An unusual trigger cause of branch vein occlusion and vitreous hemorrhage from prepapillary arterial loop: A case report

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Case report

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Abstract

Background To describe a rare case of vein occlusion and vitreous hemorrhage as complications of prepapillary arterial loop. In this report, sinusitis was recognized as an uncommon cause of bleeding from this optic disc abnormality. Case presentations: A case of a-33-old-man suffering from acute sinusitis and presented with vitreous hemorrhage. Etiologic investigations were normal. Fundus examination and angiography confirmed the diagnosis of prepapillary arterial loop and a mild peripheral vein occlusion. Good prognosis was noted after the treatment of sinusitis and water drink. Conclusions Sinusitis should be considered as a possible trigger factor of bleeding from prepapillary loops in any healthy young patient. An early treatment of the sinus inflammation may lead to a good prognosis.

Background

Prepapillary arterial loops are rare vascular abnormalities seen on and around the optic disc [1]. They are usually asymptomatic [1]. However, they can lead to many complications including retinal arterial occlusion and vitreous hemorrhage [2,3,4]. Moreover, they were frequently associated with delayed retinal vein flow [3]. Bleeding was responsible for a late and retrospective diagnosis of the loop [4,5]. In the previous reports [2,4], the trigger causes of bleeding from the loops were the physical straining and the trauma. To our knowledge, vein occlusion was not common. Herein, we report an uncommon occurrence of vitreous hemorrhage and mild vein occlusion which were resulted from vascular loop and triggered by acute sinusitis.

Case Presentations

A 33-year-old man suffering from an acute sinusitis, presented with a 5-day-history of sudden-onset blurred vision in his left eye. Symptoms were not associated with trauma or physical straining. He denied any past history of diabetes and hypertension. At admission, the best corrected visual acuity was 20/20 in his right eye and finger account in the left eye. No refractive error was revealed. Slit lamp examination showed no abnormalities in the right eye. The examination of the anterior segment of the left eye was normal. Fundus examination of the left eye showed dense hemorrhage and vascular abnormality in the upper area above the optic disc (Fig.1A). Ocular pressure was 13 in both eyes. Results of an extensive systemic workup were unremarkable. The patient started an abundant drink of water for the vitreous bleeding and was treated with antibiotics and corticosteroids for the sinusitis. Few days later, the funduscopy revealed a prepapillary vascular loop originated from the superior temporal branch of the retinal artery (Fig.1B). Another little loop was found in the area of the optic disc and belongs to the main inferior branch of the arterial artery (Fig.1B). Fluorescein angiography confirmed the filling of the loop in the arterial phase and showed delayed filling of the superotemporal retinal vein (Fig.2A). Furthermore, two cilioretinal arteries were noted (Fig. 2A). A marked delay of the transit time was observed in a peripheral branch of the temporal vein and was associated with a mild leakage (Fig.2B and C). Ocular coherence tomography showed hematic deposits in the posterior hyaloid membrane with incomplete vitreous detachment (Fig.3A). The ocular coherence tomography angiography visualized the congestion of the

deep capillary network near the area of venous occlusion (Fig.3B). The patient received antibiotics and corticosteroid drugs. After 1 month, the follow up examination found a visual acuity of 20/20 and a complete resolution of vitreous hemorrhage. Besides, the improvement of venous flow was detected in the angiographic images. No recurrence was seen after one year.

Discussion And Conclusions

Our findings confirm that inflammation of sinus can trigger a bleeding from congenital arterial prepapillary loop. Besides, retinal vein occlusion may be firstly mentioned in this report.

