

Multimodal Imaging in Purtscher Retinopathy

Purtscher retinopathy is a rare condition that occurs in patients with a history of trauma distant from the eyes.¹ Typical manifestations, including cotton wool spots, retinal hemorrhages, and optic disk swelling, are confined to the posterior pole, and often appear bilaterally. The pathogenesis underlying Purtscher retinopathy is not clear, but might be related to the embolic occlusion of precapillary retinal arterioles. Diagnosis is usually made on clinical grounds, and supported by fluorescein angiography. For the majority of cases, visual function could recover to various extents without treatment.²

We hereby reported a case of a 65-year-old man who complained of decreased vision 2 days after a motor vehicle accident. No apparent ocular trauma was observed, but contusion of his forehead and fractures of two ribs were noted. Best-corrected visual acuity was 20/200 and 20/800 in his right eye and left eye, respectively. Anterior segments were normal except for mild senile cataracts. Ophthalmoscopy revealed bilateral, nearly symmetric retinopathy with multiple cotton wool spots and flame hemorrhages (Figure 1A); therefore, we only presented images of his left eye. Optical coherence tomography angiography revealed flow voids in both the superficial capillary plexus (Figure 1B) and deep (Figure 1C) capillary plexus, which resulted in a markedly enlarged foveal avascular zone (4.04 mm²). Fluorescein angiography showed multifocal filling defect and irregularly enlarged foveal avascular zone (Figure 1D). Wide-field swept-source optical coherence tomography (Figure 1E) detected inner limiting membrane detachment, hyperreflectivity of the inner/middle retinal layers (i.e., paracentral acute middle maculopathy, Figure 1E), and disruption of ellipsoid zone (Figure 1E).

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With the ability to delineate superficial capillary plexus and deep capillary plexus separately, optical coherence tomography angiography has been applied to evaluate many retinal vascular diseases in clinical practice.³ Herein, we found that optical coherence tomography angiography clearly revealed capillary obliteration of both inner and outer retinal plexuses in an acute Purtscher retinopathy case, although the projection artifact from superficial large vessels were not ideally eliminated. Our findings were consistent with the previous report of a chronic Purtscher retinopathy case.⁴ Besides, we also detected the disturbance of macular ellipsoid zone from widefield swept-source optical coherence tomography, which might be associated with a poor visual acuity. In conclusion, optical coherence tomography-based multimodal imaging can be used to visualize capillary nonperfusion, quantify foveal avascular zone, and detect ellipsoid zone defect in acute Purtscher retinopathy.

Key words: multimodal imaging, OCT angiography, Purtscher retinopathy.

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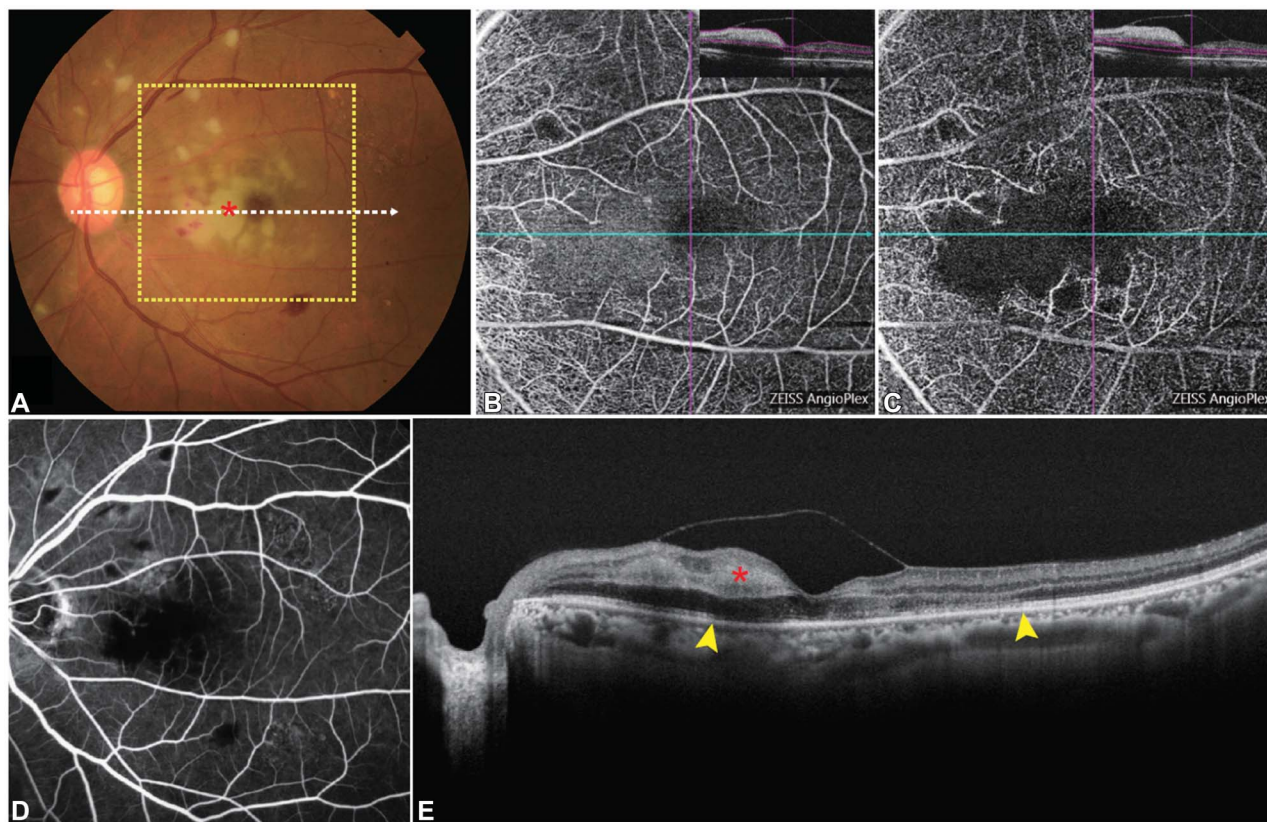


Fig. 1. Multimodal images in the left eye of a patient with Purtscher retinopathy. Color fundus photograph shows multiple cotton wool spots and flame-shaped hemorrhages (A) confined to the posterior pole. Capillary flow voids at both superficial capillary plexus (B) and deep (C) capillary plexus are visualized by optical coherence tomography angiography. Fluorescein angiography showed multifocal filling defect and irregularly enlarged foveal avascular zone (D). Widefield swept-source optical coherence tomography (E) reveals inner limiting membrane detachment, hyperreflectivity of the inner/middle retinal layers consistent with paracentral acute middle maculopathy (asterisks), and disruption of ellipsoid zone (between arrowheads).

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