

Overcoming the Odds: Successful Management of Disseminated CMV Infection and Retinitis in a Relapsed Follicular Lymphoma Patient Post-Bendamustine Therapy

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Introduction

Bendamustine, commonly used in treating indolent B-cell lymphoma chronic lymphocytic leukemia, is associated with prolonged myelosuppression and lymphocytopenia, increasing the risk of severe infections, including cytomegalovirus (CMV). Although disseminated CMV disease is rare in these settings, we present a case of CMV in a patient receiving Bendamustine therapy.

Background

Bendamustine: A chemotherapeutic alkylating agent that can cause prolonged immunosuppression, heightening the risk of opportunistic infections such as CMV.

CMV Retinitis: A rare but serious complication of CMV infection, often seen in immunocompromised patients, can lead to vision loss and damage.

Case Significance: CMV retinitis in Bendamustine-treated patients remains largely undocumented, making this case noteworthy for its and complexity

Case Presentation

Patient Demographics:

59-year-old South Asian male with stage IV follicular lymphoma.

Treatment History: Initially treated with 6 cycles of R-CHOP, achieving remission followed by Rituximab maintenance therapy. After relapse, received salvage therapy with Obinutuzumab and Bendamustine, followed by Obinutuzumab maintenance.

Symptoms: Presented with progressive bilateral vision loss (right eye more affected) for two months.

Examination Findings: The right eye showed significant retinitis with obscured view of the macula and areas of retinitis. The left eye also exhibited extensive retinitis. (Fig 1)

Hospital Course

Initial Workup:

Lab Results: Normal CBC, CRP; CMV PCR positive (46,487 copies); anterior chamber tap positive for CMV; CD4 count of 48.

Initial Treatment: Induction therapy with valganciclovir (900 mg PO for 21 days), followed by maintenance with 900 mg PO daily and IVIG.

Progression & Complications:

Despite initial treatment, vision worsened with progressive healing of retinitis but submacular fluid on OCT.(optical coherence tomography) Bilateral intravitreal Foscarnet was administered, and valganciclovir shifted to IV ganciclovir.

Vision Outcome:

Right eye developed rhegmatogenous detachment; left eye improved 6/18 after laser barrage for peripheral detachment. Fig (1-3)

CMV Resistance: Suspected ganciclovir resistance, shifting to IV Foscarnet, which cleared viremia but caused renal toxicity.

Final Treatment: Returned to high-dose IV ganciclovir after resistance gene testing was negative. Neutropenia required G-CSF support.