Retinal vascular loops are rare optic disc anomalies [1]. They are usually congenital and exceptionally acquired [6]. Unilateral and bilateral forms were reported [3]. The majority of the loops had arterial origins especially from the main temporal branch of the retinal artery. The cilioretinal arteries, as showed in this report, was often associated with this abnormality [3,7]. In most cases, the loops were asymptomatic. However, they sometimes caused complications including retinal arterial occlusions, vitreous or preretinal hemorrhage, hyphema, and amaurosis fugax [3,5]. As reported, the bleeding occurred from the loop or from the adjacent capillary bled [2]. In our patient, the presence of hematic deposits in the vitreous side of the posterior hyaloid membrane confirmed that the bleeding originated from the segment of the loop into the vitreous cavity. Although, vitreous traction and acute vitreous detachment were responsible for bleeding into the vitreous [2,4], the accurate mechanism of this hemorrhage remained unclear. Physical straining, trauma and Valsalva-like mechanism have been reported to be the triggering events of bleeding from the loop [2,4]. Herein, the sinusitis was thought to be the triggering factor of vitreous hemorrhage.

In this report, mild peripheral vein occlusion was thought to be caused by thrombosis resulting from an increased turbulence of the vascular flow [4]. Ocular coherence tomography angiography images highlight the ability of this exam to visualize retinal vascular architecture especially when any occlusive phenomenon was suspected [8].

Finally, the hemorrhages seemed to be rare transient events occurred as complications of prepapillary loops and required long time of observation [2]. Better blood viscosity improved the retinal venous flow. Anti-inflammatory drugs may decrease the influence of the triggering factors and accelerate the anatomical recovery.

Vein occlusion should be considered in the complications of prepapillary arterial loops. Sinusitis should be remembered as one of the trigger causes of vitreous bleeding from those optic disc anomalies.

List Of Abbreviations

Not applicable

Declarations

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Authors' contributions

KBA was responsible for all data of the manuscript. The author read and approved the final manuscript.

Ethics approval and consent to participate

Not applicable.

Consent for publication

Written informed consent was obtained from the patient for publication of this article and any accompanying images.

Competing interests

The authors declare that they have no competing interests.

