Bilateral Acute Retinal Necrosis in a HIV- Patient: A Case Study

Necrose Retiniana Aguda Bilateral num Paciente HIV Positivo: Um Caso de Estudo

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ABSTRACT

Our aim was to report a case of bilateral acute retinal necrosis (ARN).

An asymptomatic 41-year-old female with history of AIDS was referred for screening of ocular manifestations of HIV. Patient had a BCVA of 20/40 OU. Slit-lamp examination showed bilateral inflammatory reaction of the anterior chamber. Fundus examination revealed bilateral necrotizing retinitis with retinal hemorrhages. Aqueous humor puncture was positive for VZV. A bilateral ARN was diagnosed and intravenous acyclovir and foscarnet intravitreal injections were initiated. Patient developed a rhegmatogenous retinal detachment in OD within a week. Vitrectomy with endolaser and silicone oil tamponade was performed. Within four months, BCVA was 20/200 in OD and 20/50 in OS and inflammation was controlled.

ARN may be asymptomatic in immunocompromised patients and progress even with treatment. A regular ophthalmologic evaluation is recommended in patients with AIDS, even in the absence of symptoms.

KEYWORDS: Acquired Immunodeficiency Syndrome/complications; Retinal Necrosis Syndrome, Acute/diagnosis; Retinal Necrosis Syndrome, Acute/therapy.

RESUMO

Reportamos um caso de necrose retiniana aguda (NRA) bilateral.

Uma doente assintomática de 41 anos, com história de SIDA, foi referenciada para rastreio de manifestações oculares de VIH. Apresentava uma MAVC bilateral de 20/40. A biomicroscopia revelava uma reação inflamatória bilateral da câmara anterior. Na fundoscopia, observava-se uma retinite necrotizante bilateral com hemorragias retinianas. A punção de humor aquoso foi positiva para VVZ. Diagnosticou-se NRA e iniciaram-se injeções intravítreas de foscarnet e aciclovir endovenoso. A doente desenvolveu um descolamento de retina regmatogéneo dentro de uma semana em OD. Realizou-se vitrectomia, endolaser e tamponamento com óleo de silicone. Dentro de quatro meses, a MAVC era de 20/200 OD e 20/50 OE e a inflamação estava controlada.

A NRA pode ser assintomática em imunodeprimidos e progredir mesmo sob tratamento. Uma avaliação oftalmológica regular deve ser recomendada em doentes com SIDA, mesmo na ausência de sintomas.

PALAVRAS-CHAVE: Síndrome de Imunodeficiência Adquirida/complicações; Síndrome de Necrose Retiniana Aguda/diagnóstico; Síndrome de Necrose Retiniana Aguda/terapia.

INTRODUCTION

Acute retinal necrosis (ARN) is a rare infectious acute panuveitis associated with progressive necrotizing retinitis and retinal arteritis.[1,2] *Varicella Zoster virus* (VZV) has been considered the most common etiology, although it may also be caused by *Herpes-Simplex virus 1 and 2* (HSV-1, HSV-2), *Cytomegalovirus* (CMV) or Epstein-Barr *virus* (EBV).[2,3] ARN generally affects immunocompetent adults and presents with acute unilateral eye redness, ocular pain, photophobia and visual loss.[1,2] Clinical diagnosis is made according to the criteria established by the American Uveitis Society, which include presence of focal, well-demarcated areas of retinal necrosis located in the peripheral retina; rapid, circumferential progression of necrosis; evidence of occlusive vasculopathy; and prominent inflammatory reaction in the vitreous and anterior chamber, and may be complemented by additional exams, such as polymerase chain reaction (PCR) testing of vitreous or aqueous humor.[2-5] Treatment should not be delayed in cases of suspected ARN, as the disease has an aggressive nature and progresses rapidly to potential vision-threatening complications, including retinal detachment (RD).[2,4] Visual prognosis is typically poor, although prompt treatment may improve visual outcomes and reduce the prevalence of involvement of the fellow eye.[2,4]

Our aim was to report a case of severe bilateral ARN in a patient infected by human immunodeficiency virus (HIV).

CASE REPORT

A retrospective case report was performed. Case records were reviewed for clinical and treatment outcomes.

A statement of informed consent to publish this case and its images was gathered from the patient.

