Photo Essay

Multimodal imaging in paracentral acute middle maculopathy

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Paracentral acute middle maculopathy (PAMM) is a clinical condition associated with vasoconstrictors, such as caffeine and epinephrine, various retinal vascular diseases, including diabetic retinopathy, hypertensive retinopathy, central retinal vein occlusion, and retinal artery occlusion. It usually suggests an underlying ischemic etiology.[1-3] There are two types described in literature based on spectral-domain structural optical coherence tomography (SD OCT), Type 1 being
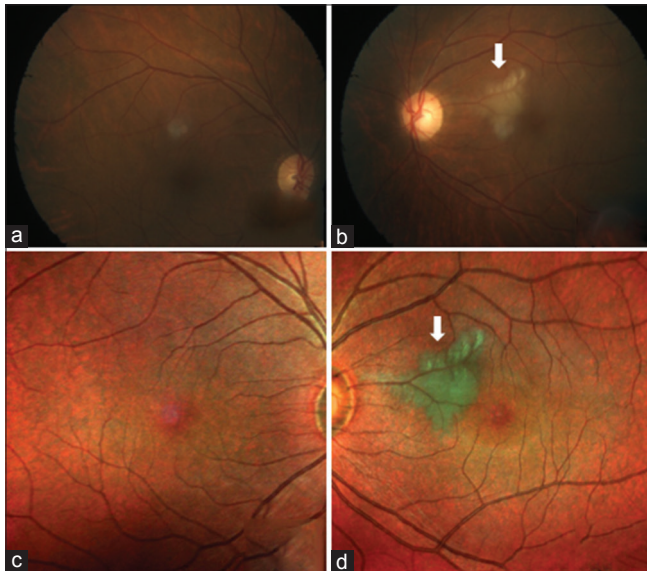

Figure 1: Color fundus photographs of right and left (a and b) eye respectively with left eye showing a well-defined parafoveal intraretinal greyish lesion (white arrow); Multicolor composite images (c and d) of the left eye showing a greenish hue in the parafoveal area corresponding to the grayish lesion (white arrow)
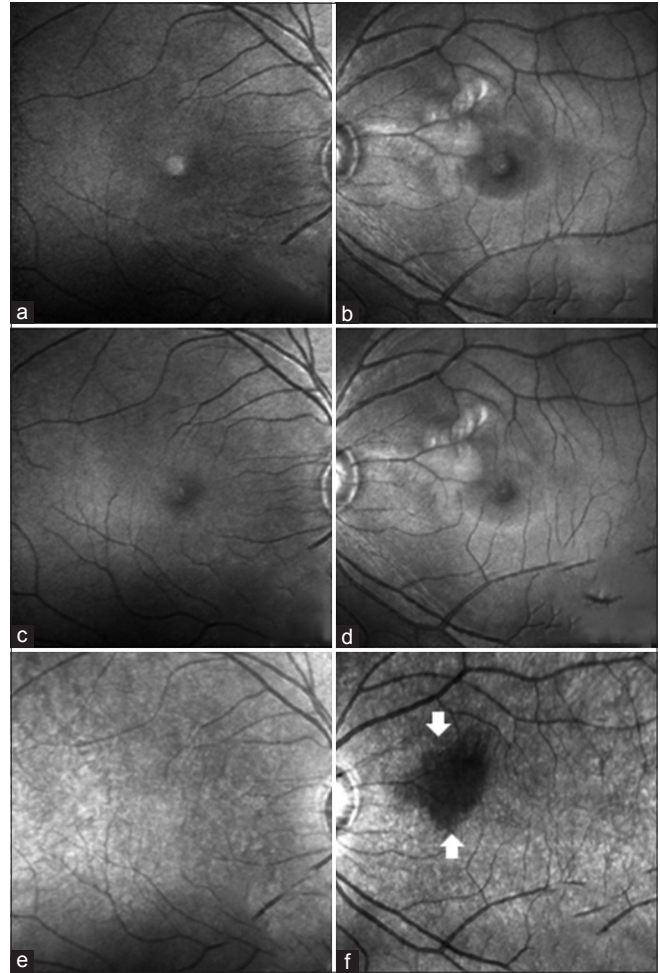

