

Pebble beach artifact: An apparent multicolor imaging maculopathy due to corneal desiccation

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Key words: Artifact, imaging, retina

Multimodal imaging^[1] is increasingly used for clinical diagnosis and an increased pathophysiological understanding of retinal disease.^[1] Recently, MultiColor scanning laser ophthalmoscopy has been incorporated into the Spectralis

platform (Heidelberg Engineering, Heidelberg, Germany). This system uses the wavelengths of blue, green, and infrared laser simultaneously to provide information of the superficial, middle, and deeper retinal structures, respectively, of a single image.^[2] We continue to learn of new artifacts associated with these imaging systems such as variation in the thickness measured to the appearance of a hyper-reflective spot on near-infrared and multicolor imaging.^[3,4]

Cyst-like changes not corresponding to anything seen on the clinical examination were noted inferiorly in several patients. Fundus examinations and the cross-sectional optical coherence tomography (OCT) of these eyes revealed no abnormalities in the same areas and raised the concern of image artifact.

A normal participant had multicolor examinations performed at baseline [Fig. 1] followed by repeat imaging [Fig. 2] after administration of proparacaine and placement of a lid speculum 1-min later causing the ocular surface to desiccate. Cyst-like changes were seen in the images, predominantly inferiorly. The finding was more prevalent in the shorter wavelength image. The subsequently acquired OCT images confirmed that there was no retinal pathology.

Ocular surface dryness can result in punctate epithelial erosions or tear film irregularities, and we hypothesize that these are the cause of this finding. We believe that there is more scattering of the shorter blue wavelength light which resulted in more shadowing of the punctate erosions on the images, compared to the longer wavelength light images.^[5] Ensuring sufficient blinking and/or the application of artificial tears before procuring images could ensure avoiding this artifact.

Conclusion

This is a previously unreported artifact seen on MultiColor scanning laser photography that is caused by corneal irregularity but simulates retinal disease. Since these changes

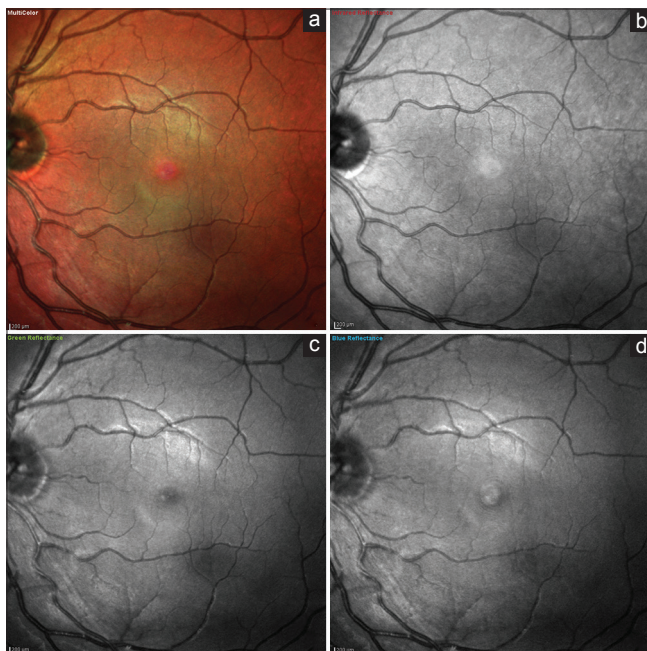


Figure 1: Multicolor image (a) along with its components of red (b), green (c), and blue (d) reflectance showing an unremarkable fundus seen above

