Author’s response to reviews

Title: Solar Maculopathy: Prognosis Over One Year Follow Up

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Author’s response to reviews:

Reply to Reviewers Report

Dear Editor;
Prof/ Guangde Tu;

Thank you for your review and valuable comments and notes by the reviewers regarding our manuscript titled “Solar Maculopathy; Prognosis Over One Year Follow Up”, which will improve and enrich the manuscript hoping to give it the chance to be published in your prestigious journal. We would be honored to have your replies meet your appeal, and we are ready for any further comments from you and the reviewers.

Thanks for your effort; I look forward to hearing from you.

Sincerely,

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Reviewer 3:
Prof: Brijesh Takkar

Comment 1:
(Lot of grammatical errors have been marked by me in the attached file, kindly see.)
Reply: corrected as you marked

Comment 2:
At the end of introduction, please summarize the lacunae in literature and mention the aim of your study. In my opinion, you can highlight the fact of lack of prospective observation and that patients in previous studies have presented very late, which makes history of pattern of sun exposure doubtful.

Reply:
The aim of the study is added:
The diagnosis of solar maculopathy is confirmed by OCT changes, but follow up of the changes are not well documented in the literature. The follow up of VA is not well studied before, so our study aims to track changes in VA and macular OCT over one year follow up.

Comment 3:
I could not find clearly defined inclusion-exclusion criteria.
Reply:
The inclusion exclusion criteria were added:
(The inclusion criteria include; a definite history of acute drop of vision after direct sun exposure. Exclusion criteria include; previous drug intake, vision problems before the insult, family history of inherited macular dystrophies, history of ocular trauma, previous intraocular surgery.

Comment 4:
Please mention the follow up schedule in methods itself.
Reply: added
Follow up has done 1st week, 1st month, 3rd month, 6th month, 9th month and 12th month. OCT imaging was done in the follow up visits and after improvement was obtained as well.
Comment 5:
Please mention how statistical analysis was performed. Even for a descriptive analysis like yours
Reply: this section is added.
Statistical analysis: A simple statistical analysis was used which was calculated manually
Regarding the Mean, the standard deviation and the range, the findings were reported as percentage. The statistics were done manually depending on the advice of statistical specialist, as the number of cases less than twenty.

Comment 6
How was the dominant eye ascertained?
Reply:
The dominant eye was determined the history as it was the preferred eye in photographing by a camera, in shooting by gun and the emmetropic eye in the case of anisometropia.

Comment 7
Do we have perimetry of any patient?
Reply: the perimetry done in two cases and no findings were found despite scotoma reported by Amsler grid.
After searching about the role of perimetry, we found that conventional perimetry is insignificant in solar maculopathy. And microperimetry reported some positive findings, but we do not have, so visual filed examination was cancelled from the study and was not done on other cases.

Comment 8
Your conclusion about myopia is wrong, and anyways a single eye doesn't mean anything in absence of controlled analysis
Reply:
Ok, it is deleted.

Comment 9
A graph showing visual improvement with time would look good
Reply: thanks for this suggestion.

Figure (7) shows a graph demonstrating the improvement of the mean BCVA in the 1 year follow up of solar maculopathy.

Comment 10
The eye that did not improve should be detailed
Reply:
These sections were added
In results:
While the vision improved in all cases by 100%, one eye (10%) showed the persistence of major vision affection 0.4 (improved one line only from 0.3). this eye showed a persistent outer retinal hole with disturbed ellipsoid zone and External limiting Membrane (ELM) as well.
In discussion:
One eye showed persistent visual impairment at the end of one year follow up, mostly the lesion affected the RPE with secondary affected photoreceptors. As Wu reported that two classes of photochemical damage have been suggested. Class1 photochemical damage is mediated by the photoreceptors, while class 2 photochemical damage is generally confined to the RPE and may lead to secondary photoreceptor outer segment damage. It is worth to document that ELM did not heal in this case till the end of the year follow up.

Comment 11:
Second paragraph of discussion: you said that cornea takes care of <280, why is the role of lens necessary here then?
Reply: the paragraph is corrected and the role of the lens in young and elderly is added.

