

Angiotensin receptor blocker-induced bilateral ciliochoroidal effusion

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Key words: ACE inhibitor, angiotensin, angiotensin receptor blocker, ciliochoroidal effusion, uveal effusion

A 75-year-old woman presented with diminution of vision in her left eye (OS) one day after uneventful cataract surgery in the right eye (OD). Her best-corrected visual acuity (BCVA) on the first postoperative day reduced to 20/100 OD and 20/200 OS from preoperative 20/80 and 20/40, respectively. Intraocular pressure (IOP) was 26 mm Hg OD and 27 mm Hg OS. Examination showed a shallow anterior chamber, 2+ pigmented cells 2+, and no vitritis in both eyes (OU). 360° choroidal detachment with retinochoroidal folds involving the posterior pole were seen [Figs. 1-3].

The patient had been started on angiotensin receptor blocker (ARB) olmesartan 20 mg/day *one day* prior to phacoemulsification for systemic hypertension. Her axial length was 20.75 mm OD and 20.63 mm OS. Scleral thickness was normal on ultrasound biomicroscopy. ARB-induced choroidal effusion was considered. Olmesartan was replaced with amlodipine 5mg along with one hourly topical prednisolone 1%, atropine 1% three times a day, and timolol 0.5% twice a day (OU). The next day, BCVA improved to 20/125 OD and 20/80 OS. IOP reduced to 12 and 13 mm Hg OD and OS, respectively. The choroidal detachment and retinochoroidal folds resolved, anterior chamber depth increased and BCVA improved to 20/40 OU at 1-week [Fig. 4]. All the medications were tapered/stopped over the next 2 weeks without recurrence at 6 months.

Use of ARBs for systemic hypertension may rarely cause ciliochoroidal effusion.^[1-3] Intraocular angiotensin II production and ocular blood flow regulation depend on the local renin-angiotensin system.^[4] Bradykinin results



Figure 1: (a and b) Fundus photograph of both the eyes shows the presence of retinochoroidal folds in the posterior pole area with shallow 360° serous choroidal detachment more prominent in the left eye (b) (white arrowheads)

in endothelium-dependent vasodilatation and increased ocular blood flow.^[5] ARBs inhibit vasoconstrictor effects of angiotensin II and prevent bradykinin breakdown, causing increased choroidal perfusion.^[4] This case highlights a rare but serious side-effect associated with ARBs. It is important to be aware of this association so that the drug can be promptly withdrawn.

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

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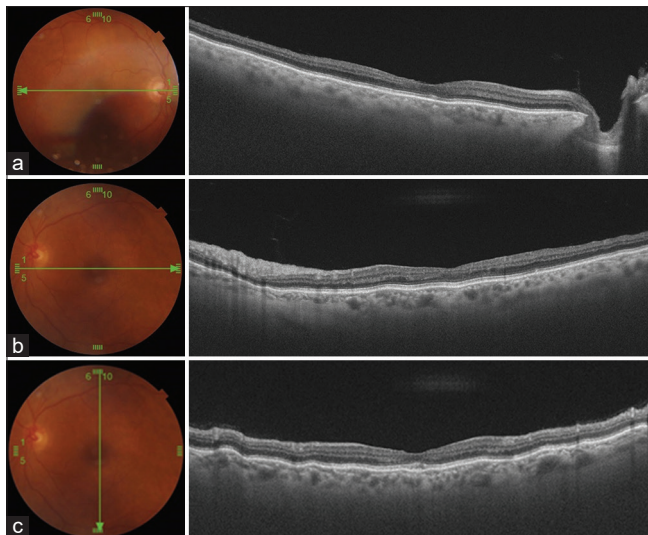


Figure 2: (a-c): Swept-source optical coherence tomography (SS-OCT) images of both eyes shows retinal pigment epithelial (RPE) undulations with the absence of any subretinal fluid

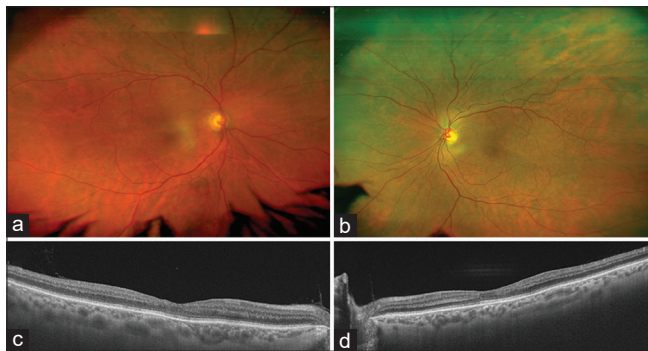


Figure 4: Fundus photographs of both eyes (a and b) obtained 7 days after stopping systemic therapy with angiotensin receptor blocker show resolution of retinochoroidal folds and serous choroidal detachment. Swept-source optical coherence tomography (SS-OCT) line scans (c and d) passing through the fovea show resolution of the retinal pigment epithelial undulations in both eyes

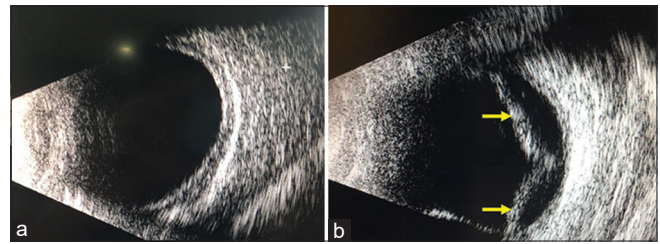


Figure 3: Ultrasound transverse B-scan of the right eye (a) shows choroidal thickening with very shallow peripheral choroidal detachment while the scan of the left eye (b) shows 360-degree serous choroidal detachment (yellow arrows)

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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