

Case Report

Acute Retinal Necrosis Caused By VZV and EBV Co-Infection in Patient with Hodgkin Lymphoma History

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Abstract

Purpose: To report the interesting case of ARN caused by co-infection of VZV and EBV. The course of the disease and outcome will be described.

Observations: A 61 years female with a history of Hodgkin lymphoma treated with ABVD protocol and radiation 3 years ago presented to the ophthalmic ER because of painless vision loss in her left eye. Her left visual acuity was 20/40 and 20/30 on the right eye. There was an inflammatory reaction +3 in both eyes. It was a normal fundus examination in the right eye. Fundus examination of the left eye showed 1+ vitreous haze, papillitis, the retina was flat with peripheral foci of retinal necrosis with discrete borders, exudates and perivascular sheathing. Fluorescein angiography of the right eye was normal and in the left eye demonstrated occlusive vasculitis and dye leakage from the peripheral foci. Vitreous tap revealed high titer VZV and lower titer EBV infection. Intravenous acyclovir and intravitreal foscarnet injections and systemic prednisone were started. After one week the patient developed retinal detachment in the lower part. Surgical intervention was performed.

Conclusions and importance: VZV is the common cause of ARN. EBV retinitis is not typical viral retinitis and was rarely described and only few cases have been reported. Also only a few cases of co-infection were reported until now.

Keywords: Acute retinal necrosis; Foscarnet; Acyclovir; Epstein-Barr virus; Varicella zoster virus

Introduction

Acute Retinal Necrosis (ARN) is a sight-threatening necrotizing retinitis. ARN usually develops in immunocompetent persons. The Standardization of Uveitis working group has defined ARN as a peripheral necrotizing retinitis with either confirmation of intraocular infection with HSV or VZV (*via* PCR of an intraocular fluid) or the classic clinical picture with white to yellow retinal edema and opacity with or without hemorrhage with demarcated borders [1,2]. Most often the causative agent is either VZV or less commonly HSV. ARN that is caused by EBV is rare with a few cases have been reported [3-7]. To the best of our knowledge, there have been no documented cases in which vitreous tap yielded positive PCR for both VZV and EBV. We report a case of ARN due to co-infection with VZV and EBV ARN in a patient with Hodgkin lymphoma history.

Case Presentation

An 61-year-old female whose past medical history includes: chemotherapy with ABVD protocol (Doxorubicin, Bleomycin, Vinblastine, Dacarbazine) for Hodgkin lymphoma that was finished 3 years before, Herpes Zoster in 3 dermatomes in the chest with post-herpetic neuralgia and an incident of infectious mononucleosis about one year before presentation to eye clinic. Her past ocular history is unremarkable.

She presented to the ophthalmic ER due to a 1-day history of painless blurry vision in her left eye. Her left visual acuity was 20/40 and she had no accompanying neurological symptoms or any other ocular symptoms.

Slit-lamp examination revealed the presence of inflammation in the anterior chamber (3+ cells) without keratic precipitates and no iris atrophy or synechiae were seen. The intraocular pressure was 16 mmHg. Posterior segment examination of the left eye showed 1+ vitreous haze, papillitis, the retina was flat with peripheral foci of retinal necrosis with discrete borders, exudates and perivascular sheathing (Figure 1). Optos ultra wide field fluorescein angiography of the right eye was normal and in the left eye demonstrated occlusive vasculitis and dye leakage from the peripheral foci (Figure 2).

The patient was admitted and the vitreous was tapped. Vitreous tap revealed high titer VZV and lower titer EBV infection by Polymerase Chain Reaction (PCR) but sequences of HSV, VZV, or CMV were negative.

The patient received 2.4 mg of intravitreal foscarnet injections



Figure 1:

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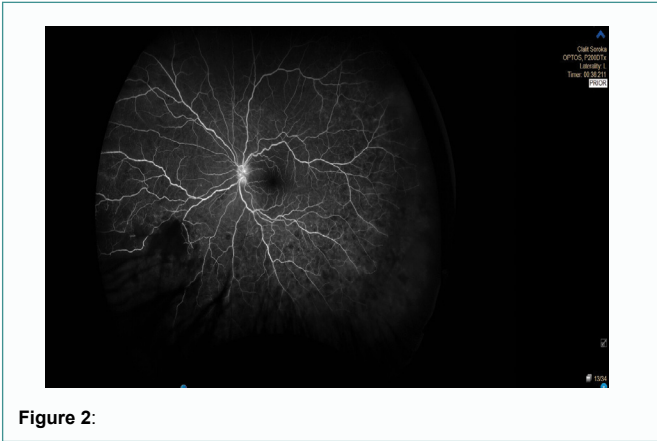


Figure 2:

twice with a 3-day interval and intravenous infusion of acyclovir at the dose 600 mg × 3 for 10 days (10 mg/kg per dose); during the hospitalization, the vitreous haze increased, and the retinal lesions expanded rapidly (Figure 3).

A week after presentation, the vitreous haze increased and retina wasn't visible for fundus examination so an ultrasound was performed and showed areas of retinal detachment in the lower part of retina (Figure 4).

