Acute Posterior Multifocal Placoid Pigment Epitheliopathy versus Vogt-Koyanagi-Harada Disease: Tomographic Characteristics

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Abstract

Objective: To report a case of a male patient with acute posterior multifocal placoid pigment epitheliopathy (APMPPE) mimicking acute Vogt-Koyanagi-Harada (VKH) disease, discuss imaging findings and review pertinent tomography literature contributing to this diagnostic challenge.

Case Report: A twenty six year-old male presented with bilateral blurring of vision for 2 weeks, for which he underwent full ophthalmologic examination, laboratory evaluation, B-scan ultrasonography, fluorescein angiography and spectral domain optical coherence tomography (OCT). OCT disclosed multifocal intra-retinal lobulated cystic fluid collections with septae of variable thickness, disruption of the photoreceptor layer with choroidal thickening and hyper-reflectance in outer retinal layers.

Conclusions: APMPPE and acute VKH can present with substantial overlap in symptoms, signs and ophthalmic imaging characteristics. OCT offers valuable information about both shared and different features. A holistic approach is necessary to reach a proper diagnosis and plan treatment and follow up.

Keywords: Acute posterior multifocal placoid pigment epitheliopathy; Vogt-Koyanagi-Harada disease; Fluorescein angiography; Optical coherence tomography.

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Introduction

Acute posterior multifocal placoid pigment epitheliopathy (APMPPE) is an idiopathic bilateral condition typically affecting healthy young adults without gender predilection. It is characterized by rapid loss of central vision, and multiple post-equatorial, well-defined, round, placoid, gray-white lesions at the level of the retinal pigment epithelium (RPE) with classic fluorescein angiographic findings[1]. Approximately one-third of the patients give a history of a flu-like syndrome antedating the onset of visual symptoms[2]. It is generally of favorable prognosis with spontaneous resolution of these lesions with significant visual improvement that typically occurs within a few weeks[3].

Vogt-Koyanagi-Harada (VKH) disease is an autoimmune multi-system disorder directed against melanocytes. Acute ocular

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inflammation occurs as a bilateral granulomatous panuveitis characterized by bilateral diffuse choroiditis and prominent multifocal serous exudative retinal detachments. It is often associated with extraocular manifestations in the central nervous and integumentary systems[4,5].

Since the original description of APMPPE, rare cases associated with bilateral serous retinal detachments indistinguishable from acute VKH have been reported. Earlier reports showcased various ocular imaging findings including fluorescein angiography (FA), Indocyanine green angiography (ICG) and fundus autofluoresence. More recent reports aimed to document diagnostic clues evident on ocular coherence tomography (OCT)[6].

In this report, we document the clinical and imaging findings in a 26-year-old patient presenting with overlapping features between APMPPE and acute VKH. We also review relevant literature regarding diagnostic clues pertinent to both entities.

Case Report:

A 26 year-old healthy male presented with profound bilateral blurring of vision for two weeks. He denied any previous eye problems. This was preceded by a mild fever and arthralgia. He was examined elsewhere and told to have an autoimmune condition that warrants treatment with steroids. He was started on 1g/Kg intravenous methylprednisolone for 2 days followed by 70mg of oral prednisone. He reported only mild improvement of his symptoms (blurring of vision) since starting this regimen 1 week ago.

Ophthalmic evaluation upon presentation included best-corrected visual acuity (BCVA), intraocular pressure (IOP), slit-lamp examination, funduscopy using slit-lamp non-contact lenses, indirect ophthalmoscopy with scleral depression, FA and OCT. A rheumatological screening was also performed.

Ocular examination revealed BCVA of 0.2 in the right eye and 0.1 in the left eye. Anterior segment exam boasted bilateral anterior uveitis (+3 cells in both eyes). IOP was 12mmHg in both eyes. Funduscopy showed bilateral multifocal exudative retinal detachments more in the posterior pole, involving the macular area and rather bullous temporally in the right eye. The optic nerve head was mildly hyperemic bilaterally. Indirected ophthalmoscopy with scleral depression showed no snow banking or peripheral vasculitis or retinochoroiditis in both eyes.

FA revealed multiple punctate hyperfluorescent lesions at the level of retinal pigment epithelium (RPE) that gradually enlarge in the early transit phase followed by multilobular pooling of dye in the subretinal space in later phases (Figure1). B-Scan ultrasonography showed mild choroidal thickening.

Spectral domain OCT showed large multifocal hyporeflective cystic collections of sub-retinal and intraretinal fluid with septae of variable thickness (some cysts were loculated and occupying the inner/outer photoreceptor junction, more obvious in the left eye) with a thickened choroid. Fluid was also found to be dispersed among different neuroretinal layers. There is a layer of hyper-reflective material on top of the encysted fluid (Figure2).

