Short communication

Bilateral acute retinal necrosis due to varicella zóster virus in an elderly patient

O. Villena-Irigoyen a,*, L. Echevarría-Lucas a, M. Castro-Gómez b, R.M. Bellido-Muñoz b

a Servicio de Oftalmología, Hospital de la Axarquía, Málaga, Spain
b Servicio de Oftalmología, Hospital de Motril, Granada, Spain

A R T I C L E   I N F O
Article history:
Received 4 November 2014
Accepted 9 February 2015
Available online 26 September 2015

Keywords:
Acute retinal necrosis
Necrotizing retinitis
Retinal necrosis
Kyrieleis' vasculitis
Famciclovir
Polymerase chain reaction

A B S T R A C T
Case report: The case is reported of acute retinal necrosis with bilateral involvement due
to varicella zoster virus in a 77 year-old man. Polymerase chain reaction (PCR) of aqueous
humor was positive for varicella zoster virus (VZV). He developed a Kyrieleis’ vasculitis a
month after starting the treatment, when the PCR analysis was negative.
Discussion: PCR is a quick and safe technique, with a high sensitivity and specificity of 97%,
useful to diagnose and monitor the viral activity. The intervention must be urgent, due
to the dramatically rapid evolution. Oral famciclovir oral is good alternative owing to its
bioavailability.

© 2014 Sociedad Española de Oftalmología. Published by Elsevier España, S.L.U. All rights
reserved.

Necrosis retiniana aguda bilateral en el anciano por varicela zóster

R E S U M E N
Caso clínico: Presentamos a un paciente de 77 años, con un cuadro de necrosis retiniana
aguda con afectación bilateral; la reacción en cadena de la polimerasa (PCR) de la muestra
de humor acuoso fue positiva al virus de varicela zóster. En su evolución desarrolla vasculitis
de Kyrieleis al mes de inicio del tratamiento y con el análisis por PCR negativo.
Discusión: La PCR es un método rápido, con una sensibilidad y especificidad del 97%. La
actuación debe ser urgente por la rapidez de la progresión. El famciclovir oral es buena
alternativa por su mejor biodisponibilidad.

© 2014 Sociedad Española de Oftalmología. Publicado por Elsevier España, S.L.U. Todos
los derechos reservados.

* Please cite this article as: Villena-Irigoyen O, Echevarría-Lucas L, Castro-Gómez M, Bellido-Muñoz RM. Necrosis retiniana aguda bilateral en el anciano por varicela zóster. Arch Soc Esp Oftalmol. 2015;90:549–553.
* Corresponding author.
E-mail address: olgavillena@yahoo.es (O. Villena-Irigoyen).
2173-5794/© 2014 Sociedad Española de Oftalmología. Published by Elsevier España, S.L.U. All rights reserved.
Introduction

Acute retinal necrosis (ARN) is a uveitic, devastating and infrequent syndrome which expresses in immunocompetent patients. Its etiology is mainly herpetic, with VVZ being the most frequently identified cause.\(^1\)\(^2\) ARN diagnostic is mainly clinical, with its treatment being based on diagnostic assumption. According to the diagnostic criteria published by the American Uveitis Society, it includes: (1) more than one retinal necrosis focus with discrete edges in the peripheral retina, (2) rapid circumferential progression, (3) evidence of elusive vasculitis with arteriolar involvement, and (4) prominent inflammation. Even though the initial standard treatment for ARN is intravenous acyclovir, oral treatments are also applied with valacyclovir, famcyclovir, valgancyclovir, as well as with intravitreal preparations of foscarinet and gancyclovir.\(^3\)

Case report

A male patient, 77 year-old, visited due to blurred vision and dizziness. AHT in treatment, diabetes (without retinopathy), slight kidney insufficiency and recent prostate cancer diagnostic. Best corrected visual acuity of 0.7 in RE and 0.4 in LE. Panuveitis with bilateral ocular hypertension (Fig. 1). Multifocal peripheral retinitis, area with confluent loci with necrotic appearance in the temporal area of both eyes as well as some obliterated peripheral arterioles (Figs. 2 and 3). Treatment was established with acyclovir IV (dose adjusted to kidney clearing, 750 mg every 12 h) during 8 days, subsequently substituted with oral famcyclovir due to kidney worsening, at a dose of 500 mg every 12 h, maintained during months; topical treatment with 1% prednisolone acetate eyedrops every 2 h, Cosopt\(^\oplus\) eyedrops (one drop every 12 h) and 1% cycloplegic eyedrops. After 48 h of treatment, 50 mg oral prednisolone treatment was initiated. Hemogram, biochemistry and negative serology (HIV, syphilis, toxoplasma, Lyme, toxocara), Mantoux, ECA, normal serum lysozymes, cranial NMR (nonspecific ischemic lesions in the Pontine region), normal chest and cranial CT and consultation with internal medicine were performed. Diagnostic was obtained through aqueous humor PCR, positive for VVZ. Posterior peripheral prophylactics laser was carried out in the necrosis areas.