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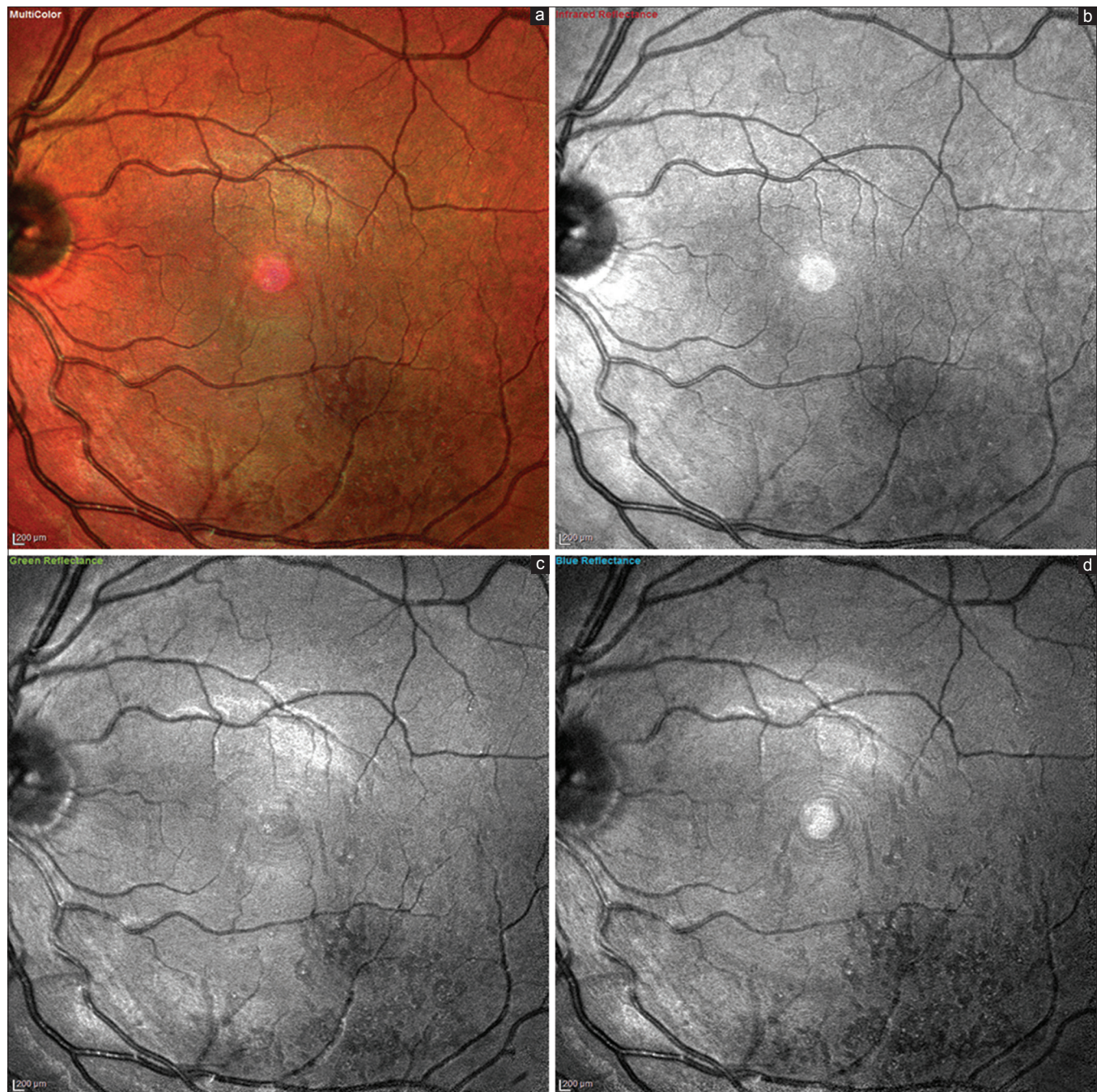


Figure 2: Multicolor image (a) along with its components of red (b), green (c), and blue (d) showing cyst-like changes, predominantly inferior, which represent a corneal dryness artifact seen above

resembled small pebbles on the beach, we have termed this finding the Pebble Beach artifact.

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Conflicts of interest

There are no conflicts of interest.

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