 3 developed retinitis and all of them had concomitant systemic medical conditions associated with impaired immunity (HIV infection, diabetes mellitus, and chemotherapy for ovarian cancer). CMV and VZV were causative pathogens in those patients [27].

Treatment with systemic corticosteroids for diseases such as systemic lupus erythematosus (SLE), rheumatoid arthritis (RA), and multiple sclerosis can result in zoster or varicella infection and, in consequence, in the development of viral retinitis, even after several days [25,28–31].

Among 10 patients who were followed up at our study center, 1 required chronic corticosteroid use because of SLE and 1 due to the kidney transplantation surgery performed 6 years ago, 1 had generalized zoster with diffuse skin involvement, and 1 received interferon and ribavirin combination therapy for chronic hepatitis C 1 year ago.

Studies of several hundred patients who underwent organ transplantation demonstrated that ARN or PORN either did not occur or occurred occasionally (0.1–0.3%). However, the disease may develop even after 5 years following surgery [32–34].

This low incidence of viral retinitis is surprising in large populations of patients. Does it mean that immunosuppressive treatment did not result in serious impairment of the immune system that promoted acute viral-induced retinal necrosis?

The clinical course of the disease and complications that occurred in our female patient were previously described in detail [35]. Retinitis with concomitant varicella or zoster has been previously reported [1,2,36,37].

One of our patients, who was followed up for the longest period of time, was diagnosed with multiple sclerosis. Possible etiological factors of multiple sclerosis may include herpes virus infections, especially HHV-6 [38,39].

Ocular lesions typical of mild peripheral acute retinal necrosis with associated moderate vitreous inflammation were found

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in all our patients at the initial eye examination. In 1 patient, retinal changes were associated with uveitis and corneal endothelial deposits.

A mild, peripheral, isolated form of ARN was first reported by Matsuo. He confirmed the presence of VZV in the aqueous humor of patients. Similar cases were also described by Guex-Crosier and Rochat [3,4,11]. Because collection of aqueous humor or vitreous fluid samples was not possible, it is probably a fair assumption to say that HSV (detected in the CSF) and HZV infection was the underlying cause of ARN in 2 patients with encephalitis and meningitis and 1 patient with generalized zoster, respectively. Similar findings were reported by Ganatra [40].

Viral predilection for the nervous system and anatomical proximity between the eye and CNS may explain the comorbid occurrence of viral retinitis and encephalitis or meningitis. Viruses are able to move from the retina to the brain through the optic nerve. Latent herpes virus can also transfer from the trigeminal ganglion to meninges through the nerve ends and cause encephalitis and meningitis [41,42].

CMV infection was reported to be the most common cause of viral retinitis in transplant patients. However, CMV was excluded in our female patient with a history of organ transplantation [32,33].

CMV may also cause ARN in patients with normal immunity, but there have only been very rare, isolated reports of such infections [2].

Although rare, non-viral retinitis may also develop in some patients. It is typically caused by Toxoplasma gondii and usually resembles ARN [9,10].

Three patients in our material had positive blood test results for Toxoplasma gondii. They had been previously treated (daraprim + prednisone) for toxoplasmosis and did not achieve local improvement.

However, fundus appearance was not typical of toxoplasmosis in every case, since isolated creamy-white focal lesions could be found within the midperipheral or peripheral retina, which were estimated to be 3–5 times the size of the disk (3–5 disc diameters), so they were significantly greater than those observed in toxoplasmosis. There was also no evidence of previous retinal scars typical of recurrent toxoplasmic retinitis.

Ocular toxoplasmosis differs from ARN both in terms of clinical presentation and clinical course. Even untreated, toxoplasma-induced lesions tend to heal and resolve spontaneously within 6–8 weeks [43,44].

In our material, 4 patients (40%) had comorbid autoimmune diseases that required immunosuppressive treatment (history of kidney transplant, hepatitis C, MS, and SLE).

Mild, peripheral inflammatory lesions were observed at baseline in all patients. Therefore, treatment with oral acyclovir (800 mg, 5 times a day) and prednisone (40–60 mg) was initiated. However, those lesions did not resolve, or even progressed, despite oral treatment in 4 patients, which was attributed to pre-existing immune deficiency.

A review of the available literature, as well as our own observations, shows that there is no universal guideline on how long antiviral and anti-inflammatory treatment should be continued. Therefore, clinicians may need to decide on an individual basis, according to the activity of the disease and comorbid medical conditions, just as we did in 2 patients treated with valacyclovir for many months [2,5,19,22].

The intention of long-term treatment with acyclovir or valacyclovir was to ensure complete resolution of inflammation and maximum protection of the other eye.

