Recurrent vitreous hemorrhage secondary to retinal vessel avulsion

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Spontaneous vitreous hemorrhage is a rare entity, present in 7 out of 100,000 inhabitants. It is associated with different pathologies; however, it is rarely reported to be caused by retinal vessel avulsion syndrome. In the present manuscript, we report a case of avulsion of retinal vessels associated with recurrent vitreous hemorrhage managed, at first, by photocoagulation, but due to the several recurrence of bleeding, the patient went into surgical management.

Key words: Light coagulation, retinal vessels, vitrectomy, vitreous hemorrhage

Spontaneous vitreous hemorrhage is a rare entity, present in 7 out of every 100,000 inhabitants.[1] Among the main causes, we can consider proliferative retinopathies (diabetic retinopathy, occlusive venous retinopathy, and ischemic retinopathy of multiple origins), posterior vitreous detachment, and ocular trauma. However, recurrent vitreous hemorrhages were rarely reported to be caused by retinal vessel avulsion syndrome (RVAS).[2-4]

The RVAS is a part of a clinical picture characterized by recurrent vitreous hemorrhages caused by avulsion of the retinal vessels, which cease only after vessel occlusion.[5] The vitreous hemorrhage is caused by the persistent vitreous traction that breaks its wall or forms small accessory capillaries.[5,6] The aim of this article was to present the case of a patient with recurrent vitreous hemorrhage associated with avulsion of a peripheral vessel of the retina.

Case Report

A 62-year-old female patient presented with a sharp decrease in vision in her right eye (OD). Her best-corrected visual acuity (BCVA) was 20/1500 in the OD and 20/20 in the left eye (OS), intraocular pressure was 13 mmHg, and anterior segment was normal in both eyes. No pathological history of interest was elicited such as trauma or metabolic diseases such as diabetes, hypothyroidism, or others. Dilated fundoscopy showed a small operculum attached to the avulsed vessel that may have resulted from a slight retinal tear, but we could not evaluate the posterior pole due to vitreous hemorrhage in OD. The OS fundus was normal. Ocular ultrasound evidenced concordant dense opacity with vitreous hemorrhage [Fig. 1A1] and an attached retina in OD.

At 4 weeks of follow-up, there was a progressive recovery with BCVA of 20/25. In the fundoscopy, there was an evidence of a mobile and avulsed peripheral vessel in the temporal sector [Video 1] associated with hemorrhagic remnants on the retinal surface [Fig. 1A2-B5]. In the following 8 weeks, the vitreous hemorrhage resolved with visual recovery to 20/20. The patient refused to undergo a surgical treatment, so the vessel was photocoagulated peripherally.

At 8 months of follow-up, the patient had recurrence of vitreous hemorrhage and peripheral vascular avulsion associated with bleeding persisted, so she was treated again with photocoagulation due to her refusal to undergo surgery [Fig. 2a]. Eighteen months later, the vitreous hemorrhage recurred again associated to the lesion, similar to what was observed on the optical coherence tomography where the cross-section of the avulsed vessels was seen [Fig. 2b]; therefore, it was decided to perform a 23G pars plana vitrectomy and treat the lesion with endolaser. The patient recovered 20/20 vision in OD without further complications [Fig. 2c].

Discussion

Recurrent vitreous hemorrhage produced by avulsion of retinal vessels is part of an uncommon and poorly reported association, and these are often recurrent as long as the vessel remains intact.[1] The bleeding intervals vary from few months to several years.[6]

There are multiple causes for vitreous hemorrhage; thus, the history of trauma, diabetes mellitus, arterial hypertension, and atherosclerosis were considered as differential diagnosis. No vascular alterations or signs of occlusion due to atheroma or thrombosis were observed in the fundoscopy. The only finding was the avulsion of a retinal vessel in the temporal superior region, a location reported previously two similar articles.[5,6] Moreover, a small operculum attached to the avulsed vessel could also be observed resulting from a slight retinal tear.

Many forms of noninvasive therapy have been described to stop the rebleeding such as argon laser photocoagulation, cryopexy, and scleral indentation, among others. These

