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CASE REPORT

Jaheed Khan
Victor Chong

Two retinal vein occlusions in a patient with venous tortuosity at the optic disc

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J. Khan (✉) · V. Chong
Department of Ophthalmology,
Kings College Hospital,
Denmark Hill,
SE5 9RS London, UK
e-mail: jaheedkhan@yahoo.co.uk
Tel.: +44-207-3464548
Fax: +44-207-346738
e-mail: victor@eretina.org

Abstract *Background:* The aetiology of occlusion is thought to differ for branch retinal vein and central retinal vein types. This communication reports on an unusual presentation of two retinal vein occlusions in one eye of a patient with optic disc tortuosity where the occlusion was thought to occur at a site usually seen in central retinal vein occlusion. *Methods:* An 88-year-old woman presented with sudden-onset painless loss of central vision. Fundal examination of the affected eye revealed one infero-temporal retinal vein occlusion affecting the macula and a second vein occlusion affecting the supero-nasal quadrant with associated optic disc tortuosity. She was investigated for cardiovascular risk factors. *Results:* Treatment had already been started for systemic hypertension and blood markers were unremarkable. Conservative management was recommended. 12 weeks later, fluorescein angiography showed no ischaemia. *Conclusion:* We report an unusual case of two co-existent and opposing retinal vein occlusions where obstruction was thought to occur at the trunk of the central retinal vein at or near the level of the lamina cribrosa, a site usually associated with the formation of hemi-vein or central retinal vein occlusion. This had occurred as a result of tortuous vasculature at the optic disc. This unusual case lends weight to previously suggested hypotheses of retinal vein occlusion.

Keywords Vein occlusion · Optic disc · Reina

Introduction

Branch retinal vein occlusion (BRVO) is one of the most common retinal vascular occlusive diseases. One common risk factor is systemic hypertension, and the cause may be related to occlusion of a branch of the central retinal vein at a site where a retinal artery shares its adventitial sheath [5]. Central retinal vein and hemi-vein occlusion are thought to be caused by obstruction of the central retinal vein or one of its two trunks at the level of the lamina cribrosa [4]. We describe a patient with systemic hypertension who presented with two retinal vein occlusions in the same eye that affected both the infero-temporal quadrant and the supero-nasal quadrant with associated tortuous retinal vein vasculature at the optic disc.

Methods

An 88-year-old woman presented to the emergency eye clinic complaining of sudden-onset painless decrease in central vision in her right eye. She had a history of treated systemic hypertension and ischaemic heart disease. She was subsequently investigated for risk factors for retinal vein occlusion.

Results

The patient's visual acuity was 10/100 in the right eye and 10/12.5 in the left. Fundal examination of her right eye showed a dense infero-temporal retinal vein occlusion

Fig. 1 A colour fundal photograph of the right eye showing the two retinal vein occlusions in opposing quadrants

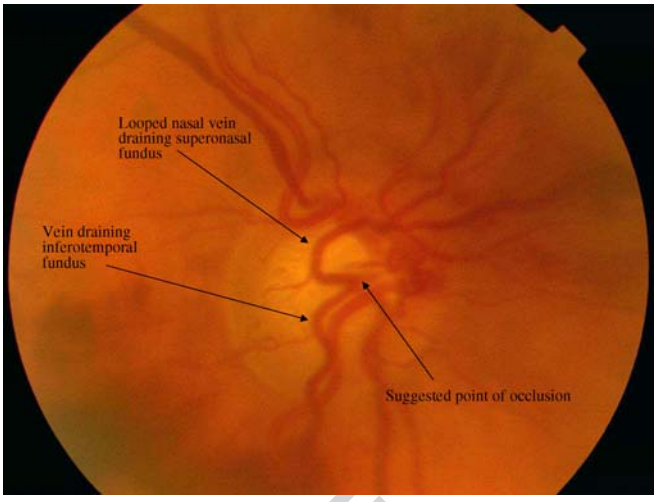

Fig. 2 A colour fundal photograph of the right optic disc detailing the tortuous vasculature and suggested site of occlusion

affecting the macula and a second retinal vein occlusion affecting the supero-nasal quadrant. The retinal haemorrhage from both vein occlusions extended just beyond the optic disc borders towards the optic cup. Her right optic disc showed tortuous retinal vein vasculature (see Fig. 1). There was no evidence of optic disc neovascularisation, but early collateral formation was noted on the nasal margins of the optic disc. Systemic blood pressure was 140/80, and full blood count, C reactive protein, lipids and clotting were normal. The erythrocyte sedimentation rate was slightly elevated, at 12, but normal for age. Conservative management was advised. Fundus fluorescein angiography was arranged 3 months later and showed no ischaemia.

Discussion

This patient appeared to have had an obstruction at the level of the lamina cribrosa causing two retinal vein occlusions in opposing quadrants. This had arisen as a result of her normal variant of optic disc vein vasculature. A branch of the central retinal vein that drained the infero-temporal fundus crossed the optic nerve and joined another branch of the central retinal vein, one that drained the supero-nasal fundus and looped before entering the optic cup. We hypothesise that venous occlusion has occurred at one trunk of the central retinal vein near the level of the lamina cribrosa. This clinical picture could be described as a trunk retinal vein occlusion (see Fig. 2) Chopdar reported that the site of collateral development could provide clues as to the site of occlusion [3]. The collateral formation at the nasal edge of the optic disc provides more evidence towards the site of occlusion being pathologically similar to a central retinal vein or hemi-vein occlusion. The presence of collaterals at the time of presentation may indicate that the two vein occlusions did not occur at the same time. The patient may have presented only once the macula became affected by the infero-temporal occlusion. The site of collateral formation also suggests that the supero-nasal occlusion may have occurred earlier, although this is difficult to confirm. The presumed site of occlusion and the presence of haemorrhage still suggest that the two vein occlusions occurred either simultaneously or close together in time. Normal variants of the retinal artery [2] and the retinal vein [1] have been described in small numbers of patients. We therefore report an unusual case of two retinal vein occlusions where obstruction occurred at the level of the lamina cribrosa, a site usually associated with the formation of hemi-vein or central retinal vein occlusion. This case lends weight to previously suggested hypotheses of retinal vein occlusion formation.

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