Bilateral macular infarction in a patient with metastatic breast carcinoma

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Key words: Breast carcinoma, chemotherapy, hypercoagulability, macular infarction

A 54-year-old Asian-Indian female, case of ductal carcinoma of the left breast (stage 4, $CT_2N_{3C}M_1$) with secondary metastasis to lung and liver, presented with sudden bilateral loss of vision for the past 10 days. She was treated with the 2nd cycle of palliative chemotherapy 2 weeks ago with doxorubicin (70 mg) and cyclophosphamide (700 mg).

Corrected visual acuity in both eyes was finger counting close to face. The fundus examination showed an ill-defined patch of retinal whitening and dot-blot retinal hemorrhages at the macula in both eyes [Fig. 1a and b]. Box-carring of blood column was noted in both eyes. Fundus fluorescein angiography showed enlarged and irregular foveal avascular zone and macular vascular filling defects in both eyes [Fig. 1c and d]. Spectral-domain optical coherence tomography showed inner retinal hyperreflectivity and outer retinal edema in both eyes, more prominent in the left eye [Fig. 1e and f]. A diagnosis of bilateral macular infarction was made.

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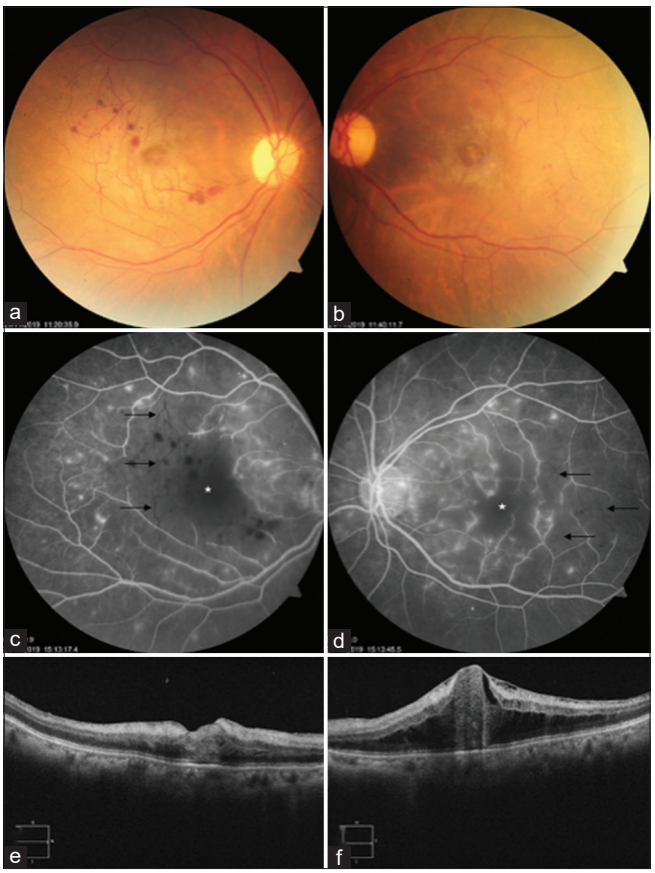

Figure 1: Fundus imaging of a patient with metastatic breast carcinoma. Colour fundus photograph (a and b) shows retinal whitening and multiple dot-blot retinal hemorrhages at the posterior pole, more in right eye than the left. Fluorescein angiography in late phase (c and d) shows enlargement of foveal avascular zone (asterix) and vascular filling defects involving both the venules and arterioles (arrow). Perivascular leakage is noted at multiple areas. Horizontal macular line scan through the fovea on optical coherence tomography (e and f) shows inner retinal hyperreflectivity and outer retinal edema, more in left eye than the right

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Laboratory testing revealed normal blood counts except anaemia (haemoglobin 8.8 g/dL), normal fasting blood glucose, blood pressure, and anti-nuclear antibody profile. Due to a lack of other underlying diseases, a hypercoagulable state from metastatic carcinoma was suspected.

Discussion

Macular infarction occurs due to non-perfusion of the macular capillary bed. Bilateral macular infarction is a very unusual presentation, not previously reported in patients with breast carcinoma. Retinal venous and arterial occlusions have been previously reported with breast carcinoma.[1,2] The risk of thromboembolism increases with metastasis.[3,4] Anticancer therapy (chemotherapy such as Platinum-based agents, tyrosine kinase inhibitors, taxanes, hormone therapy, and less commonly cyclophosphamide) may significantly increase the risk by similar mechanisms.[5] No definitive treatment has been proven in the treatment of macular infarction and the visual prognosis remains dismal. Early diagnosis and treatment in lines of retinal arterial occlusion may be of benefit in such cases.

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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