Figure 2: Blue reflectance (a and b), green reflectance (c and d) and near-infrared reflectance images (e and f) of the right and left eye, respectively. Left eye Blue reflectance and green reflectance shows hyperreflectant lesions (white arrow) corresponding to ischemic areas where as infrared image shows hyporeflectance. Right eye is normal

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Cite this article as: Shah D, Saurabh K, Roy R. Multimodal imaging in paracentral acute middle maculopathy. Indian J Ophthalmol 2018;66:1186-8.
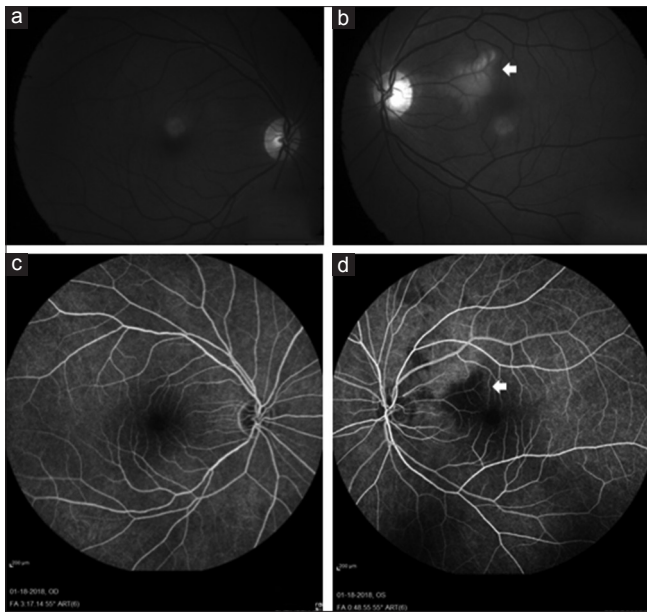
Figure 3: Autofluorescence image (a and b) showing a hypo autofluorescent lesion in left eye. Fundus fluorescein angiography mid phase (c and d) showing a capillary nonperfusion area in the left eye. Right eye is normal
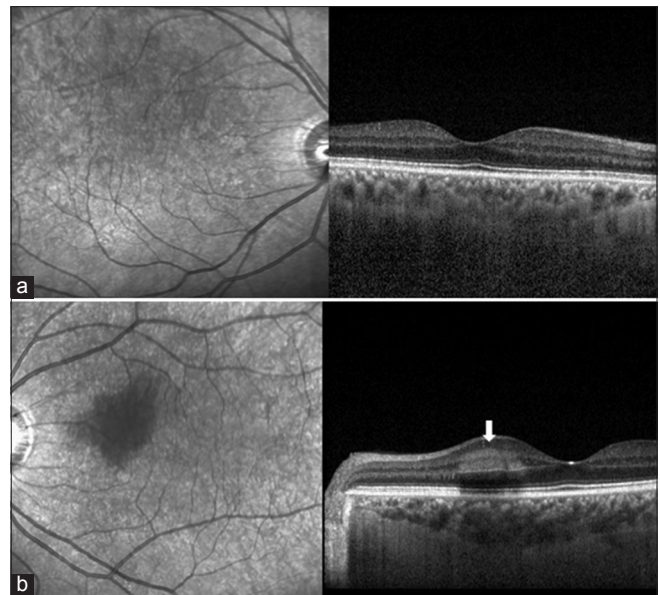