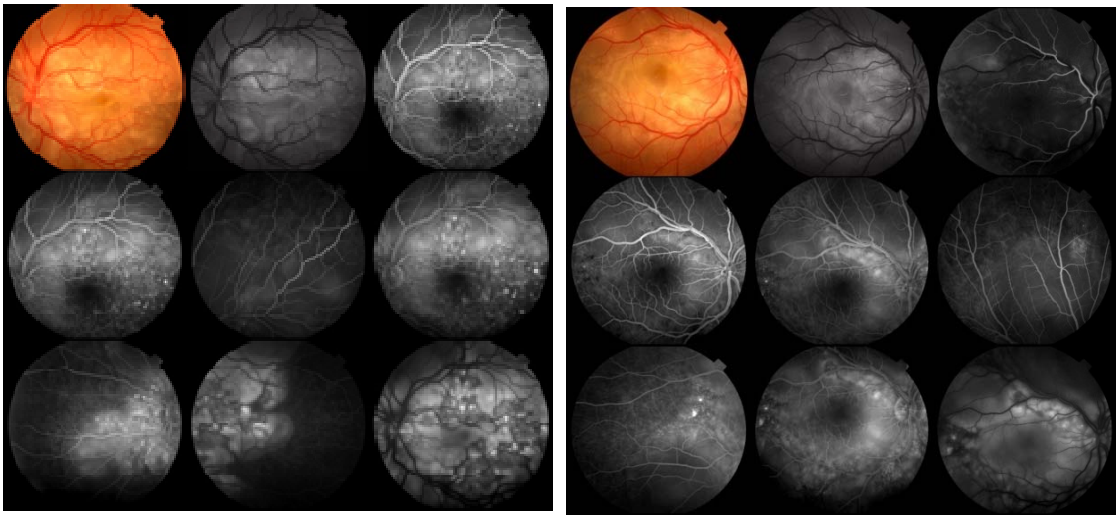

Fig 1. Fundus photographs show multifocal posterior placoid lesions involving the posterior pole in both eyes. Fluorescein angiography of both eyes shows early multifocal hyperfluorescent punctate lesions with pooling of dye in the subretinal space in subsequent frames

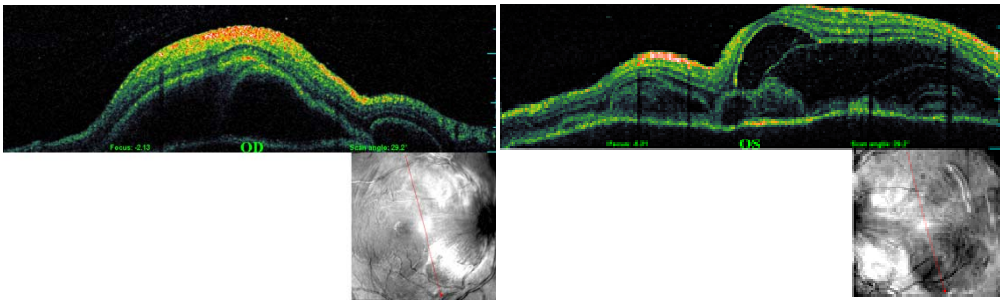

Fig 2. Spectral domain ocular coherence tomography sections of both eyes revealing large multi-loculated intraretinal and subretinal collections of fluid with inner/outer photoreceptor segment disruption involving the macula. Note the variable thickness of the septae forming the cystic spaces.

Our working diagnosis in this case was atypical APMPPE overlapping with acute VKH. The patient was kept on oral prednisone and received Pred Forte eye drops every 2 hours with cyclopentolate three times daily for both eyes. Meanwhile, he was referred to the rheumatology service for a uveitis work up. His screening tests including HLA-DR4 were all negative. He refused a lumbar puncture. His oral steroids regimen was tapered slowly over a period of 3 months. The patient had to travel abroad but a communication from his eye doctor in Qatar revealed that his uveitis is quiescent and that he enjoyed 6/6 vision 5 months after his initial presentation. No sequelea were reported by the patient or his care provider.

Discussion:

OCT findings have been described in the literature for both APMPPE and VKH. In VKH, classic tomgraphic findings include a

multi-lobular serous retinal detachment, which corresponds on FA to late-phase dye pooling[7]. Characteristic features associated with the serous detachments in acute VKH include multiple lobulated septae, which are responsible for the compartmentalization of fluorescein dye, leading to the characteristic imaging features. Those septae are variable in location and are thought to be made of fibrin[7], although some reports postulated an intra-retinal origin. Reported OCT findings in APMPPE include increased reflectance of the outer retinal layers with normal retinal thickness[1].

