

Optical coherence tomography angiography in situs inversus of the optic discs

Gaurav Gupta, Simar R Singh, Vijay K Sharma,
Mohit Dogra

Key words: Optical coherence tomography angio, Optical Coherence Tomography Angiography, situs inversus

A 28-year-old male was referred with a diagnosis of “funny looking” retinal vessels. His unaided visual acuity was 6/6, and anterior segment examination was unremarkable in both eyes. Fundus evaluation showed nasalization of retinal arterioles and venules at the optic discs of both eyes. Retinal vessels were seen emerging from the centre of the optic disc and then coursing supero-nasally and infero-nasally, instead of supero-temporally and supero-nasally. After coursing for 2 disc diameters nasally, they acutely turned temporally and went on to form the vascular arcades. This was more prominent in the left eye than in the right eye, and was suggestive of Situs inversus of the optic discs (SI-OD) [Fig. 1a and b]. The peculiar pattern and course of retinal vessels was better appreciated on the superficial capillary plexus slab of Optical Coherence Tomography Angiography (OCTA) [Fig. 2]. Cross-sectional OCT of the macula and optic disc showed hyperreflectivity of the inner retina nasal to the optic discs in both eyes, suggestive of nasalization of the papillomacular bundle [Fig. 3a and b]. OCT of the peripapillary retinal nerve fibre layer (RNFL) showed a thicker nasal RNFL, thinner temporal RNFL and nasally deviated RNFL peak locations compared to the normative database [Fig. 3c and d].

SI-OD is a rare developmental anomaly, where the retinal vessels emerge from the nasal aspect of the disc and course nasally before turning temporally.^[1] It is usually bilateral and thought to be caused by anomalous insertion of the optic stalk into the optic vesicle, resulting in dysversion of the nerve head.^[2]

It has been reported in patients with tilted optic discs, myopes, Ehlers-Danlos syndrome, familial dextrocardia

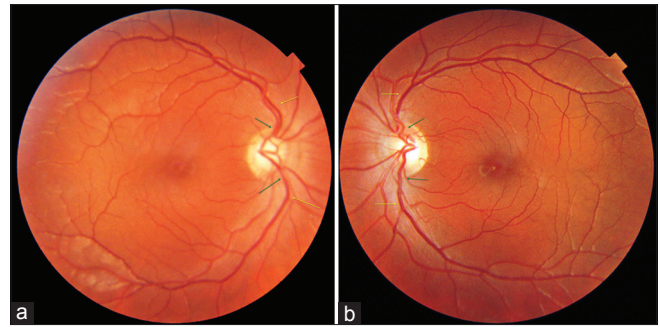


Figure 1: Fundus photographs showing initial coursing of vessels supero-nasally and infero-nasally after emerging from the disc (green arrows), instead of supero-temporally and supero-nasally, and then they acutely turned temporally (yellow arrows), which is more prominent in left eye (b) than the right eye (a)

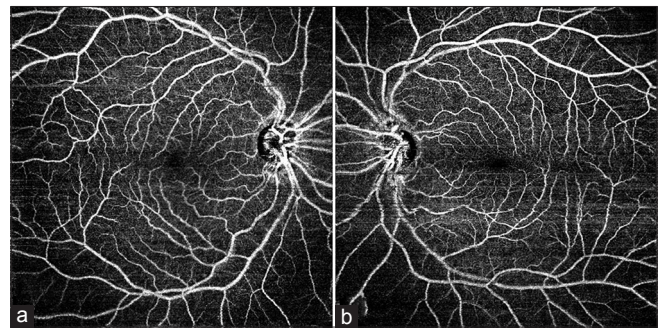


Figure 2: The peculiar pattern of retinal vessels being better appreciated on the superficial capillary plexus slab of Optical Coherence Tomography Angiography in right (a) and left eye (b)

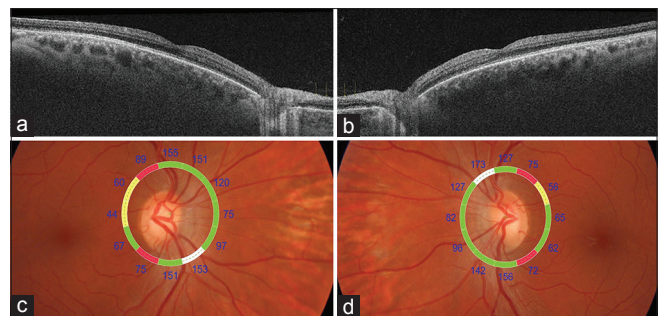


Figure 3: Cross-sectional OCT of the macula showing hyperreflectivity of the inner retina nasal to the optic discs in both eyes (denoted by yellow arrows), suggestive of nasalization of the papillomacular bundle (a and b). OCT of the optic nerve head showing a thicker nasal retinal nerve fibre layer (RNFL), thinner temporal RNFL and more nasally-located RNFL peak locations (c and d)

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Advanced Eye Centre, Post Graduate Institute of Medical Education and Research, Chandigarh, Punjab, India

Correspondence to: Dr. Mohit Dogra, Advanced Eye Centre, PGIMER, Chandigarh, Punjab - 160 012, India. E-mail: mohit_dogra_29@hotmail.com

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and optic neuritis.^[2-4] Although this condition is generally asymptomatic, caution is needed while interpreting OCT RNFL values in these eyes – as they don't conform to normative data of OCT machines.^[5]

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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Nil.

Conflicts of interest

There are no conflicts of interest.

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