An atypical clinical presentation of cone dysfunction with peripheral visual field loss: A case report
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Purpose: To report a 62-year-old Chinese male with complete ring-shaped peripheral visual field loss and markedly reduced cone response in full-field electroretinogram (ERG).

Case history: A 62-year-old Chinese male, LC, came for routine eye examination in our optometry clinic in 2006. He had a history of cataract surgery four years ago, with intraocular lens implanted in both eyes. Capsulotomy was done in his right eye about two years ago. Dilated fundus examination revealed severe vitreomacular traction in his left eye with an otherwise unremarkable appearance in the whole retina of both eyes. Humphrey central 30-2 and peripheral 60-4 visual field threshold analyses (repeated tests) showed severe ring-shaped scotoma in his peripheral visual field in both eyes. ERG testing was arranged to investigate the integrity of retinal function. The results showed normal scotopic rod function in both eyes; however, a significantly reduced response of cone receptors had been noted in the photopic condition. Regular follow-up visits for visual field tests were therefore arranged on a three-month basis in order to monitor the visual function. In addition, the patient was referred to an ophthalmologist for the possible surgical treatment of vitreomacular traction.

The etiology, clinical interpretation and management, as well as differential diagnosis of the possible atypical cone dystrophy will be thoroughly discussed in this case report.

Conclusion: Although cone dysfunction usually has a genetic cause, the central and peripheral photoreceptors’ damage may have a different extent, especially in some cases with an auto-immune component (Hargitai et. al., 2004). This may give rise to different threshold levels at the central and peripheral region in the visual field test. Multiple focal ERG and genetic investigation are thus recommended to further understand the exact etiology of this retinal disorder.