

Dear Editor,

Thank you for your kind suggestions regarding our paper “Vitrectomy with residual internal limiting membrane cover and autologous blood for secondary macular hole: a case report” (Manuscript NO.: 69283, Case Report). We have carefully revised the manuscript according to the Editorial Office’s comments and suggestions:

Reviewer #1:

1- The patient initially presented with the retinal nerve fibre layer split on the temporal side and the outer nuclear layer split on the entire macula. Following the surgery the macular hole develops and expands gradually. Readers would appreciate to read some reflections on **what could have been done before or during the initial vitrectomy to prevent this complication from happening.**

Reply: Thank you for your valuable suggestions, we took your advice and added the discussion:

The stiffness of Müller cells might considerably increase in MF, which might translate to higher mechanical force transmission to photoreceptors ^[1]. The inner retinal surface of the MF was vulnerable to developing a break, and tangential and anteroposterior traction between the vitreous and retina might induce MH formation ^[2]. Gao et al.^[3] investigated the possible mechanisms and risk factors for the development of secondary MH in MF based on preoperative OCT findings and found that a preoperative inner segment/outer segment (IS/OS) junction defect can be a risk factor for MH development. Kumar et al.^[4] found that vitrectomy with intraoperative OCT (I-OCT)-guided fovea-sparing ILM peeling helps in complete removal of traction, resolution of retinoschisis and good functional recovery, with fewer intraoperative and postoperative complications. Therefore, if preoperative OCT reveals an IS/OS junction defect, we should pay more attention to MH formation. Vitrectomy should be performed centripetal rather than centrifugal near the macula, and anteroposterior traction should be avoided to protect Müller cell processes and photoreceptor axons from damage. I-OCT may be used as it is associated with few intraoperative and postoperative complications.

2-Since most of the emphasis on the manuscript is on the technique of the surgery, the authors should mention the **advantages** of fovea sparing Internal limiting membrane peeling for myopic foveoschisis

treatment, **with special emphasis on the prevention of postoperative macular epiretinal membrane formation.**

Reply: Thanks for your kindly suggestion. To our best knowledge, fovea sparing ILM peeling for MF treatment, couldn't prevent formation of postoperative macular epiretinal membrane. We took your advice and added the advantages of fovea sparing internal limiting membrane peeling for myopic foveoschisis treatment, with special emphasis on the prevention of **postoperative macular holes formation:**

Compared with complete ILM peeling, fovea-sparing ILM peeling may lead to similar morphological effects and may contribute to greater visual benefits and a lower risk of postoperative MH formation. Fovea-sparing ILM peeling could release tangential traction force and preserve the integrity of Müller cells in the macular fovea. Thus, the traction force over the extremely thinned foveal tissue can be minimised, and less irritation and injury are helpful to maintain the stability of the macular area and avoid postoperative MH formation.

3- On the second vitrectomy, fresh blood from the patient's vein has been injected to cover the macula. I recommend, at the discussion section to address **the possible biochemical mechanisms in which injection of fresh blood might have contributed on the healing of the macular hole.**

Reply: Thank you for your valuable suggestions, we reviewed literatures, and added the discussion:

Fresh blood forms a blood clot within minutes, keeps the residual ILM flap inverted and covered the MH, and reduces the risk of dislocation after surgery^[5]. The inverted ILM flap and blood clot mixture covering on the MH might seal the hole and provide a smooth surface for glial cell proliferation. The components and growth factors present in the blood could facilitate the healing processes of the MH. In addition, the serum may reduce the toxic effects of indocyanine green staining of the ILM^[6].

Editorial Office's comments:

The authors did not provide original pictures. **Please provide the original figure documents.** Please prepare and arrange the figures using **PowerPoint** to ensure that all graphs or arrows or text portions

can be reprocessed by the editor.

Reply: Thank you for your kindly suggestion. We have re-prepared and re-arranged the figures using PowerPoint. The PowerPoint file has been uploaded.

There was no change of author list in this revision. Each of the coauthors has seen and agrees with each of the changes made to this manuscript in the revision and to the way his or her name is listed.

We hope our revised manuscript is acceptable for publication in *World Journal of Clinical Cases*

Best regards

- 1 Govetto A, Hubschman JP, Sarraf D, Figueroa MS, Bottoni F, dell'Omo R, Curcio CA, Seidenari P, Delledonne G, Gunzenhauser R, Ferrara M, Au A, Virgili G, Scialdone A, Repetto R, Romano MR. The role of Muller cells in tractional macular disorders: an optical coherence tomography study and physical model of mechanical force transmission. *The British journal of ophthalmology* 2020; **104**(4): 466-472 [PMID: 31326893 DOI: 10.1136/bjophthalmol-2019-314245]
- 2 Smiddy WE, Flynn HW, Jr. Pathogenesis of macular holes and therapeutic implications. *American journal of ophthalmology* 2004; **137**(3): 525-537 [PMID: 15013877 DOI: 10.1016/j.ajo.2003.12.011]
- 3 Gao X, Ikuno Y, Fujimoto S, Nishida K. Risk factors for development of full-thickness macular holes after pars plana vitrectomy for myopic foveoschisis. *American journal of ophthalmology* 2013; **155**(6): 1021-1027 e1021 [PMID: 23522356 DOI: 10.1016/j.ajo.2013.01.023]
- 4 Kumar A, Ravani R, Mehta A, Simakurthy S, Dhull C. Outcomes of microscope-integrated intraoperative optical coherence tomography-guided center-sparing internal limiting membrane peeling for myopic traction maculopathy: a novel technique. *International ophthalmology* 2018; **38**(4): 1689-1696 [PMID: 28676991 DOI: 10.1007/s10792-017-0644-x]
- 5 Lai CC, Chen YP, Wang NK, Chuang LH, Liu L, Chen KJ, Hwang YS, Wu WC, Chen TL. Vitrectomy with Internal Limiting Membrane Repositioning and Autologous Blood for Macular Hole Retinal Detachment in Highly Myopic Eyes. *Ophthalmology* 2015; **122**(9): 1889-1898 [PMID: 26143541 DOI: 10.1016/j.ophtha.2015.05.040]
- 6 Nakamura H, Hayakawa K, Sawaguchi S, Gaja T. Removal of retinal indocyanine green dye by autologous serum irrigation in macular hole surgery. *Retina* 2005; **25**(6): 736-741 [PMID: 16141861 DOI: 10.1097/00006982-200509000-00008]