Reviewer's report

Title: Synesthesia and Migraine: Case Report

Version: 1 Date: 2 August 2010

Reviewer: Michael Cutrer

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- Major Compulsory Revisions
The authors should address the questions and possibilities.

1. I would be very interested in knowing more details about the concurrent migraine aura related visual symptoms. Were the visual aura phenomena, the classical arc shaped, expansile, positive visual hallucinations followed by scotomata or did the scotomata or scintillations occur in isolation.

2. Did the audio induced visual scotoma occur early in the aura or did it occur late?

3. If late did it occur in a different part of the visual field than that affected by the longer lasting, non-audio induced scotoma?

4. Did the light induce lemon taste occur throughout the aura or only during a portion of the aura?

5. I do question the authors assertion that the synesthesia is an expression of the aura per se, as aura symptoms are in general a spontaneous, internally experiences cortical phenomenon, independent of external stimuli. Although some patients feel that visual aura are triggered by stimuli the actually number of those who can actually trigger them within a few minutes is extremely small. And I have never had a patient report that a visual aura was initiated by loud noises. The synesthesia symptoms themselves do not have the bimodal (positive phenomena followed by negative) characteristics of visual and sensory migraine auras and are difficult to explain based on our current understanding of the characteristics of cortical spreading depression (CSD).

6. Is it possible that the CSD phenomenon temporarily disinhibits the anomalous processing in perceptual association areas that might in the non-migraine state are latent in this particular patient?

- Minor Essential Revisions None

- Discretionary Revisions None

Please note that both the comments entered here and answers to the questions below constitute the report, bearing your name, that will be forwarded to the authors and published on the site if the article is accepted.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

'I declare that I have no competing interests'