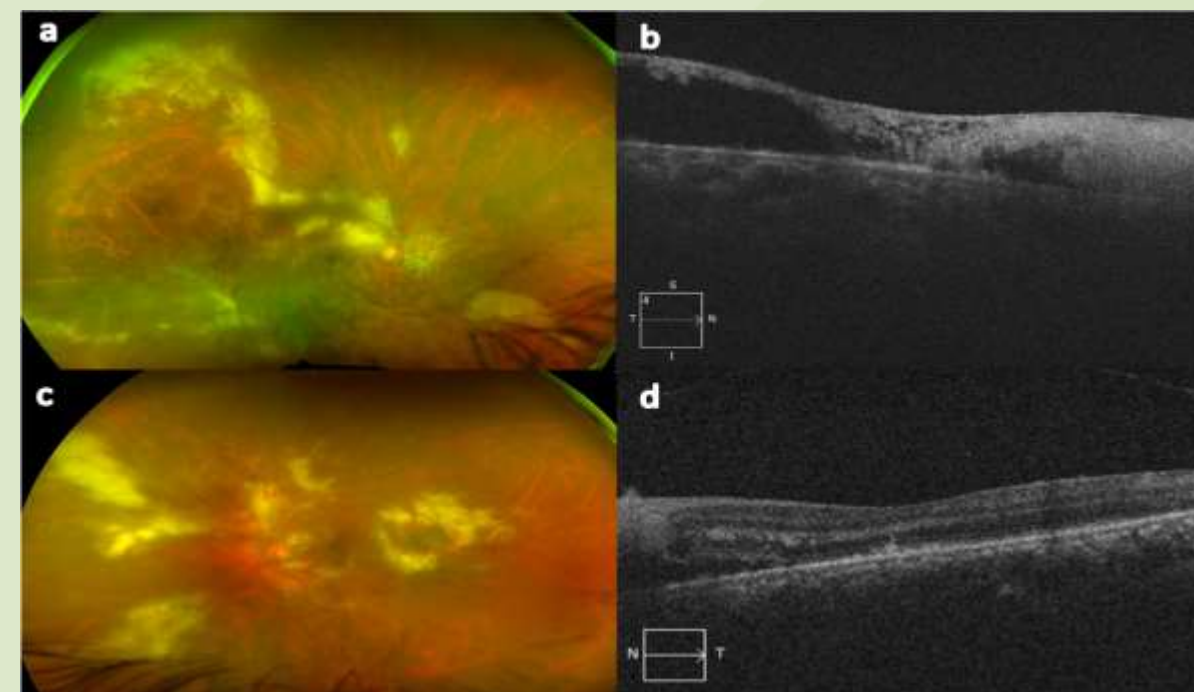


Figure 1: the initial fundus photos and OCT (optical coherence tomography)

Figure 1a: wide-field fundus imaging of the right eye with areas of extending from the disc along the upper and lower temporal arcades vitreous condensations covering the posterior pole

Figure.1b: right eye macula OCT showing extensive necrosis of the layers.

Figure 1c: wide-field fundus imaging of the left eye with more fresh retinitis patches involving upper and lower nasal and upper temporal arcades with a big patch of retinitis temporal to the macula

figure.1d: left eye OCT showing retinal necrosis involving the nasal edge of the macula sparing the fovea.

