

CASE REPORT

# Neurological Symptoms Associated with Acute Multifocal Placoid Pigment Epitheliopathy: Treatment Dilemma and Diagnostic Issues

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## ABSTRACT

Acute multifocal placoid pigment epitheliopathy (AMPPE) is thought to be caused by vasculitis of the choroid. Central nervous system involvement is rare. We report a case of a 28-year-old male who developed blurred vision (6/12 OD, 6/24 OS). Past medical history involved non-specific viral meningitis treated with intravenous antibiotics and antivirals. Subsequently, the patient complained of recurrent headaches. Based on typical clinical findings and fluorescein angiogram, he was diagnosed with AMPPE. Visual disturbance resolved without any systemic treatment. Six months later, visual symptoms recurred and resolved spontaneously, but his headache continued. A few months later, the patient developed acute progressive neurological signs and symptoms necessitating inpatient admission. Lacunar infarcts in the CNS were found, which had not been noted in previous neuro-imaging studies. Cerebral vasculitis associated with AMPPE was diagnosed and treated with systemic steroids and immune suppression. Currently, the patient remains asymptomatic under joined care of an ophthalmologist and a neurologist.

**Keywords:** AMPPE, headache, hemiparesis, immunosuppression, steroids, viral meningitis

## INTRODUCTION

AMPPE is a rare entity causing inflammation of the choroidal vessels in apparently young, healthy patients. It affects choroidal capillaries, retinal pigment epithelium, and outer segments of the retina. In certain cases, the central nervous system becomes involved, which may have potentially fatal sequelae.

## MATERIALS AND METHODS

Single patient case report.

## CASE REPORT

A 28-year-old male presented himself in our eye clinic complaining of decreased vision in the left eye over

the last two months. A significant history of preceding non-specific viral meningitis 12 months ago was noted, which was investigated with CT, MRI scans, as well as a lumbar puncture and reported as normal. Frequent headaches since this episode were noted. These were labelled as cluster headaches which failed to respond to Cocodamol and Sumatriptan.

Examination revealed visual acuity of 6/12 OD and 6/24 OS, quiet anterior chambers, mild vitritis in the right eye, and trace of vitreous cells in the left eye. Dilated fundus examination showed multifocal placoid lesions of different stages of evolution in the right posterior pole, the most active being close to the fovea (Figure 1a). The left eye had evidence of chorioretinal scarring (Figure 1b). Fluorescein angiography of the right eye showed acute changes appearing as irregular, patchy blockage of background choroidal fluorescence surrounded by hyperfluorescent margins and scarred lesions (Figures 1c and 1d) and healed,

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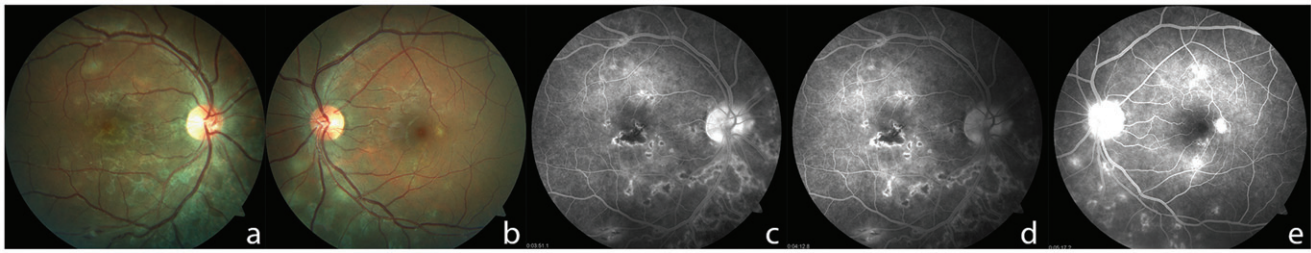


FIGURE 1. (a) Colour fundus photograph of the right eye; placoid lesions in different stages of evolution. (b) Colour fundus photograph of the left eye; chorioretinal scarring. (c, d) Fluorescein angiography of the right eye; active and scarred areas of the retina. (e) Fluorescein angiography of the left eye; pigment epithelial window defects of healed lesions.