The case at hand is a good example of a subset of patients with APMPPE displaying clinical and imaging features that overlap with acute VKH. The antedating short febrile illness and the whitish plaqoid lesions on funduscopy without vitritis resemble APMPPE. The multifocal exudative retinal detachments coupled with the florid anterior uveitis point towards VKH, although there are no systemic features like tinnitus or dysacusis to definitively make that diagnosis. Cerebrospinal fluid (CSF) pleocytosis is common in VKH and persists for weeks after presentation[8], but the patient refused to undergo a spinal tap. OCT did not show evident retinal pigment epithelial folds, described by some reports to be of benefit to diagnose and monitor treatment for atypical VKH cases[9].Our case demonstrated a hyper-reflectance in the outer retinal layers especially in the left eye, an OCT clue reported by Souka et al in an APMPPE case report[2]. We did not notice RPE hypertrophy or fibrosis as seen in two of the six patients with acute VKH studied by Park et al.[10]. Tanigawa et al. reported disruption of the membranous layers in the intraretinal cystic space in the acute phase of a similar case[11].

Optic disc hyperemia and an unusually exudative neurosensory detachment have been reported in APMPPE. Montero et al reported massive intraretinal cystic edema with disruption of the inner/outer photoreceptor junction in the early stages of a case with APMPPE[6]. Choroidal thickening was found by Nakai et al to be useful for longitudinal evaluation of VKH activity[12], but this can also be an overlapping feature in patients with APMPPE [1]. Gass's original report of APMPPE did not include serous retinal detachments and choroidal thickening[3], while Wright and his team pointed out that both APMPPE and VKH may represent a continuous spectrum of the same pathology[13]. Fundus autofluorescence findings can be helpful although they vary according to presentation and timing of treatment, with hypoautofluorescence suggesting RPE atrophy and hyperautofluorescence denoting accumulation of RPE cells as the inflammatory front moves centripetally[14].

Treatment of APMPPE with steroids remains controversial. Steroid therapy may hasten visual recovery in some cases without serious adverse effects on vision. VKH typically responds briskly to pulse steroid therapy. Initial foveal involvement appears to be important in predicting visual recovery, with more rapid improvement in cases were the foveal center is spared[11].

In summary, our case represents a further example of a diagnostic challenge where OCT findings, in conjunction with other imaging modalities, can provide useful information to distinguish between two overlapping entities, but also to highlight similar features. Those imaging characteristics will continue to add to the classic description of disease entities, and

may shed some light on their pathogenesis, approach to treatment and help formulate follow up protocols. A holistic approach is necessary to make the most probable diagnosis.

Disclosure:

The authors declare that there is no conflict of interest regarding the publication of this article.

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التهاب الظهارة الصبغية القاعي متعدد البؤر الحاد مقابل مرض فوجت– كوياناجي– هارادا: خصائص التصوير الضوئي المقطعي

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الملخص

الهدف: تعرّف حالة مريض يعاني من حالة إلتهاب الظهارة الصبغية القاعي متعدد البؤر الحاد المتداخلة مع مرض فوجت– كوياناجب– هاراد الحاد ومناقشة مخرجات الفحوصات التشخيصية للحالة وتقديم مراجعة علمية لخصائص التصوير الضوئي المقطعي المذكورة في الأرشيف الطبي ذات الصلة بهذا التشخيص المعقّد.

الطريقة والإجراءات: تم إجراء فحص كلتا العينين بالمصباح الشقي، وفحص العينين بالأمواج فوق الصوتية، وتصوير أوعية قاع العين بالفلوريسين، وإجراء تصوير ضوئي مقطعي لكلتا العينين لمريض يبلغ من العمر ست وعشرين سنة يشكو من تدن في حدة الإبصار في كلتا العينين لمدة أسبوعين.

النتائج: أظهر التصوير الضوئي المقطعي وجود تحوصل مائي متعدد البؤر داخل نسيج الشبكية مع حواجز متغيرة السماكة، مع اختلالات في طبقة المستقبلات الضوئية وتخثّن في مشيمية العين وفرط انعكاسي في طبقات الشبكية الخارجية.

الاستنتاجات: إلتهاب الظهارة الصبغية القاعي متعدد البؤر الحاد ومرض فوجت– كوياناجي– هاراد الحاد يتداخلان بشكل وثيق في الأعراض والعلامات وخصائص التصوير العيني. يقدم التصوير الضوئي المقطعي معلومات قيمة عن ملامح هاتين الكينونتين المتشابهة والمختلفة على حد سواء. لا بد من مقاربة شمولية للحالات المماثلة من أجل الوصول إلى تشخيص دقيق وانتهاج خطتي علاج ومتابعة مناسبتين.

الكلمات الدالة: التهاب الظهارة الصبغية القاعي متعدد البؤر الحاد، مرض فوجت– كوياناجي– هارادا، تصوير أوعية قاع العين بالفلوريسين، التصوير الضوئي المقطعي.