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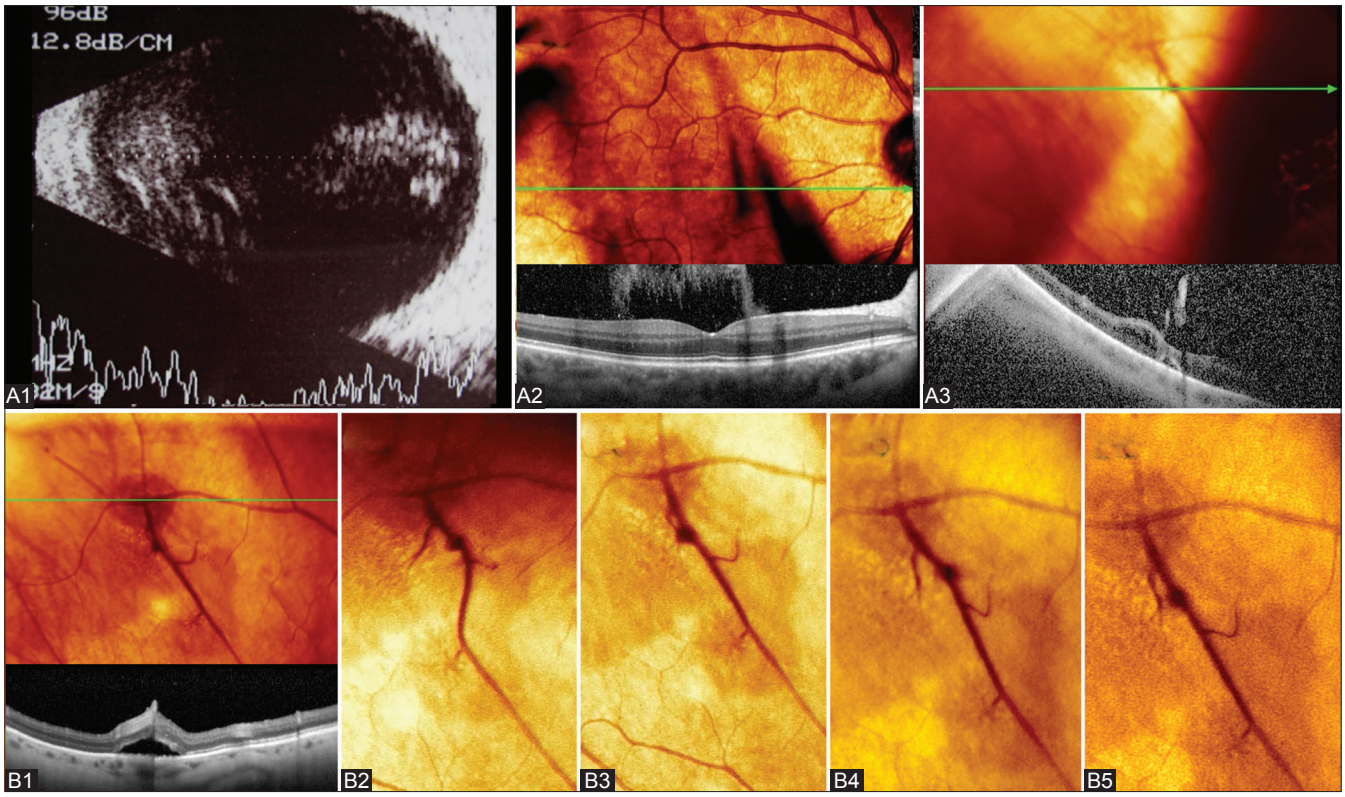

Figure 1: (A) Characteristics of the patient eye at the moment of her admission. (A1) Ocular echography. (A2) Infrared retinography and optic coherence tomography of the macula. (A3) Infrared retinography and optic coherence tomography of the avulsed retinal vessel. (B) After the reabsorption of the vitreous hemorrhage. (B1) Infrared retinography and optic coherence tomography of the avulsed retinal vessel. (B2-B5) Avulsed retinal vessel in multiple captures

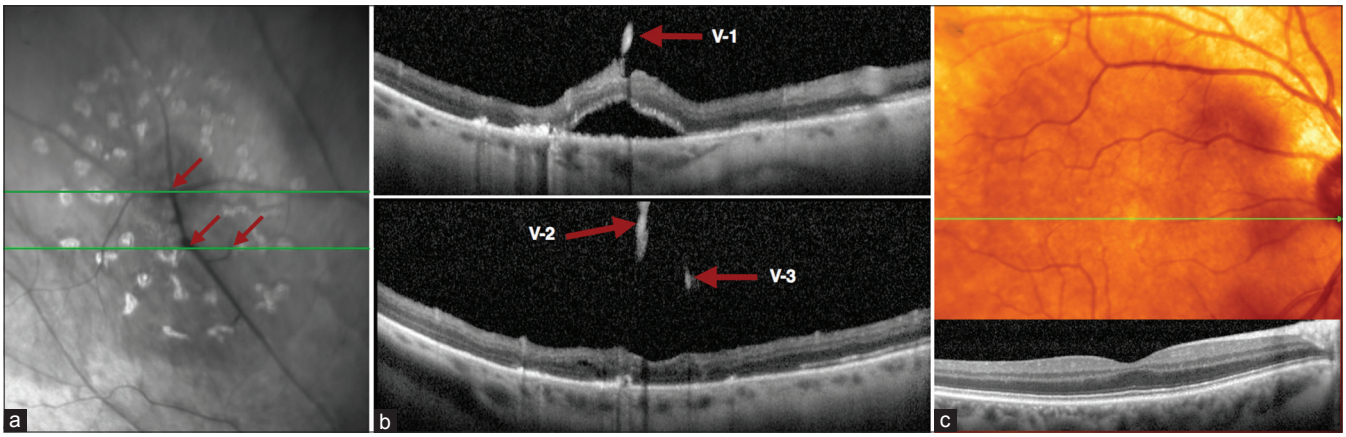

Figure 2: (a) Avulsed retinal vessel with laser scars due to photocoagulation. (b) Different cuts of the avulsed retinal vessel in the optical coherence tomography where V-1, V-2, and V-3 represent the cross-section of the avulsed vessel. (c) Infrared retinography and optic coherence tomography of the macula after surgical approach by pars plana vitrectomy

methods aim to occlude the vessel and relieve traction of the vitreous; however, it is complicated to completely occlude the avulsed vessel with any of these methods, particularly when there is a greater distance from the plane of the retina.[7] The use of infrared diode lasers with long pulses has been reported as an effective method for remission of the rebleeding. Nevertheless, studies are still needed to prove its effectiveness.[8]

Clinical case remission was observed only after rupture of the vascular segment by pars plana vitrectomy. Although it is a procedure used mainly in vitreous hemorrhages due to proliferative diabetic retinopathy with favorable prognoses,[9] its application for treating the avulsed retinal vessel was helpful and there was no recurrence of the illness.

Conclusion

Recurrent vitreous hemorrhages may be associated with RVAS as evidenced by our case and its management is favorable with pars plana vitrectomy.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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