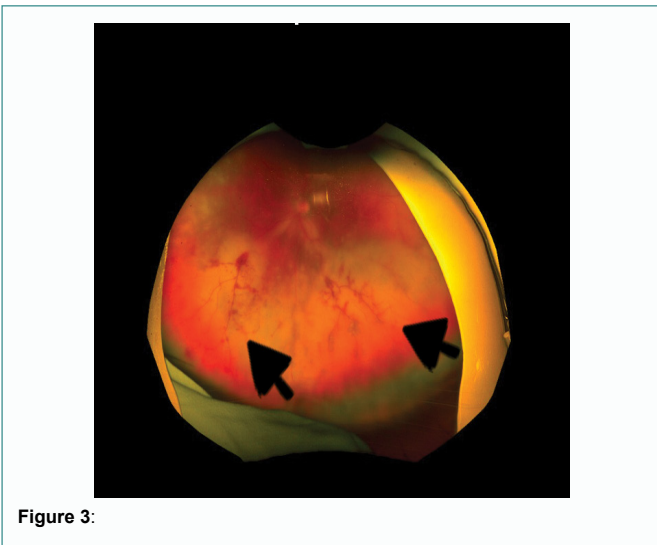


Figure 3:

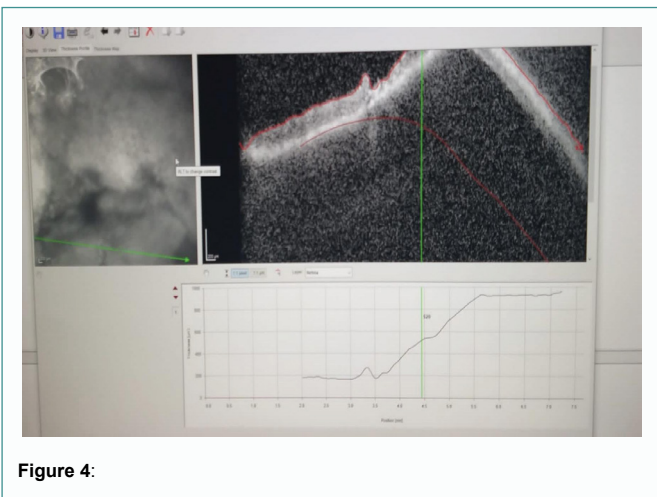


Figure 4:

It was decided to proceed to vitrectomy with cataract surgery, foscarnet injection and silicone oil tamponade. Prednisolone PO 30 mg/day was started. After the vitrectomy, the improvement started; the retina was flat under silicone oil and retinal lesion started to diminish.

Due to improvement the patient was discharged from the hospital with PO treatment with Valacyclovir 1 g × 3 times per day and close follow-up at the uveitis clinic. Visual acuity on discharge was 20/200.

One week after discharge the visual acuity improved to 20/60 at the left eye and the retina was flat under silicone. The valacyclovir dosage was changed to 500 g × 3 with the plan to continue this dosage for 3 months.

Three weeks after discharge visual acuity decreased to 20/200 and on fundus exam and OCT was exudative retinal detachment in the lower part of the retina (Figure 5 and 6).

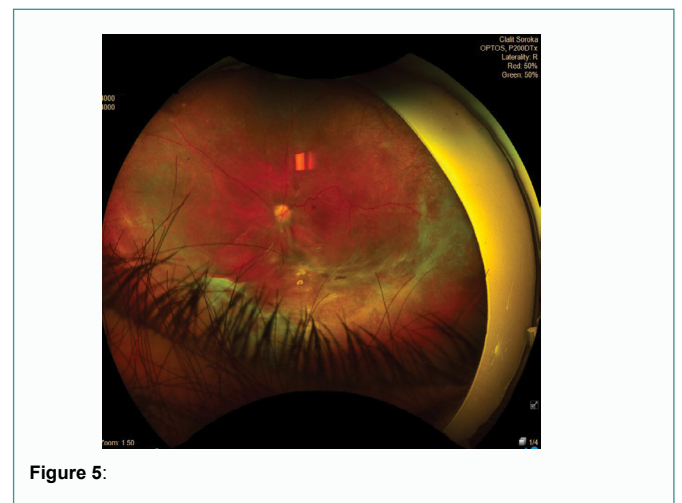


Figure 5:

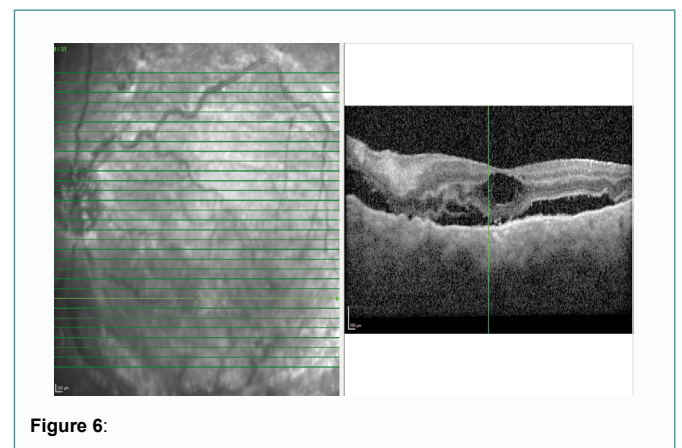


Figure 6:

On her last examination about two months after discharge was found that retinal detachment at the lower part of the left eye worsened and new retinal hemorrhages told about exacerbation of ARN (Figure 7 and 8).