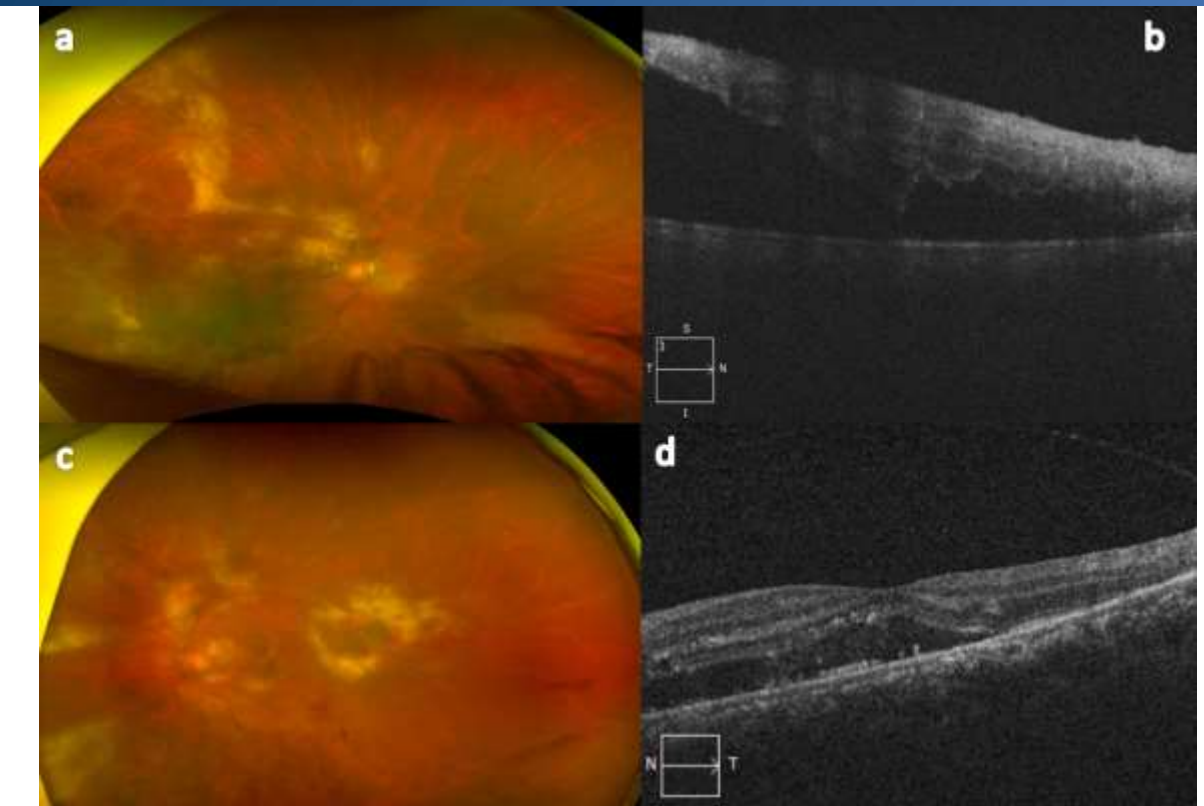


Figure 2 a & c: right and left wide field imaging with starting healing of retinitis

Figure 2 b & d: OCT of right and left eye with exudative macular detachment

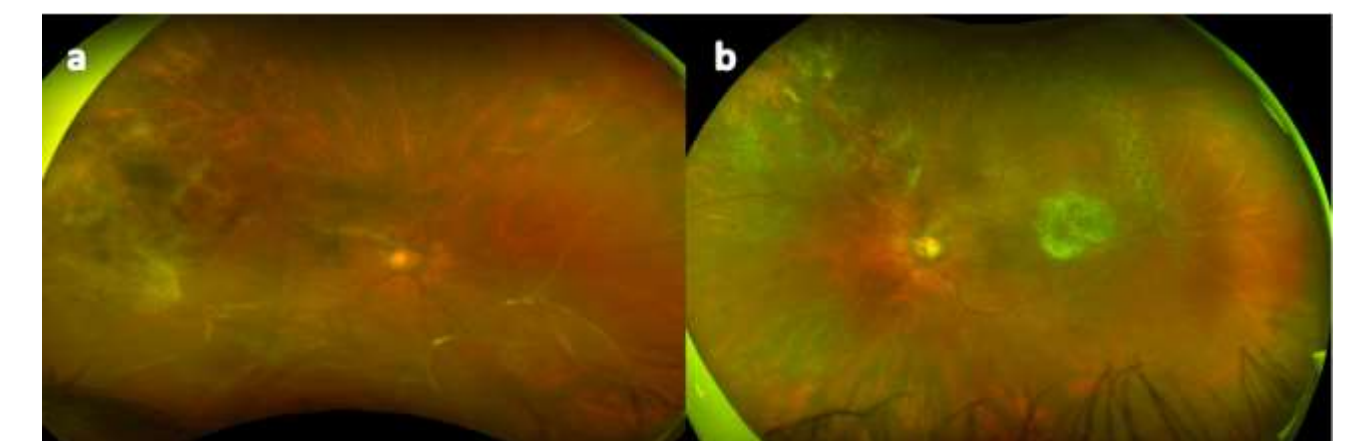


Figure 3a: Right-eye-wide field photo after healing the all-retinitis patches and the appearance of an inferior retinal detachment

Figure 3b: left eye with healed all retinitis patches and superotemporal laser barrage.

Discussion and conclusion

This case demonstrates the severe risk of disseminated CMV infection, such as CMV retinitis, in patients undergoing Bendamustine-based therapy, especially when combined with prior Rituximab treatment. Profound immunosuppression, including severe lymphocytopenia and low CD4 counts, increases the susceptibility to CMV reactivation, highlighting the importance of close monitoring for viral infections in these patients. Our patient's course involved complicated management of CMV retinitis with antiviral resistance and drug-related toxicity, ultimately requiring multiple treatment adjustments. Despite the challenges, timely interventions, including intravitreal injections, systemic antiviral therapy, and supportive care (e.g., G-CSF for neutropenia), contributed to a significant recovery in vision and clearance of CMV viremia.

In conclusion, this case illustrates the importance of vigilant monitoring for CMV reactivation in oncology patients receiving Bendamustine, emphasizing early detection and aggressive management to mitigate the risk of severe infection and complications.