Since the first week, the patient evolved to atrophic changes in the peripheral retina in RE. After one month of treatment, inflammation remitted although the patient exhibited sheathed vessels with segment arteriolitis in the LE (Kyrieleis arteritis; Figs. 4 and 5), which remitted at the 4-month of treatment. Two months once the treatment started, PCR was repeated with negative result for VVZ (Fig. 6).

Discussion

The association between cancer and herpes zoster is known since 1955. It is hypothesized that herpes zoster could be a precursor of cancer, in patients above 65 and those hospitalized for this reason. The diagnostic must exclude necrotizing retinitis causes such as syphilitic retinitis, atypical toxoplasmic retinochoroiditis, sarcoidosis, tuberculosis, toxocariasis, bacterial or fungal endophthalmitis and Behçet disease.\(^3\)\(^4\) Recently, PCR analysis for aqueous humor or vitreous allows a more precise diagnostic. PCR amplifies desoxyribonucleic acid (DNA) or ribonucleic acid (ARN) of pathogens, facilitating their detection. It is a fast and highly reproducible method, with a very low rate of false positives, with 97% sensitivity and specificity for diagnosing VVZ, CMV and VHS.\(^5\) Quantitative PCR analysis can be useful in monitoring viral activity and response to antiviral treatment.\(^3\)

In the patient reported herein, the primary treatment was the standard acyclovir treatment adjusted to glomerular clearing, subsequently substituted with oral famcyclovir oral due to better tolerance and lower potential toxicity.

---

Fig. 1 – Biomicroscopy: granulomatous and hypertensive uveitis.
considering the positive results obtained in some published series. Famcyclovir, which exhibits better bioavailability (77% against 15% of oral acyclovir) and a better pharmacokinetic profile than oral acyclovir, can reach equivalent systemic concentrations.\textsuperscript{6,7} Treatment must be maintained several months, at least between 4 and 6 months. During the phase of resolution of retinitis to retinal atrophy, vitreous organization and traction could produce retinal tears and detachments (described in approximately 50–75% of cases). The role of confluent laser photocoagulation is controversial and the

\textbf{Fig. 2 – RE retinograph: retinitis loci in acute phase with areas of temporal confluent necrosis.}

\textbf{Fig. 3 – LE retinograph: loci of peripheral retinitis and vitritis.}
Kyrieleis plates

Started at month 1 of treatment
FA shows it is not active vasculitis because there is no leak of late staining

Fig. 4 – LE retinograph after 2 months of treatment showed the presence of Kyrieleis plates.

Evidence level is normally weak, although some authors consider that prophylactic laser treatment posterior to active retinitis can help prevent progression to retina detachment. Belated ARM complications include chronic vitritis, macular edema, optic atrophy, epiretinal membrane, retinitis relapse when treatment is terminated and phthisis. In the present case, the patient developed plates of Kyrieleis arteriolitis in the LE, during several months. This was due to an immune response and detritus inflammatory cell deposits on artery walls. However, some authors debate this research because plates can persist despite infection resolution and treatment with steroids. They do not worsen the prognostic of the disease.

The early initiation of treatment, the presence of limited necrosis areas in both eyes with low occlusive artheritic component and the absence of complications have allowed the present patient to exhibit a favorable evolution of ARN.

Fig. 5 – LE retinograph: Kyrieleis vasculitis (arrows).
Fig. 6 – RE and LE retinograph after 2 months of treatment showed peripheral chorioretinal atrophy and evolution to Kyrieleis vasculitis.

Conflict of interests

No conflict of interests was declared by the authors.

Acknowledgments

The authors wish to acknowledge Dr. del Río of the uveitis Department of the Carlos Haya Regional Hospital.

REFERENCES