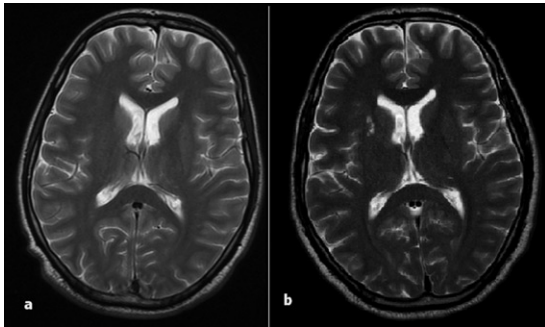


FIGURE 2. (a) Axial T2 MRI scan; normal appearance of brain at initial presentation. (b) Axial T2 MRI scan; high signal within right basal ganglia at last admission.

hyperfluorescent lesions of the left eye (Figure 1e). Tuberculosis, sarcoidosis, and syphilis were excluded on the basis of chest X-ray, serological and immunological tests. A diagnosis of AMPPE was made taking into account history, clinical features, and characteristic clinical appearances. The patient recovered with topical steroids and without any systemic treatment to a visual acuity of 6/9 OD and 6/6 OS. Six months later, he presented with recurrence of visual distortion and persistent headaches. The visual symptoms improved spontaneously, but his headaches continued.

He eventually presented to a general casualty department with severe headaches, neck stiffness, progressive muscular weakness, loss of balance, and left-sided weakness (arm and leg). Examination showed loss of power (grade 4/5 left side compared to 5/5 right side). Neuro-imaging revealed a lacunar infarct in the basal ganglia and structural changes in CNS, suggestive of a vascular event, which had not been noted in previous CT scans (Figure 2a,b). These progressive, acute neurological signs and symptoms necessitated inpatient admission and subsequent systemic immune suppression with corticosteroids. Headaches and neurological weakness responded extremely well to 60 mg of Prednisolone but recurred whenever the dosage was reduced to below 40 mg. Addition of Azathioprine controlled the symptoms and enabled a gradual reduction of steroids. Currently,

the patient remains symptom-free on a combination of low-dose steroids and Azathioprine.

## DISCUSSION

AMPPE is a rare entity causing inflammation of the choroidal vessels. The age of onset is between 20 and 40 with no sexual or racial predilection.<sup>1</sup> AMPPE usually presents with subacute unilateral visual impairment. A few weeks later, an involvement of the second eye follows.<sup>2</sup> The condition can be associated with or preceded by numerous systemic disorders, often attributed as having a viral aetiology (e.g., erythema nodosum and flu-like illnesses,<sup>2</sup> mumps,<sup>3</sup> and borreliosis<sup>4</sup>). AMPPE may also involve CNS with a wide range of neurological sequelae, ranging from headaches, meningitis, cerebral venous thrombosis to stroke, or death.<sup>5-9</sup> Cerebral vasculitis has been claimed the underlying cause of CNS involvement.<sup>5-9</sup>

Despite association with viral infections and weak correlation to certain HLA haplotypes (HLA-DR2, HLA-B7),<sup>10</sup> the etiology of AMPPE remains unclear. The diagnosis is usually made based on fundoscopic examination revealing multifocal, yellow-white placoid lesions of the posterior pole. Over time, these lesions tend to scar and appear as areas of heavily pigmented retina.<sup>1,2</sup> Fluorescein angiography typically reveals hypofluorescent lesions in the early phase followed by late hyperfluorescence in the same area.<sup>11</sup>

Although clinical findings are pathognomonic for AMPPE, it should be differentiated with serpiginous choroiditis, which is characterized by more profound choroidal atrophy and slower visual improvement. Other differential diagnoses that may be considered are acute retinal pigment epithelitis, tuberculosis, sarcoidosis, and syphilis.

AMPPE is usually a self-limiting condition with rare recurrences.<sup>2</sup> Significant visual loss with choro-retinal atrophy and macular involvement can occur. Treatment with systemic steroids may be recommended for patients with macular involvement,<sup>2,9</sup> although in our patient this was not required, as his para-foveal lesions resolved without the need

for steroids. Those with cerebral vasculitis may benefit from systemic steroids combined with Cyclosporin A.<sup>9</sup>

This case demonstrates the need for dilated fundal examination and a complete ophthalmic examination when a satisfactory diagnosis explaining that the symptoms cannot be reached in “suspected but not proven viral meningitis cases.” In our patient, the diagnosis of AMPPE prior to his second admission with neurological symptoms enabled quick and appropriate treatment with steroids and immune suppression, to which he responded well. It is likely that, without his prior diagnosis of AMPPE, he would have been treated with systemic antibiotics and perhaps systemic antivirals with presumed meningitis/cerebral vasculitis.

The management of AMPPE requires a multidisciplinary team approach involving ophthalmologists, neurologists, and neuro-radiologists. Close hematological monitoring subsequent to immune suppression may be necessary. Although this may be self-limiting, the condition may be potentially fatal.

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### DECLARATION OF INTEREST

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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