An asymptomatic 41-year-old female was referred to the Ophthalmology department of Hôpital Universitaire Pitié-Salpêtrière for screening of ocular manifestations of HIV. She had past medical history of anxiety and advanced HIV infection, with acquired immunodeficiency syndrome (AIDS) and severe immunosuppression for 2 years (CD4 level and viral load measurements 2 weeks before referral: 10/mm^3 and 6 log, respectively). The disease had been complicated with cerebral toxoplasmosis and mesenteric adenitis (*M. genavense*) in the last year, and with meningitis (VZV) 4 months before referral. The patient had no relevant past ophthalmologic history. Current medical treatment included emtricitabine tenofovir disoproxil 200 mg/ 245 mg and dolutegravir 100 mg.

On clinical examination, our patient had a best corrected visual acuity (BCVA) of 20/40 in the right eye (OD) and 20/40 in the left eye (OS). No relative afferent pupillary defect was found and intraocular pressure was within normal range in both eyes (OU). Slit-lamp exam showed bilateral inflammatory reaction of the anterior chamber (anterior chamber cells + OU, according to the Standardization of Uveitis Nomenclature (SUN); mean laser flare photometry flare: 35.4 ph/ms in OD and 33.1 ph/ms in OS) and inferior pigmented keratic precipitates. Fundus examination revealed mild vitritis (vitreous cells +, according to the SUN) and a bilateral peripheral confluent necrotizing retinitis in the 4 quadrants associated with vasculitis and retinal hemorrhages, with posterior pole involvement in OD (Fig. 1.1).[6] Since the patient's clinical features highly favored the diagnosis of ARN, antiviral treatment with intravenous acyclovir 15 mg/kg/8 hours and intravitreal foscarnet 2.4 mg/0.10 mL in OU was immediately initiated. The patient underwent several complementary exams to rule out differential diagnosis, including complete blood count, baseline liver and renal function test, erythrocyte sedimentation rate, anterior chamber paracentesis (ACP) for PCR for HSV, VZV, CMV, EBV and *Toxoplasmosis*, infectious serologic assays (including HSV, VZV, CMV and *T. gondii*), fluorescent treponemal antibody absorption, rapid plasma reagin, purified protein derivative skin test, chest radiograph and orbital and head magnetic resonance imaging. Serologic tests and ACP PCR were positive for VZV and

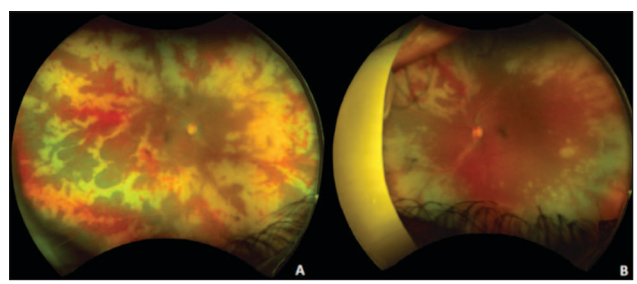

Figure 1.1. A – Ultra-wide-field color fundus photograph of the right eye at presentation, showing peripheral confluent necrotizing retinitis at 360º associated with vasculitis and retinal hemorrhages, with posterior pole involvement; B – Ultra-wide-field color fundus photograph of the left eye at presentation, showing peripheral confluent necrotizing retinitis at 360º associated with vasculitis and nasal superior retinal hemorrhages, not affecting the posterior pole.

no signs of concurrent central nervous system involvement were found on neuroimaging.

One week after referral, the patient developed a macula-off rhegmatogenous RD in OD despite anti-viral treatment. A pars plana 23G vitrectomy with endolaser and silicone oil tamponade was immediately undertaken in OD. On the first day after surgery, the retina was attached under silicone oil tamponade. The patient was medicated with topical ofloxacin 1.5 mg/0.5 mL 4 id and dexamethasone 1 mg/mL 4 id in OD and systemic and weekly intravitreal anti-viral treatment in OU for 3 weeks. One month after referral, the retina was still attached under silicone oil tamponade in OD and there had been significant improvement in retinal inflammation and vasculitis in OU, with reduction of the number of retinal hemorrhages and development of atrophic scars. Intravenous treatment was discontinued and substituted by oral valaciclovir 1 g 3 id, and weekly intravitreal foscarnet was maintained in OU for another month.

On the last visit, 4 months after incidental ARN diagnosis, BCVA was 20/200 in OD and 20/50 in OS, VZV was undetectable in ACP PCR, slit-lamp exam was unremarkable, retinal inflammation was controlled, and atrophic retinal scars at 360º were visualized in OU on fundus examination (Fig. 1.2).

