

## Multicolour imaging in isolated foveal hypoplasia

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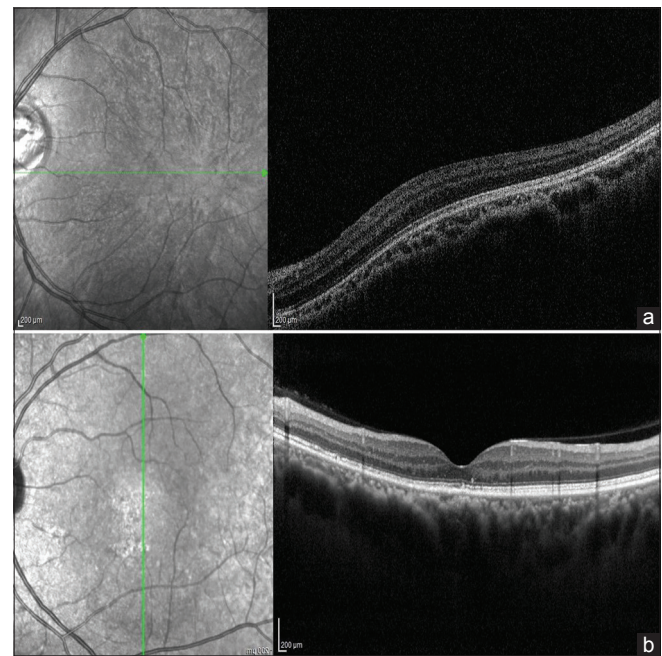
**Key words:** Fovea plana, foveal hypoplasia, multicolour imaging, optical coherence tomography

A 15-year-old boy on retinal examination was diagnosed to have absent foveal reflexes and pendular nystagmus in the absence of ocular albinism. His corrected visual acuity was 6/18, N6 in both eyes. Clinical examination showed absent foveal reflex in both eyes. Rest of the fundus was normal. Clinical findings were documented with ultra-wide field fundus camera (Optos Daytona, Optos PLC, UK) and confirmed with spectral domain optical coherence tomography (OCT) and multicolour imaging (MCI) using Spectralis spectral domain OCT (Heidelberg Engineering). Despite having poor fixation and nystagmus, OCT revealed absent foveal depression in both eyes with maintenance of all the inner retinal layers and outer plexiform layer in the typical foveal pit location [Fig. 1]. On MCI, hyporeflectivity corresponding to normal foveal depression was

characteristically absent on blue (BR) and green reflectance (GR) images. Infrared reflectance (IR) image was normal [Fig. 2].

### Discussion

Bilaterally absent foveal pit is seen in up to 3% of children with clinically normal eyes.<sup>[1]</sup> Isolated foveal hypoplasia



**Figure 1:** Spectral domain OCT images of both eyes in a case of isolated foveal hypoplasia. (a) Spectral domain OCT image showing absent foveal pit and presence of all inner retinal layers and outer plexiform layer at the fovea. (b) Spectral domain OCT image of a normal person for comparison

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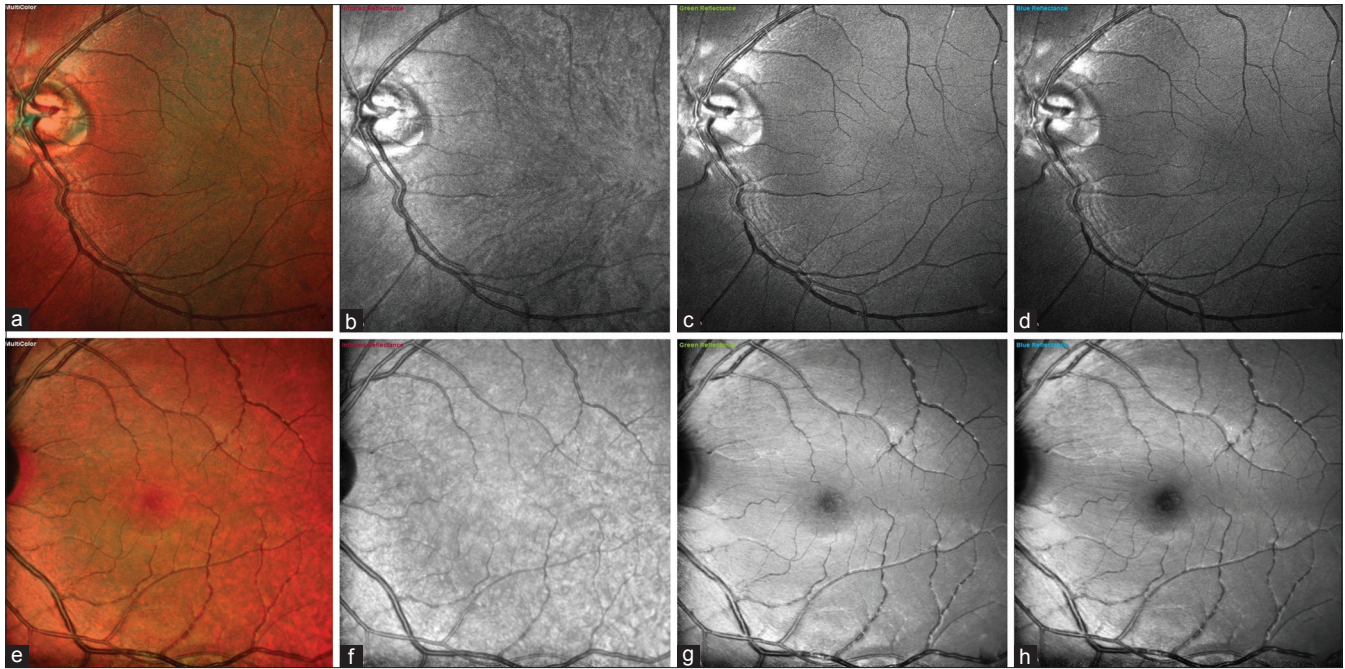
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**Figure 2:** MCI in a case of isolated foveal hypoplasia. (a-d) MCI shows the absence of hypo reflective foveal area in the blue and green reflectance images. The infrared reflectance image appears normal. (e-h) MCI of a normal person for comparison

can occur in the absence of nystagmus as well.<sup>[2]</sup> However, clinical examination and confirmation with OCT imaging may be difficult in eyes with nystagmus. MCI is a newly introduced non-invasive imaging modality developed for Spectralis OCT (Heidelberg Engineering). In MCI, three retinal reflectance images are simultaneously acquired using three individual lasers thereby, allowing analysis of changes at various retinal and choroidal levels. The information from these three images are integrated to form a composite MC image.<sup>[3]</sup> The central hypo reflective dark fovea seen on BR and GR images in an eye with normal foveal depression is mainly due to absent foveal inner retinal layers and increased absorption of the short-wavelength blue and green light by the melanin pigment.<sup>[4,5]</sup> In eyes with foveal hypoplasia, the inner retinal layers are present. Hence, the dark, hypo reflective foveal area seen on BR and GR images is absent in foveal hypoplasia. In the presence of nystagmus, obtaining optimum quality and precise OCT scan images may be difficult. Enface images on MCI confirm the absent foveal depression even in the presence of gross nystagmus. Thus, we can conclude that enface images on MCI can provide yet another way to identify foveal hypoplasia which complements the existing gold standard of OCT imaging.

#### 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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