Figure 4: Spectral-domain structural optical coherence tomography raster scan through the lesion (a and b) demonstrates a placoid, hyperreflective band at the level of the inner nuclear layer (white arrow) with relative sparing of the outer retina in the left eye. Right eye is normal
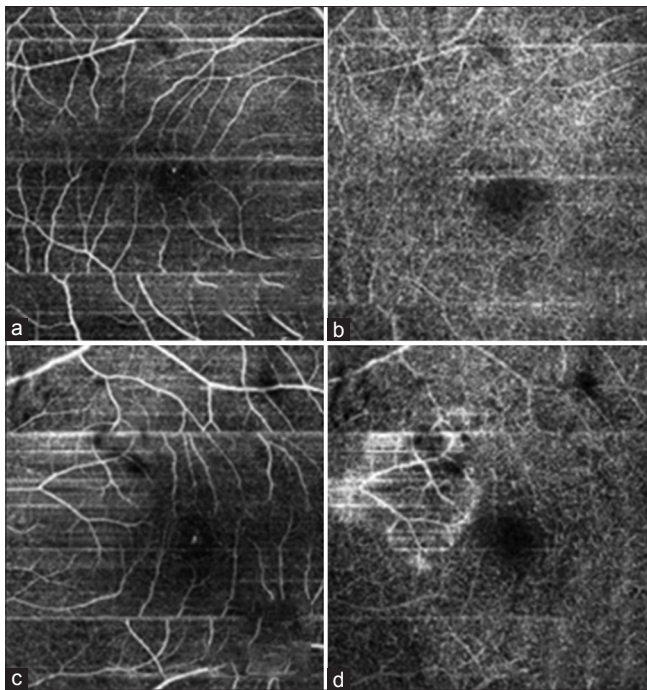
Case Report

A 51-year-old male presented with the sudden appearance of a black spot in front of the left eye since 2 days. He had undergone an uneventful mitral valve replacement surgery 1 year back. BCVA was 6/6, N6 and 6/18, N9 in right and left eye, respectively. Anterior segment examination was unremarkable. Fundus evaluation of the left eye showed a grayish well-defined parafoveal intraretinal lesion, congruent to the clinical scotoma [Fig. 1]. Multicolor composite image showed greenish hue in the ischemic area which was appreciated best on infrared (IR) reflectance channel [Fig. 2]. Fundus autofluorescence showed hypoautofluorescence, and fundus fluorescein angiography showed capillary drop out parafoveally [Fig. 3]. SD-OCT scan through the lesion [Fig. 4] demonstrated a placoid, hyperreflective band at the level of the inner nuclear layer. OCT Angiography with En face projection [Fig. 5] at the level of the deep capillary plexus shows a gross capillary loss with visibility of superficial retinal vessels seen as projection artefacts.

Discussion

PAMM lesions have characteristic appearance and should be differentiated from simulating lesions such as acute macular neuroretinopathy (AMN). Multimodal imaging helps in differentiating PAMM from similar-looking lesions. PAMM Type 1 is characterized by selective involvement of inner nuclear layer which is seen in SD-OCT and further corroborated with OCT angiography, contrary to AMN lesions which cause involvement of outer retina including ellipsoid zone.[4,5] We also describe striking multicolor signature of PAMM and note that infrared (IR) channel is most efficient in picking up this

Figure 5: Optical coherence tomography angiography with En face projection at the level of the superficial and deep capillary plexus showing normal flow in right eye (a and b). Left eye shows flow void in deep capillary plexus (d) whereas superficial capillary plexus (c) is relatively spared. Superficial retinal vessels are seen as projection artefacts (d arrow)

characteristically at the level of the inner nuclear layer and Type 2 at the outer plexiform–outer nuclear layer.[4,5] We here in present multimodal image characteristics of PAMM Type 1.

lesion. Diagnoses of PAMM should be followed up with the thorough investigation for underlying systemic ischemia and managed accordingly.

Conclusion

Characteristic features on multimodal imaging may help differentiate PAMM from other simulating clinical conditions

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.

Conflicts of interest

There are no conflicts of interest.

References

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