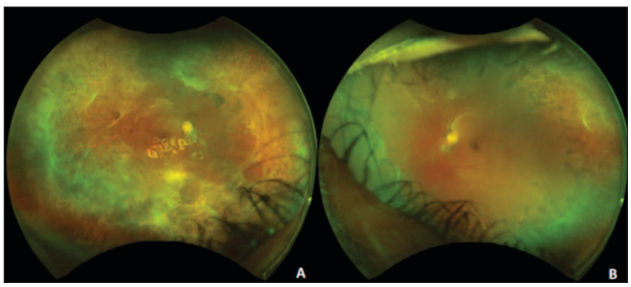

Figure 1.2. A – Ultra-wide-field color fundus photograph of the right eye four months after presentation, showing an attached retina under silicone oil tamponade, with peripheral atrophic retinal scars at 360º and without hemorrhages or evidence of active retinal lesions or vasculitis; B – Ultra-wide-field color fundus photograph of the left eye four months after presentation, showing peripheral atrophic retinal scars at 360º, without hemorrhages or evidence of active retinal lesions or vasculitis.

DISCUSSION

ARN is a rare but potentially sight-threatening acute panuveitis associated with rapidly progressive necrotizing retinitis.[2,4] Although more prevalent in healthy adults, it may affect immunocompromised patients, with AIDS being considered a risk factor.[4] Acute ocular pain and photophobia are typical manifestations, however immunocompromised patients may have a subclinical presentation despite the severity of intraocular inflammation.[1] In our case report, the patient was asymptomatic even with severe bilateral ARN. The disease should be distinguished from other causes of retinitis, as CMV retinitis or toxoplasmosis, but especially from progressive outer retinal necrosis (PORN), which is also a necrotizing herpetic retinopathy.[2,7] However, unlike ARN, PORN tends to occur almost exclusively in immunocompromised patients, such as those with HIV/AIDS and very low CD4 + T-cell counts (20-50/mm^3), and it rarely causes aqueous or vitreous inflammation or vasculitis, characteristic of ARN.[7,8] Additionally, PORN is usually associated with early involvement of the posterior pole and macula, whereas ARN has an initial preferential involvement of the retinal periphery.[7]

Given the rapidly progressive and destructive nature of ARN, antiviral therapy should be initiated promptly, in order to prevent further extension of the retinitis, induce remission of the inflammation, reduce the risk of complications and to preserve the best possible visual acuity.[1-4,9] In our case, it was initiated treatment with intravenous acyclovir. Although new antivirals with greater bioavailability have been suggested to be successful and clinically equivalent to the intravenous approach, there is no consensus regarding this matter and the American Academy of Ophthalmology still recommends an initial regimen treatment for ARN with a course of intravenous acyclovir followed by maintenance therapy with oral anti-viral.[2,9,10] Intravitreal anti-viral therapy was also added to provide high-dose immediate treatment to the eyes and attain immediate therapeutic vitreous drug levels, as our patient had high risk features (posterior pole involvement in OD, involvement of the retinal periphery at 360º and severe immunosuppression).[1,9] Even with prompt and adequate treatment, ARN may still progress and complicate with RD, as illustrated in our case.1 Nevertheless, early surgical repair and maintenance of anti-viral treatment may improve visual outcome.

In conclusion, ARN may present as a subclinical disease in immunocompromised patients. A high suspicion should be maintained in HIV-patients, especially with severe immunosuppression and history of recent reactivation of VZV infection. Although the visual prognosis is generally poor, early adequate treatment may improve outcomes. A regular ophthalmologic evaluation should be undertaken in these patients even in the absence of ocular symptoms, in order to promptly diagnose and treat ocular manifestations of HIV infection or of its co-infections.

CONTRIBUTORSHIP STATEMENT / DECLARAÇÃO DE CONTRIBUIÇÃO:

All authors declare that they had a substantial and direct intellectual contribution in the design and elaboration of this article, that they participated in the analysis and interpretation of the data, in the writing of the manuscript, in the revision of versions and critical revision of its content and in the approval of the final version, agreeing who are responsible for the accuracy and completeness of all work.

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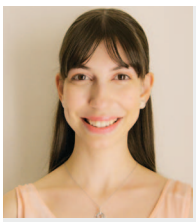

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