It was decided to raise the dose of valacyclovir PO to 1000MG × 3 and to perform surgery including peeling and retinotomy with silicone oil exchange with the further evaluation in the uveitis clinic.

Discussion

In 2021 the Standardization of Uveitis working group published a

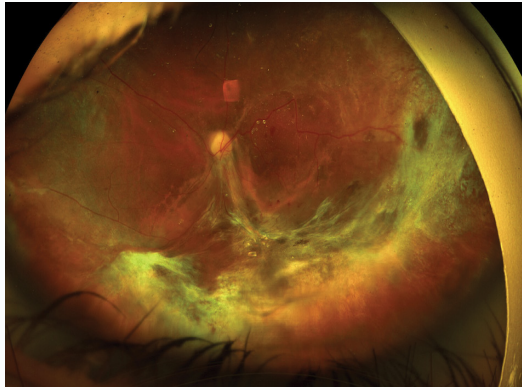


Figure 7:

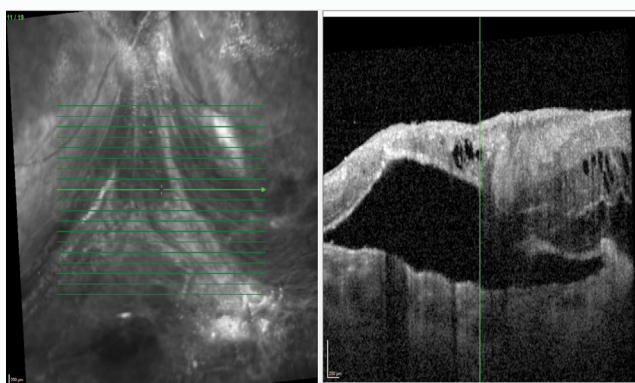


Figure 8:

set of diagnostic criteria for the ARN syndrome [2].

1. Necrotizing retinitis involving the peripheral retina

AND (either #2 OR #3)

2. Evidence of infection with either Herpes Simplex Virus (HSV) or Varicella Zoster Virus (VZV)

a) Positive PCR* for either HSV or VZV from either an aqueous or vitreous specimen

OR

3. Characteristic clinical picture

a) Circumferential or confluent retinitis AND

b) Retinal vascular sheathing and/or occlusion AND

c) More than minimal vitritis

The ocular findings in this case are consistent with ARN as defined by the SUN working group. However, in this case the vitreal tap revealed positive PCR for both EBV and VZV.

Treatment with Acyclovir IV and Foscarnet Intravitreal was started immediately, as early administration of antiviral medication is considered the cornerstone for the treatment of ARN.

Our patient didn't improve with medical treatment. She had developed retinal detachment that was repaired using vitrectomy and silicone oil. Afterwards there was an improvement in the course of the disease. But after two months of follow up the ARN exacerbated and the retinal detachment of the left eye appeared again. That's why it was decided to raise the dose of valacyclovir and to perform eye surgery to repair the detachment with peeling and retinotomy and silicone oil exchange. For this moment the patient is admitted before surgery and we continue the follow up.

References

- Holland GN. Standard diagnostic criteria for the acute retinal necrosis syndrome. Executive Committee of the American Uveitis Society. *Am J Ophthalmol.* 1994;117(5):663-7.
- Standardization of Uveitis Nomenclature (SUN) Working Group. Classification Criteria for Acute Retinal Necrosis Syndrome. *Am J Ophthalmol.* 2021;228:237-44.
- Chan EW, Sun V, Eldeeb M, Kapusta MA. Epstein-Barr virus acute retinal necrosis in an immunocompetent host. *Retin Cases Brief Rep.* 2021;15(4):412-6.
- Schaal S, Kagan A, Wang Y, Chan C, Kaplan HJ. Acute retinal necrosis associated with Epstein-Barr virus: immunohistopathologic confirmation. *JAMA Ophthalmol.* 2014;132(7):881-2.
- Nishiyama T, Tsujinaka H, Mizusawa Y, Ueda T, Ogata N. Acute retinal necrosis in a patient on immunosuppressive treatment for COVID-19 pneumonia: a case report. *BMC Ophthalmol.* 2022;22(1):462.
- Suzuki K, Namba K, Hase K, Mizuuchi K, Iwata D, Ito T, et al. A case of Epstein-Barr virus acute retinal necrosis successfully treated with foscarnet. *Am J Ophthalmol Case Rep.* 2022;25:101363.
- Blumenkranz MS, Culbertson WW, Clarkson JG, Dix R. Treatment of the acute retinal necrosis syndrome with intravenous acyclovir. *Ophthalmology.* 1986;93(3):296-300.