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Figures

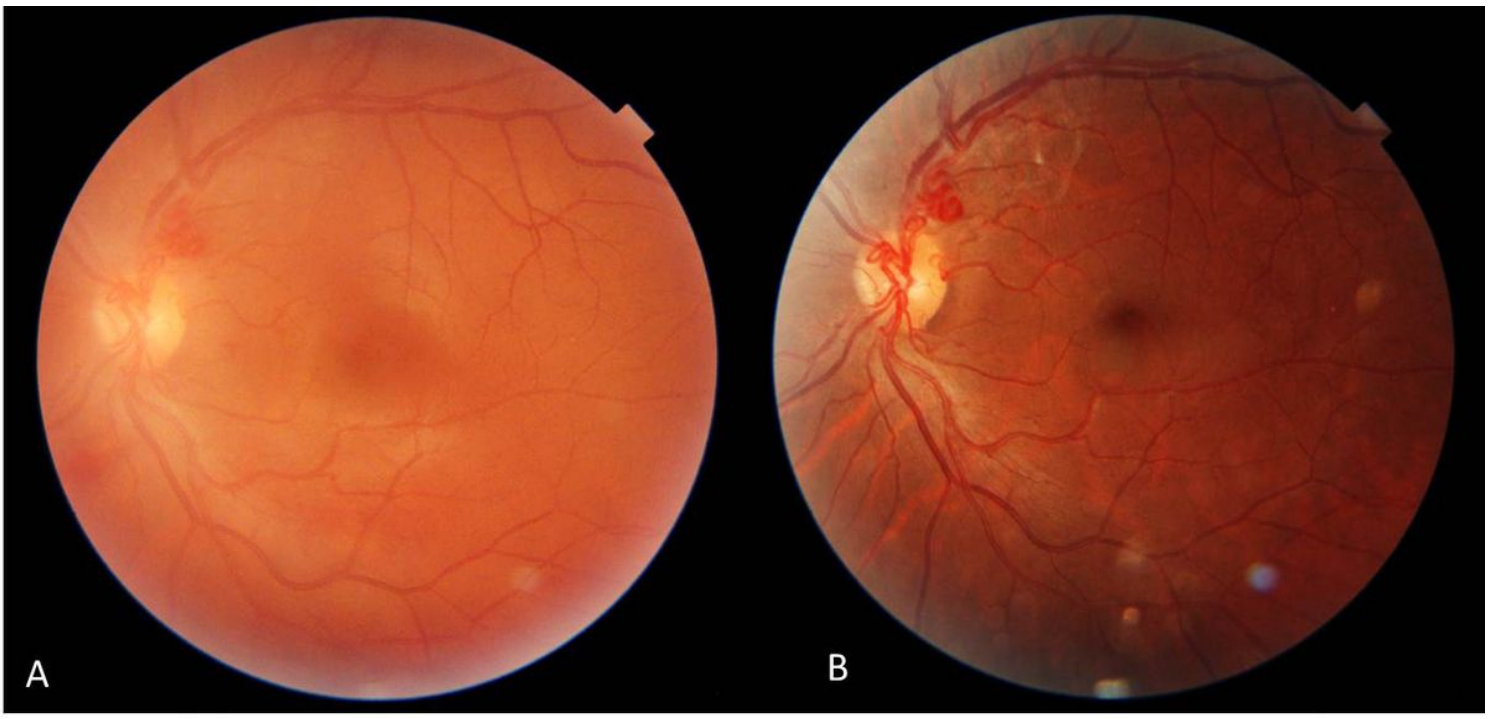

Figure 1

A : Fundus examination showing vascular abnormality above the optic disc. Fundus details were not seen because of the vitreous hemorrhage. B : After 2 months, prepapillary arterial loops are well identified.

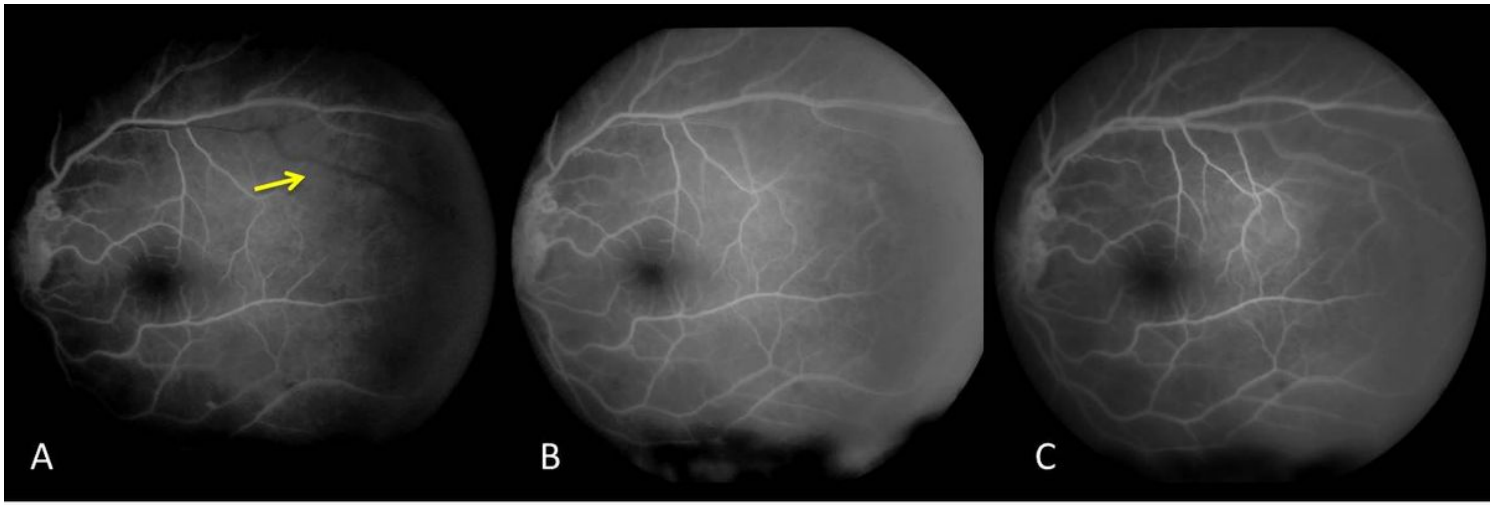

Figure 2

Angiographic sequences showing the filling of the prepapillary loop in the arterial phase, two cilioretinal artery and delayed filling of the branch of superior temporal vein. A : early, B: middle, C: late sequence

