Reviewer’s report

Title: Functional MRI study in a case of Charles Bonnet syndrome related to LHON

Version: 0 Date: 25 Jun 2019

Reviewer: N. R. Miller

Reviewer's report:

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The authors of this manuscript describe a man with molecular genetically documented (11778 G to A mutation) Leber Hereditary Optic Neuropathy (LHON) who developed Charles Bonnet syndrome characterized by unformed hallucinations that, interestingly, were triggered by unexpected auditory stimuli. The patient also had mild sensorineural hearing loss. The authors performed fMRI studies in this patient and found that some sound-triggered hallucinations were linked to bilateral activation of both primary and secondary visual cortex as well as cuneus, precuneus and insula. The hypothesize that these auditory-triggered hallucinations were due to cross-modal plasticity of the visual and auditory networks, possibly influenced by the patient's mild hearing loss.

This is a very interesting case report and one that is quite unique with respect to the triggering of the hallucinations and the fact that they are unformed rather than the more common formed hallucinations that occur in Charles Bonnet syndrome. I only have a few comments:

1. There are a number of errors of syntax and grammar that need to be corrected if the paper is to be accepted for publication.

2. It would be helpful to know the level of visual acuity in the patient's eyes at the time he developed the hallucinations.

3. It would also be interesting to know the patient's color vision status, particularly as the hallucinations are somewhat (blue and white flashes) colored.

4. Finally, what type of field defects did the patient have? Pure central or cecocentral scotomas? How dense? Any peripheral field constriction?
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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