

# Purtscher Retinopathy Associated with Valsalva Retinopathy after Accident

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## Abstract

**Purpose:** To report a case of purtscher retinopathy associated with valsalva retinopathy after car accident

**Methods:** A 54-year-old man presented with a sudden visual loss in his left eye after car accident. Fundus examination of the left eye showed cotton-wool spots and retinal hemorrhages in the posterior pole associated with subhyaloid hemorrhage in macula.

**Results:** Fundus examination showed typical findings for both purtscher retinopathy and valsalva retinopathy.

**Conclusion:** These findings suggest the purtscher retinopathy features has occurred as a result of valsalva maneuver in our case.

**Keywords:** Purtscher Retinopathy, Car Accident, Valsalva Maneuver, Trauma

*Iranian Journal of Ophthalmology 2009;21(1):70-72 © 2009 by the Iranian Society of Ophthalmology*

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## Introduction

Purtscher retinopathy is characterized by bilateral loss in visual acuity or visual field as a consequence of trauma and involves ischemic retinal whitening and retinal hemorrhages in posterior pole.<sup>1</sup> This condition usually seen after compressive injuries to the trunk, bone fractures or motor vehicle injuries.<sup>2</sup> Otmar Purtscher first described this syndrome in 1910 as scattered retinal whitening and multiple retinal hemorrhages in the posterior pole after traumatic conditions.<sup>3</sup>

Purtscher-like retinopathy is usually seen in nontraumatic disorders such as in pancreatitis, chronic renal failure, collagen

vascular disease, thrombotic thrombocytopenic purpura (TTP) and hemolytic uremic syndrome (HUS).<sup>3,4</sup> There is vast variation in visual prognosis and there is no proven treatment.<sup>1</sup> In this paper, we report a case with sudden visual loss after car accident.

## Case report

A 54-year-old man was admitted with sudden visual loss in his left eye after car accident that he was under his car 36 hours ago; His visual loss occurred from 12 hours ago.

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Received: November 6, 2007

Accepted: May 28, 2008

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Best corrected visual acuity (BCVA) was  $20/20$  in the right eye and  $20/400$  in the left. Ocular motility was normal with no pupillary defects. The anterior segment examination was normal bilaterally. Intraocular pressure (IOP) was normal (OU). There was no history of other diseases.

The ophthalmoscopy of the left fundus revealed cotton-wool spots and superficial retinal hemorrhages in the posterior pole and a large subhyaloid hemorrhage in the inferior macula (Figure 1) that was compatible with purtscher retinopathy associated with Valsalva retinopathy.



**Figure 1.** Fundus photograph of the left eye, showing cotton-wool spots and retinal hemorrhages and a subhyaloid hemorrhage

After two months his BCVA changed to  $20/100$  in his left eye without treatment, and much of subhyaloid hemorrhage and cotton-wool spots were resorbed.

## Discussion

There is a wide spectrum of pathogenesis for Purtscher and Purtscher-like retinopathy including vasospasm, a disorder of the microcirculation, hydrostatic injury, and microembolism of fat, air, and amniotic materials.<sup>5</sup> In Agrawal et al study of 15 patients, most cases had bilateral

involvement. The cotton-wool spots, retinal hemorrhage and Purtscher flecken which had polygonal edges and lay in the inner nuclear layer resolved within 6 months in all eyes. The most common chronic signs were optic disc and retinal pigment epithelium (RPE) atrophy. Without treatment, half of cases gained at least 2 Snellen lines of visual recovery.<sup>1</sup>

Treatment with systemic steroids may improve visual outcome in some patients but at present there is little evidence to support such treatment routinely,<sup>6</sup> however without treatment our patient gained BCVA of  $20/100$  after two months in his left eye.

Siegler et al reported a Purtscher-like retinopathy in hemolytic-uremic syndrome (HUS).<sup>7</sup> We can think Valsalva maneuver as a reasonable cause for it. Blodi et al reported a case of unilaterally involvement of Purtscher-like retinopathy of a patient after uncomplicated retrobulbar anesthesia.<sup>8</sup> Kocak et al reported a patient with unilateral Purtscher-like retinopathy after weight-lifting, and described Valsalva maneuver as a pathogenesis for it.<sup>9</sup>

Chandra et al reported a patient with Purtscher retinopathy and traumatic optic neuropathy in one eye and Valsalva retinopathy in the other eye, after compressive thoracic injury.<sup>10</sup> However, it is very rare that Purtscher retinopathy associated with Valsalva retinopathy occurs in one eye. Schipper reported five cases that Valsalva maneuver caused different harmful clinical manifestations; one of them was associated with Purtscher retinopathy.<sup>11</sup>

## Conclusion

Purtscher-like features in the fundus reasonably has resulted from Valsalva maneuver in this patient, and it can justify association of them in one eye. However we did not perform fluorescein angiography (FA) for the patient because he did not come again for FA, after accident, while it was better to do it for confirmation.

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