Photo Essay

Swept source optical coherence tomography-angiography of an infarct of a small intra-neural branch of central retinal artery simulating cilio-retinal artery

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Key words: Cilio-retinal artery occlusion, deep retinal capillary plexus infarct, intraneural branch retinal artery occlusion, retinal artery occlusion

Cilio-retinal artery(Cilio-RA) is a branch of the posterior ciliary artery system and arises at the disc margin as a distinct vessel. Rarer still, the clinically visible Cilio-RA maybe an intra-neural branch of the central retinal artery (CRA). We describe a rare case of occlusion of intraneural branch of the CRA in a 56 year-old man.

Case Report

A 56-year-old man with episodic transient visual loss in right eye (OD), of 2 days duration. He was not symptomatic at presentation and was using anti-coagulants for cardiovascular disease. Visual acuity was 6/6 both eyes (OU). Intra-ocular pressure and anterior segment were normal OU. OD had a finger like area of macular whitening sparing the fovea. This area corresponded to the vascular bed of a clinically appearing cilio-retinal artery (cilio-RA) [Fig. 1a]. However, on fluorescein angiography, the artery filled along with branches of central RA (CRA) [Fig. 1b and c]. Swept source optical coherence tomography (SS-OCT) showed inner and middle retinal edema with shadowing of underlying layers [Fig. 1d]. The superficial capillary plexus was less affected on SS-OCT angiography (SS-OCTA). The deeper plexus revealed reduced capillary density nasal to the fovea, with an adjacent hypo-dense capillary nonperfusion area [Figure 2a and b]. A diagnosis of occlusion of intra-neural branch of CRA was made.

Discussion

Cilio-RA is noncontiguous with CRA, coursing through a near −180° hook while emerging at the optic disc rim.[1] Rarely, as in our case, the clinically apparent cilio-RA may in reality arise from the intra-neural part of CRA.[2] Had this been a true cilio-RA, it's entire area of supply would have shown decreased perfusion. CRA occlusion on OCTA typically show a severely involved superficial plexus.[3] Our case was probably that of a transient CRA occlusion in which the embolus finally lodged in the deeper plexus of an intra-neural branch on CRA. The difference in affection may be due to different

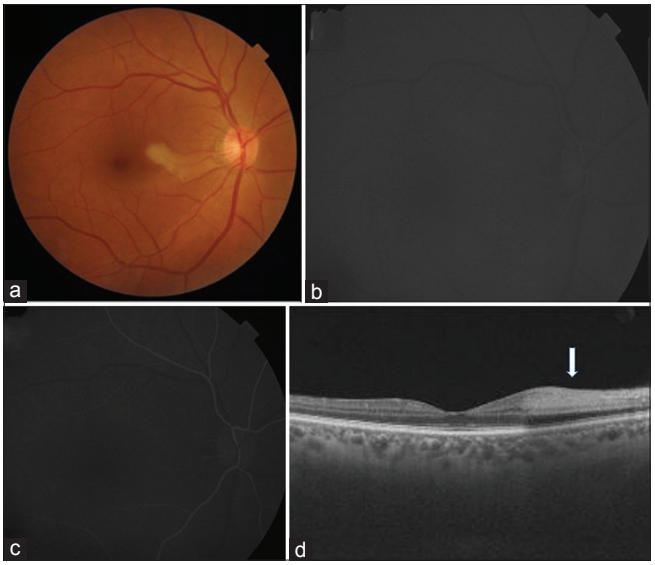

Figure 1: (a) Finger like area of retinal whitening sparing the fovea. (b) Fluorescein angiography-initial entry of dye in central retinal artery marking the completion of choroidal phase. No filling of apparent cilio-retinal artery noted. (c) Fluorescein angiography-filling of the apparent cilio-retinal artery along with other branches of central retinal artery. (d) Line scan showing inner and middle retinal edema with shadowing of underlying layers

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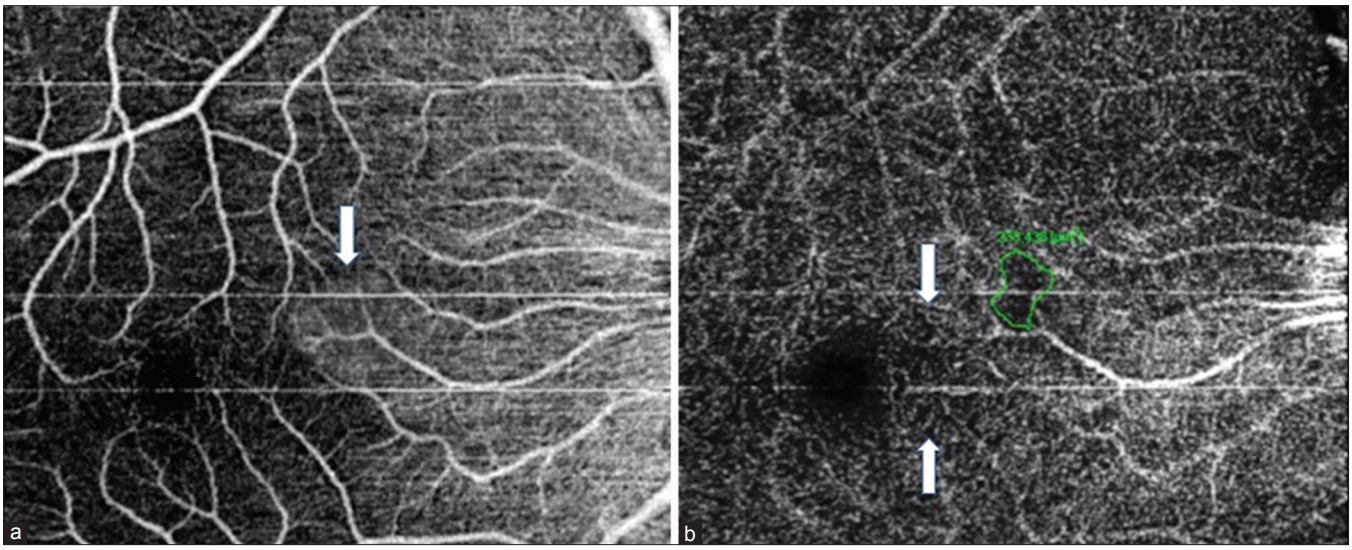

Figure 2: (a) Swept source optical coherence tomography angiography superficial plexus shows less affected foveal capillaries with blurring of vasculature (arrow) underlying the area of edema. (b) Swept source optical coherence tomography angiography deeper plexus shows decreased capillary density nasal to fovea (arrows) with an adjacent hypo-dense capillary nonperfusion area (green boundary)

angulation of the intra-neural branches vis-a-vis rest of the retinal circulation.

Conclusion

Clinical findings in isolation, are inconclusive for diagnosing cilio-RA. An intra-neural branch of CRA may simulate a Cilio-RA. SS-OCTA can unveil precise area of infarction, which otherwise may not be appreciable in the acute stage of opacification.

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.

References

1. Liu L, Liu LM, Chen L. Incidence of cilioretinal arteries in Chinese Han population. Int J Ophthalmol 2011;4:323-5.
2. Hayreh SS. The cilio-retinal arteries. Br J Ophthalmol 1963; 47:71-89.
3. Bonini Filho MA, Adhi M, de Carlo TE, Ferrara D, Baumal CR, Witkin AJ, *et al.* Optical coherence tomography angiography in retinal artery occlusion. Retina 2015;35:2339-46.