In Patient 1, reactivation of the inflammatory lesion was observed after 6 years of follow-up.

Different reports indicate that, despite treatment, the fellow eye usually becomes involved in 10–30% of patients, probably due to retrograde axonal transport [1,2,7].

Recurrence or reactivation of inflammatory lesions after many years has also been reported by Ludwig and Rabinowicz [45,46].

Wong investigated 2 cases of unilateral ARN in patients who developed atypical lesions in the fellow eye several months and 34 years later, despite appropriate treatment. Those lesions were not typical of ARN and might have mimicked VKH syndrome/sympathetic inflammation and multifocal choroiditis. The authors suggested that they were related to the late immune response [47].

Many authors indicate that both HSV serotype associated with ARN and patient age are important prognostic factors [1,2,7,21,22]. Following the primary infection, viruses become latent and remain inactive until death of the host. However, the latent virus can reactivate under favorable conditions; this is associated with compromised immune function of the host rather than increase in activity of the virus. Latent VZV and HSV1 are typically found in healthy adults.

According to current knowledge, every patient with ARN has impaired immunity, even if not diagnosed with any systemic medical condition. The severity of immune deficiency corresponds

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to an ophthalmoscopic picture that ranges from mild retinitis to progressive retinal necrosis and, when immune response is severely decreased, even to CMV retinitis [3,11].

This is consistent with our findings in 6 patients (60%) who achieved complete resolution of ocular inflammation within 6 months of treatment with acyclovir.

Treatment with acyclovir did not result in complete resolution of the disease in 2 patients (20%, Patient 1 and Patient 2). However, the inflammation entirely cleared after long-term valacyclovir treatment. In the remaining 2 patients (20%, Patient 3 and Patient 10), ARN progressed despite treatment with acyclovir, and eventually led to bilateral retinal detachment in 1 of them.

In Patient 1, retinal laser photocoagulation was performed after resolution of ocular inflammation. The review of available literature revealed that laser photocoagulation therapy is controversial, especially if performed in patients with active inflammation. However, it helps to reduce the risk of retinal detachment [1,2,7,48–51].

Fox recommend that prophylactic laser photocoagulation should be applied to the retina at some distance from the necrotic area, because the heat from laser energy contracts the surrounding tissues and the resulting traction may cause a giant retinal pigment epithelial tear [48].

We did not collect any aqueous humor or vitreous fluid samples, as none of the patients consented to anterior chamber or vitreous puncture, most likely because of good baseline visual acuity and concerns about potential complications. However, many reports in the literature indicate that the puncture is necessary, at least in some cases. Yamamoto et al. described an unusual case of toxoplasmosis-associated necrotizing retinitis that clinically resembled viral retinitis, in a corticosteroid-treated patient with SLE and diabetes. In that patient, bilateral diffuse necrosis associated with retinal vasculitis was found on ophthalmoscopy, instead of the old retinal scars typical of toxoplasmic retinitis. Histological examination of chorioretinal tissue samples that revealed the presence of Toxoplasma cysts, as well as positive PCR test result and increased level of IgG antibodies in vitreous fluid, were conclusive for the diagnosis [9].

Rarely, aside from inflammatory eye conditions, peripheral ARN may require differentiation from atypical retinitis pigmentosa [52].

We think that in our study population ophthalmoscopic findings met diagnostic criteria for mild ARN, even though a specific etiopathological factor could not be identified. Single whitish-yellow focal inflammatory lesions with associated vitreous inflammatory reaction were found on ophthalmoscopic examination in all study participants, which completely resolved in 80% of patients. Treatment with oral acyclovir or its derivatives was effective, as reported in other studies [15–18].

Conclusions

Although vitreous or anterior chamber puncture was not available, we diagnosed peripheral, self-limiting acute retinal necrosis in 10 patients, solely based on ophthalmoscopic findings at the initial eye examination and positive serological test results for herpes viruses.

We believe that in isolated, peripheral ARN, early long-term treatment and patient immune function are the key factors that influence the clinical course and prognosis, regardless of patient age or the type of viral infection. Virus identified in the CSF of 2 patients with neurological complications was the most possible causal factor of ARN. Antiviral and anti-inflammatory treatment resulted in complete resolution of inflammatory disease in 8 (80%) patients.

Long-term immunosuppressive therapy is potentially linked to the lack of response to acyclovir in patients with autoimmune diseases. Treatment with oral prednisone and acyclovir is effective in mild, self-limiting forms of ARN. Oral acyclovir derivatives can be an alternative treatment option to intravenous acyclovir for patients with ARN and can be used both as the first-line treatment and as a preferred second-line therapy in non-responders to acyclovir. Frequent follow-ups are necessary due to the increased risk of fellow eye and CNS involvement.

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