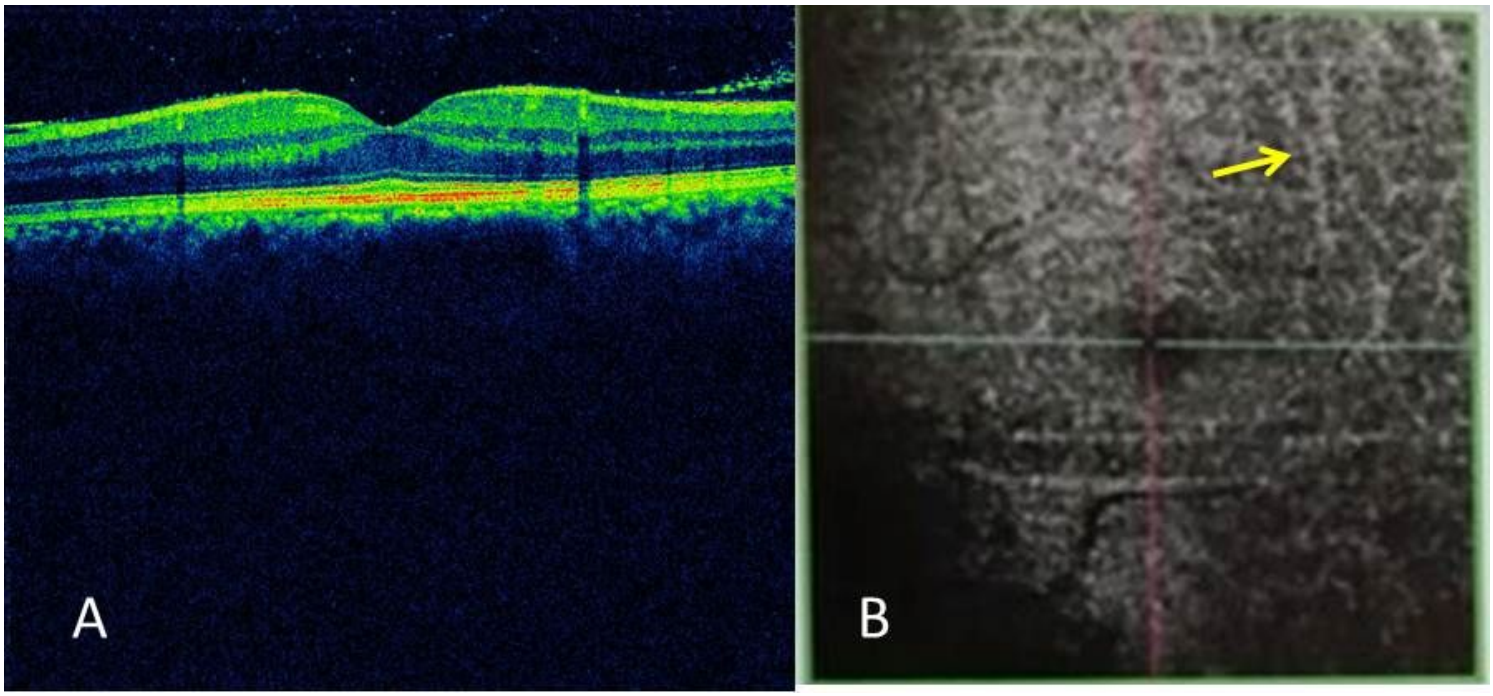

Figure 3

A: Ocular coherence tomography of the left eye showing hematic deposits in the hyaloid surface which is not completely detached. B: Ocular coherence tomography angiography photograph revealing vascular congestion in the deep capillary network resulted from temporal vein occlusion.

Supplementary Files

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