

## Retinochoroiditis in acute Epstein-Barr virus infection

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**SUMMARY** The case is reported of a 17-year-old male with secondary glaucoma and retinochoroiditis complicating acute clinical infectious mononucleosis. The diagnosis was confirmed by Epstein-Barr virus specific serology. Toxoplasmic infection was initially suspected. The differential diagnosis and relevant literature are discussed.

A recent awareness of the role of the Epstein-Barr virus (EBV) in ophthalmic diseases exists.<sup>1-5</sup> We describe a patient which further substantiates this association.

### Case report

A 17-year-old male presented with pain and blurred vision in the left eye. Three weeks previously he had had an influenza-like illness with sore throat and cervical lymphadenopathy. Oral erythromycin had been prescribed. Ten days later he developed a maculopapular rash on the trunk.

The visual acuity was 6/6 Snellen right and finger counting at 1/3 meter left. The right eye was white, with no evidence of anterior chamber activity. There were 1+ cells in the right vitreous cavity and a discrete area of active retinitis of less than 1 disc diameter centred on a retinal vessel superior to the macula. In the left eye there were 3+ external injection, corneal stromal oedema, multiple large keratic precipitates, a relative afferent pupil defect, 3+ anterior chamber cells, and intraocular pressure of 40 mm Hg by Goldman applanation tonometry. Koepple iris nodules were present. There were 3+ cells in the vitreous cavity and a large area of active, white, fluffy retinitis with a fresh retinal haemorrhage in its centre at the posterior pole, with overlying vitreous haze (Fig. 1). Retinal vascular sheathing was present, with staining of vessel walls on fluorescein angiography. The left optic disc was oedematous. Systemic examination revealed a fading maculopapular rash on the trunk, cervical lymphadenopathy, and mild splenomegaly. Serum electrolytes and liver function tests were normal. There were 2%

atypical lymphocytes. Serological tests for syphilis and human immunodeficiency virus were negative. Serology (Table 1) confirmed acute EBV infection and prior toxoplasma infection. EBV serology was performed by conventional immunofluorescent staining,<sup>6</sup> employing screening dilution of 1/8 for viral capsid antigen (VCA) and 1/2 for Epstein-Barr nuclear antigen (EBNA), and by peroxidase staining<sup>7</sup> following the maker's protocol.

The patient was prescribed clindamycin 450 mg, prednisolone 60 mg, and acetazolamide 1 g daily by mouth initially. The prednisolone was reduced over a 10-day period. Dexamethasone 0.1% and mydriatic



Fig. 1 Left eye. Active retinochoroiditis with optic disc oedema seen through the vitreous haze.

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Table 1 Results of antibody studies

Serum antibody	Initial	One month	Eight months
Epstein-Barr viral capsid IgG	1/16	1/16	1/32
Epstein-Barr viral capsid IgM by fluorescent staining	Positive	Equivocal	Negative
Epstein-Barr viral capsid IgM by peroxidase staining*	Positive	Negative	Negative
Epstein-Barr nuclear antigen	Negative	NT	Positive
Rheumatoid factor	Negative	Negative	Negative
Paul-Bunnell test	≥1/14336	NT	NT
Paul-Bunnell after absorption with guinea pig antigen	≥1/14336	NT	NT
Ox cell antigen	≤1/7	NT	NT
Cytomegalovirus	≤1/16	≤1/16	NT
Herpes simplex	≤1/16	≤1/16	NT
Herpes varicella zoster	≤1/16	≤1/16	NT
Toxoplasma dye test	1/256	1/256	1/512
Toxoplasma IgM ELISA	Negative	Negative	Negative

NT=not tested. \*Ipzyme True-IgM. Biological Industries Ltd, Cumbernauld, UK.

eye drops were instilled. The intraocular inflammatory signs abated rapidly and vision had recovered to 6/36 Snellen by day 7. A white, atrophic macular scar finally occurred, with surrounding pigmentation.

## Discussion

EBV infection occurs in most young adults in developed countries, producing an infectious mononucleosis (IM) syndrome of fever, tonsillopharyngitis, and lymphadenopathy. Follicular conjunctivitis is the most common ocular manifestation of acute EBV infection.<sup>8</sup> Keratitis and optic neuritis are also recognised.<sup>2,4,9</sup> Aseptic meningitis, encephalitis, transverse myelitis, Guillain-Barré syndrome, and cranial nerve palsies are occasional neurological complications of acute EBV infection.<sup>10</sup>

The differential diagnosis of chorioretinitis of infectious aetiology includes cytomegalovirus (CMV), *Toxoplasma gondii*, herpes simplex and zoster virus, and syphilitic infections.<sup>11</sup> Despite the systemic clinical and haematological similarities of acute EBV infection and acquired CMV or *Toxoplasma gondii* infections, chorioretinitis is not an established manifestation of clinical EBV infections. Raymond *et al* recently described punctate outer retinitis in a child during a clinical episode of active EBV infection.<sup>5</sup> There was no anterior uveal activity in that case. Toxoplasmic retinochoroiditis was initially suspected, as in our patient. Acquired systemic toxoplasma infection with associated retinitis is unusual and has been serologically excluded in our patient.<sup>12,13</sup> A reactivation of a

previous toxoplasmic focus seems unlikely, as there were no old chorioretinal scars. Tiedeman described multifocal chorioiditis with panuveitis in otherwise healthy patients who had serological evidence of recent or continuing chronic EBV infection, without acute IM-like illnesses.<sup>3</sup> Bonamour and Pommier described acute chorioretinitis with a positive Paul-Bunnell result but did not include fundal photographs.<sup>14</sup> Isolated case reports of retinal changes in association with IM exist<sup>15,16</sup> but do not resemble the acute chorioretinitis of either Bonamour and Pommier's patient or ours.

Ophthalmologists need to consider EBV infection among the differential diagnoses of acute retinochoroiditis and request appropriate serological tests. Ocular manifestations of EBV infection may be more widespread than suspected.

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