Incident light on the retina transmitted through ocular media to the retinal pigment epithelium and photoreceptors within the retina. Ultraviolet (UV) radiation comprises invisible high energy rays from the sun that lie just beyond the violet/blue end of the visible spectrum. Most of UV radiation is absorbed by the anterior structures of the eye, although some of it does reach the light-sensitive retina. The cornea is responsible for absorbing and filtering the shortest and thus most energetic UV radiation
(UV-C<280 nm), The young lens primary absorbs UV-A, whereas with age, whereas an older lens has the capability to impede UV-B (280e315 nm) transmission. Solar radiation is absorbed directly from the RPE. This damage leads to the reduced lipofuscin content of the RPE cells, which results from the disruption of the outer segments-to-RPE interdigitation.

Comment 12:
Second paragraph of discussion: I think young age is simply the cause behind sun exposure, rather than solar retinopathy itself
Reply:
Ok, the paragraph was edited highlighting that young age are more prone to sun gazing
This can be explained by the role of the lens, which become more protective with aging, Another compounding cause might be that the young people especially the children are more prone to sun gazing and they are also careless about using the proper eye protection or spectacles during direct sunlight viewing.
Comment 13:
Please remove discussion about myopia being protective; its wrong as I mentioned before
Reply:
The paragraph about the myopia is removed.

Comment 14
Paragraph 9 needs to be reframed as marked
Reply: done
The visual acuity improvement started after 7 to 10 days agreed with previous studies. In all cases, an improvement in vision developed gradually until six months after exposure, then the vision became stationary and did not deteriorate and did not shows further improvement. although OCT shows an outer retinal hole disruption in 80% of cases and no significant macular abnormalities in 20% (this case whose eyes regained VA of 1), The persistent foveal changes in solar maculopathy is variable, many studies reported persistent foveal damage after 6 months as told by Wong[17] and Doyle [5] who reported a pseudohole in 7 eyes in a duration ranged from 3 to 12 months. While Kallmark [18] reported variable OCT changes after one year; 6 cases (40%) had mild disturbances, whereas 9 (60%) had none; 2 (13%) displayed RPE disturbance. In opposite to Awan [19] who mentioned that there are no macular changes after 6 months.

Comment 15:
Conclusion needs to be thoroughly revamped in light of above comments
Reply:
The conclusion is edited and revamped as you demand.
however, mentioning the prognosis of the solar maculopathy agree with the aim of the study, the title itself mentioned the study about the prognosis.
I removed the conclusion about emmetropia as you advised; really I have no enough cases or evidences to support my hypothesis. But (the young age as a risk factor) I think it agreed with our results as all cases are young, and it was supported by previous studies.
Comment 16:
Why does the OCT not parallel visual status, the authors can discuss this, and the role of future analysis in this direction
Reply:
Thanks a lot for this point of view which gave me the chance for further analysis of the OCT photos which we have to give a reasonable answer and explanation.
And further studies will be done.
This paragraph is added.
The discrepancy between the Visual acuity and persistent outer retinal lesion in OCT is confusing, while others reported the same difference and claimed that the visual symptoms may not always correlate with physical findings. Roberts et al agreed our results as they found that the visual acuity was regained despite the persistent disruption in ellipsoid zone and interdigitation zone.
The improvement in vision may be related to the early healing of the External limiting membrane (ELM) before the ellipsoid zone and the interdigitation zone. This correlates with same conclusion in other studies related the integrity of the ELM to the improvement of VA in other macular diseases.
Comments in attached file:
Had been edited.

Reviewer 4
Prof: Mohammed Hossein Jabbrpoor

Comment 1
Manuscript writing needs re-edition. For example ..of photoreceptor inner and outer segments in 100% of our cases while in the study of (AULT [11] showed) that Optical coherence tomography demonstrated foveal atrophy associated Actually, the occurrence of the inner retinal disruption in previous studies mostly due to (choric) solar maculopathy
Reply:
Edited and corrected

Comment 2:
It is shown that there is direct relation between outer retinal layer condition in OCT and visual prognosis in different retinal disease. Here in this study 90% of samples have follow-up VA of better than 0.8 while OCT revealed an outer retinal layer hole in majority (80%) of cases at last follow-up. This controversy must be discussed in the manuscript.
Reply:
Thanks a lot
This controversy has been addressed

References which were added:


