CORRESPONDENCE

Optical coherence tomography angiography imaging of Purtscher retinopathy

Dear Editor:

Purtscher retinopathy is an occlusive microvasculopathy associated with trauma and was first described by Purtscher.[1] It usually results from head trauma or chest compression. A similar condition as a result of nontraumatic cause is referred to as "Purtscher-like retinopathy." The diagnosis is primarily clinical and includes unilateral or bilateral sudden vision loss with fundus features, including cotton wool spots, intraretinal hemorrhage, and pathognomonic Purtscher flecken (retinal whitening with periarteriolar sparing). These features result from the occlusion of precapillary arteriole possibly from fat embolus or leukoaggregates.[2] Fluorescein angiogram may show blocked choroidal fluorescence because of retinal whitening and/or hemorrhage and nonperfusion of the smaller retinal arterioles or capillaries.[3,4] The outcome is variable and depends upon optic disc involvement, fluorescein leakage, choroidal infarcts, and retinal capillary nonperfusion.[2] The presence of retinal capillary nonperfusion is associated with poor visual outcome.[2] We demonstrate capillary nonperfusion in the macular area using swept source optical coherence tomography (SS-OCT) angiography (OCTA) in case of Purtscher retinopathy that helped us to prognosticate the patient without the need of fluorescein angiography. This is the first report of OCTA in Purtscher retinopathy to the best of our knowledge.

A 17-year-old male presented with sudden-onset decreased vision in his left eye after chest compression injury with a heavy weight 2 weeks ago. The patient had no other systemic complaints. The right eye was normal with unaided visual acuity of 20/20. Best-corrected visual acuity (BCVA) in the left eye was 20/1200. Anterior segment of left eye was unremarkable apart from the presence of relative afferent pupillary defect. Dilated fundus examination of the left eye showed retinal whitening at the posterior pole with periarteriolar sparing (Fig. 1a) and flame-shaped hemorrhages. SS-OCT B-scan (Topcon Inc, Tokyo, Japan.) showed hyper-reflectivity of the inner retinal layers and ellipsoid layer defect at fovea (Fig. 1b). SS-OCT angiography using 4.5 × 4.5 mm cube showed pruning of both superficial (Fig. 1c) and deep capillary plexus (Fig. 1d). The patient was diagnosed with Purtscher retinopathy and was apprised of the situation.

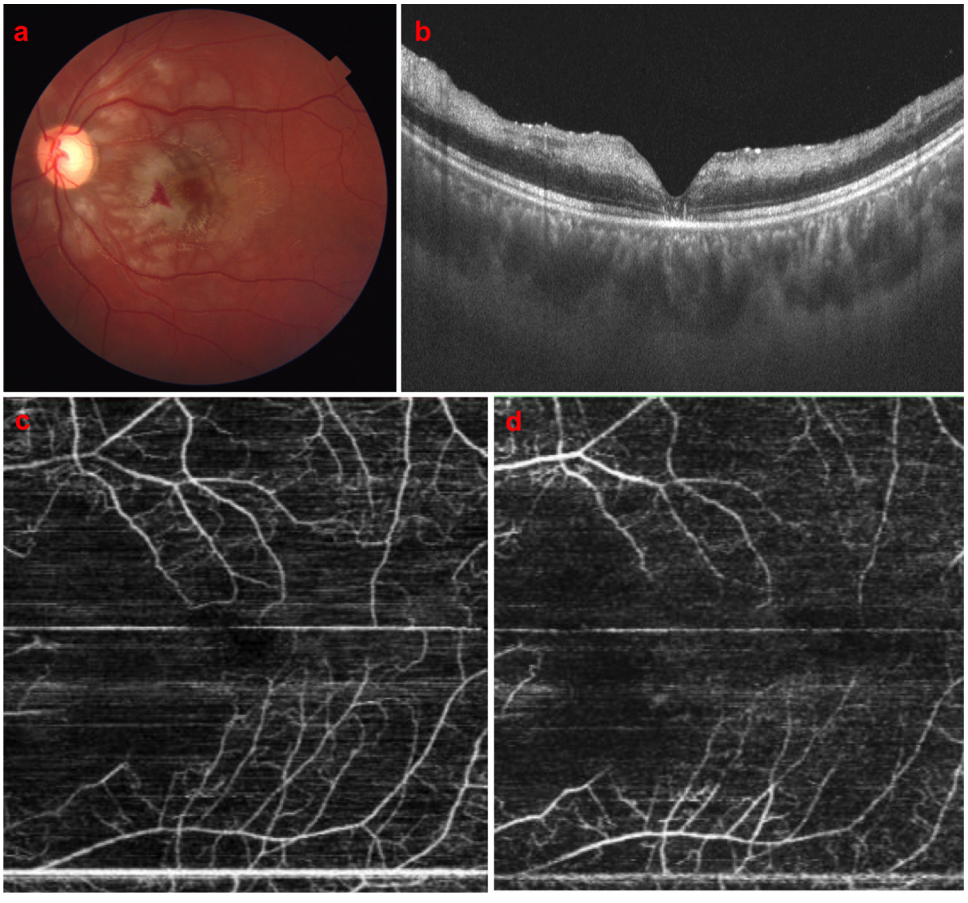

Fig. 1—Color fundus photograph in the acute phase showing retinal whitening at the macula with periarteriolar clear zone (a). OCT B-scan shows hyper-reflectivity of the inner layers and distorted outer retinal layers at the fovea (b). A 4.5 × 4.5 mm macular cube OCT with en face imaging of the superficial (c) and deep capillary plexus (d) shows areas of absent vascular markings between the arcades. OCT, optical coherence tomography.

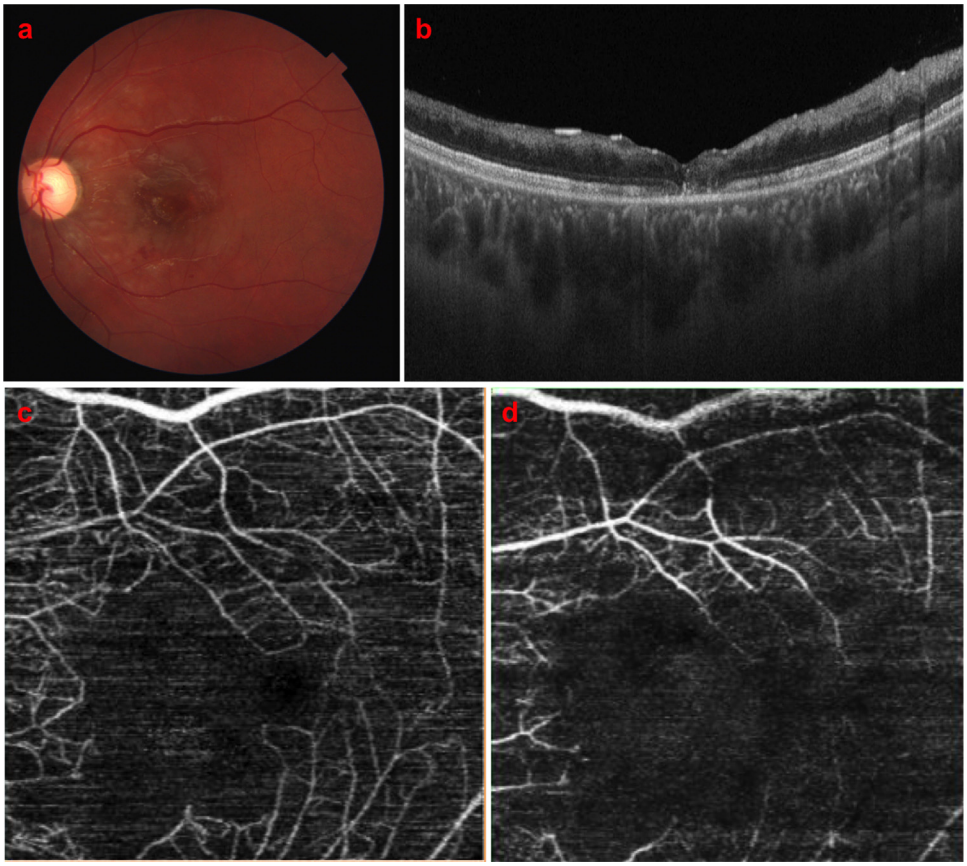

Fig. 2—Color fundus photograph at 1-month follow-up shows resolution of retinal whitening (a). OCT B-scan shows inner retinal atrophy with loss of retinal architecture (b). A 4.5 × 4.5 mm macular cube OCT with en face imaging of the superficial (c) and deep capillary plexus (d) shows no change from first visit. OCT, optical coherence tomography.

One month later, BCVA in the left eye remained 20/1200, and fundus showed resolution of retinal whitening, arterial attenuation, and disc pallor (Fig. 2a). SS-OCT showed atrophy of the inner retinal layers with disorganization and persistent outer retinal layer abnormalities at the fovea (Fig. 2b). SS-OCT angiography of superficial (Fig. 2c) and deep capillary plexus (Fig. 2d) showed no change from the initial picture.

OCT angiography is a recently introduced rapid and noninvasive tool for assessment of retinal vasculature and can provide us with depth-resolved detection of abnormalities in microvasculature. In this case, OCT angiography was able to demonstrate shut down of both the superficial and deep capillary network of the retina in the macular area and correlated with the findings (hyper-reflectivity of inner retinal layers) on the conventional B-scan OCT images. It thus helped in prognostication to the patient as well as avoided the need of invasive procedures such as fluorescein angiography.

To conclude, OCT angiography is a useful tool for the assessment of retinal vasculature in Purtscher retinopathy.

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