Author’s response to reviews

Title: Case report: Acute angle closure attack after an intravitreal bevacizumab injection for branch retinal vein occlusion

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Author’s response to reviews:

Dear Editor,

Sincerest thanks for your response and reviewers comments on our manuscript. Following your letter regarding the manuscript “Case report: Acute angle closure attack after an intravitreal bevacizumab injection for branch retinal vein occlusion” submitted to BMC ophthalmology, we are sending the rebuttal letter explaining the changes performed on the manuscript. We hope that a revised version of the manuscript will still be considered by BMC ophthalmology. We have modified the manuscript in response to the extensive and insightful reviewer comments. In accordance with BioMed Central editorial policies and formatting guidelines, we reviewed and modified our declarations section. The affiliation of corresponding author, Woohyok Chang, M.D., Ph.D was changed, so we updated the old information including e-mail address with the new one. We hope that this comply with the referee’s remarks. We will respond to the comments point counter point.

Reviewer reports:

Reviewer #1: The paper describes a rare but plausible event after the injection of an anti-vegf, the precipitation of an angle closure attack. It may be the first case described, but it always dangerous to aver that this is so. "likely the first description or may be the first description" would be better.

-We revised the sentence as below.

This is likely the first case report to be issued on acute angle closure after an intravitreal injection in branch retinal vein occlusion.

Also, the consideration that volume of the eye being injected is so important may not be true. The key element is ocular rigidity, and though volume of the recipient globe may be an
important variable, it turns out that buckled eyes, for instance, are less likely to show a pressure rise from an injection than an unbuckled eye, yet the volume of an eye that has been scleral buckled is less than in the unbuckled state. See Friberg TR and Fourman SB: Scleral buckling and ocular rigidity: Clinical ramifications. Arch Ophthalmol. 108:1622-1627, 1990.

-We agree with the reviewer. We read the journal of Firberg TR and Fourman SB, and found that we did not describe the mechanism of biomechanical model properly. In the biomechanical model, the hyperopic eye is at a greater risk of IOP elevation because of their stiffer scleral rigidity as well as relatively lower volume than myopic eye. We added the concept of scleral rigidity with a new reference titled “The scleral rigidity of eyes with different refractions”, and revised the sentence as below.

The extreme IOP elevation can be explained by biomechanical model, in which IOP elevation after intravitreal injection may depend on the ocular biometric characteristics of treated eye. [7, 8] According to this theory, hyperopic eyes with short axial length and a small intraocular volume are at greater risk of extreme IOP elevation after intravitreal injection because they may possess stiffer sclera rigidity, and a greater percentage of intraocular volume is introduced than in myopic eyes with long axial length.

Reviewer #2: All in all, this case report is a fair attempt to describe a prominent and persistent IOP spike after intravitreal injection. Although the manuscript is well written and comprehensive it is not unique in the literature and does not add much to our knowledge. Furthermore, I am not sure if the IOP increase could be attributed to an acute angle closure since the anterior chamber in the figures provided does not seem to be that shallow, especially in the centre. An anterior chamber OCT would be useful in that case.

-Unfortunately, we don’t have anterior segment OCT. On slit-lamp, we carefully examined and found the shallow anterior chamber depth both in center and periphery. The other findings including corneal edema, dilated pupil, patient’s symptoms and extreme elevated IOP suggested the acute angle closure, and we concluded that diagnosis with a glaucoma specialist. We revisied the figure 2 legends describing more details of corneal surface as below.

(A) The pupil was mid-dilated and fixed. Corneal edema and punctate leison were observed.

Moreover, the authors mention that the patient had a persistent ocular pain immediately following the intravitreal injection. In that case, the patient should be checked in the slit lamp without delay in order to avoid complications such as central retinal artery occlusion. If the authors did not do that, it could be considered as a medical pitfall.

-We agree that patients who complain ocular pain or other symptoms should be checked without delay. However, this patient did not complain any symptoms immediately after the injection. We are not sure her experience of previous intravitreal injection influenced to that. She visited on next day and then we got to know that she had persistent ocular pain. We inserted a new sentence to clarify this point as below.
After injection, notable complications were not observed, and the patient did not complain any symptoms at that time.

Finally, the authors should explain their choice to perform laser peripheral iridotomy in both eyes and clarify if they believe this has been helpful.

-The patient had narrow angle on her both eye. The glaucoma specialist carefully examined her opposite eye, and decided prophylactic laser iridotomy would be helpful. Our description of this point looks insufficient, so readers may misunderstand that laser iridotomies were performed at the same time. The glaucoma specialist performed iridotomy on involved eye to treat the AAC. Three days after the iridotomy, we explained to the patient that the opposite eye had potential risk for AAC. She agreed to prophylactic laser iridotomy and we performed. We revised the sentence to clarify this point as below.

Finally, a glaucoma specialist performed laser iridotomy (LI) to the right eye. After three days, prophylactic LI to the left eye was performed to prevent the potential risk of AAC.