Reviewer's report

Title: Retinal Changes in Visceral Leishmaniasis by Retinal Photography

Version: 2
Date: 13 June 2014

Reviewer: Ian MacCormick

Reviewer's report:

1. This is an interesting report of retinal signs in visceral leishmaniasis. It advances understanding in this area by providing retinal data that is more comprehensive, and from a larger group of patients, than previously described. It highlights an interesting area for further research and deserves to be published.

Minor essential revisions

2. Results para 1, and Table 2: Is the sample size used to generate the retinal data in table 2 n=30, or n=14/30? The original number of eligible consecutive patients should be given (presumably >30), followed by the number of subjects excluded for various reasons, followed by the number of patients excluded from measurements of tortuosity and width (and grading of colour images?). Presumably some patients did not have the minimum of 9 overlapping photographs. If so this should be stated, with reasons why these photographs were not taken in certain subjects.

3. Were any of the data in Table 2 derived from ophthalmoscopy, or are the data entirely from grading of colour fundus images?

4. Methods, para 3, and Tortuosity, para 1: More detail is needed about the method of measuring vessel geometry in cases and controls.

Was blood vessel tortuosity measured from single retinal images, or images that had been stitched together using Photoshop? Some vessel segments in the images in (fig 1) appear to show notching, presumably at points where adjacent images are not aligned exactly. Could this interfere with measurements of vessel geometry? If so, and vessel geometry measurements from the healthy controls were made from single images rather than composite images, could this lead to a false impression of genuine significant differences between the study group and controls? Steps taken to address these possibilities should be described in the methods, and/or discussed as limitations.

Was the optical magnification in images from healthy controls comparable to images from patients? The use of different fundus cameras for patients and healthy controls could introduce a bias towards apparently wider or thinner vessels in one or other group. The methods for obtaining images from healthy controls should be described, and the possibility of bias in measurements of vessel width should be addressed. If images from patients and controls were taken at different magnifications one option would be to report arteriole/venule
5. Methods, para 3: The description of eye examination does not include an account of measuring visual acuity, colour vision, or visual fields. Since results for visual acuity, colour vision, and visual fields are presented in the manuscript, a short description should be added to explain how these were tested.

Discretionary revisions

6. Methods, para 3: The term ‘saccadic vessel’ may be a typo

7. Methods, para 3: How were disagreements between the two masked observers settled?

8. Tortuosity, para 1, and Methods para 5: How was the difference in tortuosity between eyes tested?

9. Results, para 2: The authors may want to add references to what retinal lesions might be expected in patients with a history of diseases they list, e.g. malaria (Maude et al., Trans R Soc Trop Med Hyg 2009), the association between ciprofloxacin and retinal detachment, etc.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

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

Declaration of competing interests:

I have worked on one or more other manuscripts with four of the authors: Bal Dhillon, Tom MacGillivray, Shyamanga Borooah, and Richard Maude