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Confusion Between Bitemporal Hemianopia and Cecocentral Scotoma

Osaguona et al (1) reported a case of a 72-year-old woman with 20/200 visual acuity in both eyes from ethambutol toxicity. They interpreted automated 24-2 visual field studies as showing a bitemporal hemianopia. Magnetic resonance images of the optic chiasm were described as showing hyperintense signal on T2-weighted images.

As Glaser pointed out, "On occasion, bilateral cecocentral scotomas may mimic the bitemporal depression of chiasmal interference" (2). In this patient, a cecocentral scotoma is present, by definition, because the acuity is only 20/200, and there is confluent field loss between the blind spot and central fixation. In a true temporal hemianopia, visual acuity is relatively preserved and the vertical midline is respected.

Finally, the magnetic resonance images appear completely normal.

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The author reports no conflicts of interest.

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Confusion Between Bitemporal Hemianopia and Cecocentral Scotoma: Reply

We appreciate Dr. Horton's comments. In addition to the numerous cases of ethambutol-induced bitemporal hemianopia reported in the past, animal studies have also revealed chiasmal damage affecting both the crossing and the noncrossing axons in experimentally induced ethambutol toxicity (1). Kho et al (2) characterized ethambutol-induced bitemporal hemianopia in a series of patients, and this study has shown the existence of bitemporal visual field defects with or without superimposed central/cecocentral scotomas, and in those without coexisting central or cecocentral scotomas, the visual field defects were highly suggestive of chiasmal injury. Although a cecocentral scotoma can occasionally be confused with bitemporal hemianopia, the bitemporal visual field defect in our case plausibly aligned along the vertical midline, and it is not confined to just the central portion of the temporal fields. We agree that the poor visual acuity in our patient cannot be explained by the chiasmal lesion alone, and there may also be additional involvement of the adjacent parts of the optic nerves as described previously in a histopathological study (1). But, this was not evident radiographically.

Magnetic resonance images (MRI) from our article were reviewed again by our neuroradiologist and also in a "masked" fashion by 3 other neuroradiologists who had not seen the imaging and were not aware of the case. These neuroradiologists readily and unanimously concluded that 1) the original MRI was clearly abnormal with increased T2 signal within the chiasm and was also mildly swollen, and 2) the signal intensity within the chiasm normalized on the follow-up study. This imaging finding correlates with our patient's bitemporal hemianopia.

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