Author’s response to reviews

Title: Consecutive drilling combined with phaco chop for full thickness segmentation of very hard nucleus in coaxial microincisional cataract surgery

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Author’s response to reviews:

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Amy Branch-Hollis
BMC Ophthalmology Editorial Office, princess.quitalan@biomedcentral.com

MS: BOPH-D-18-00592R2

Title: Consecutive drilling combined with phaco chop for full thickness segmentation of very hard nucleus in coaxial microincisional cataract surgery

Dear Editor,

My colleagues and I appreciate your insightful and constructive comments on our manuscript entitled "Consecutive drilling combined with phaco chop for full thickness segmentation of very hard nucleus in coaxial microincisional cataract surgery "(BOPH-D-18-00592R2). We have taken all comments seriously, and made revisions accordingly. We hope that this revised manuscript is now acceptable for publication in BMC Ophthalmology.

Sincerely yours,

Fan Lu, MD, OD
Professor
RESPONSES TO EDITORIAL COMMENTS

Comments 1: Unfortunately, the current submission still contains some textual overlap with other previously published works, in particular:


And


This overlap can be found throughout the manuscript, but particularly in the Results, Discussion and Abstract.

While we understand that you may wish to express some of the same ideas contained in these publications, please be aware that we cannot condone the use of text from previously published work.

Please rephrase these sections to minimise overlap.

Author Response:

We appreciate your favorable review and constructive comments. We have rephrased these sections with overlap expressions. The revisions are listed as follows.

(Abstract section, line 18-22, page 2; line 1-3, page 3)

Before revision

“Results: In all cases, full thickness segmentation of the hard nuclear including the posterior plate was achieved in coaxial microincisional surgery. No intraoperative complication such as posterior capsule rupture or zonulysis occurred during surgery, and no postoperative complication such as fibrin formation, severe endothelial cell loss, or endophthalmitis was observed in any patient at 6 months postoperatively.”

After revision
“Results: In all cases, full thickness segmentation of the hard nuclear including the posterior plate was achieved with this consecutive drilling combined with phaco chop technique. Phacoemulsification and intracapsular implantation of intraocular lens was safely performed in each case. No intraoperative complication such as iris injury, anterior capsule tears, zonulysis or posterior capsule rupture with vitreous loss occurred during surgery. No postoperative complication such as fibrin formation, synechias, severe endothelial cell loss, or endophthalmitis was observed in any case at 6 months postoperatively.”

(Results section, line 12-19, page 7)

Before revision

“In all cases, full thickness segmentation of the hard nuclear including the posterior plate was achieved in coaxial microincisional cataract surgery. No intraoperative complication such as zonular tear or posterior capsule rupture occurred during surgery. No postoperative complication such as severe endothelial cell loss, fibrin formation, or endophthalmitis was observed in any patient during 6-month postoperative follow-up.”

After revision

“In all cases, full thickness segmentation of the hard nuclear including the posterior plate was achieved with this consecutive drilling combined with phaco chop technique. Phacoemulsification and intracapsular implantation of intraocular lens was safely performed in each case. No intraoperative complication such as iris injury, anterior capsule tears, zonulysis or posterior capsule rupture with vitreous loss occurred during surgery. No postoperative complication such as fibrin formation, synechias, severe endothelial cell loss, or endophthalmitis was observed in any case at 6 months postoperatively.”

(Discussion section, line 22-23, page 7)

Before revision

“A complete division of nuclei is crucial to accomplishing uneventful phacoemulsification for hard cataracts.”

After revision

“Complete division of nuclei is an essential step to accomplishing uneventful phacoemulsification for hard cataracts.”

(Discussion section, line 2-4, page 8)
Before revision

“In addition, hard cataract is commonly complicated by the paucity of protective cortex and epinuclear layer, the fragility of the capsule, and the laxity of the zonules.”

After revision

“In addition, hard cataract is commonly complicated by the paucity of protective cortex and epinuclear layer, the laxity of the zonules, and the fragility of the capsule.”

(Discussion section, line 11-13, page 8)

Before revision

“Multiple maneuvers such as sculpting, incising, crushing, or drilling are adopted to create a groove or trench for the initial segmentation and further chopping of the solid hard nucleus.”

After revision

“Multiple maneuvers such as sculpting, incising, crushing, or drilling are adopted to create a groove or trench for the initial chopping and further segmentation of the rock-hard nucleus.”

(Discussion section, line 20-21, page 8)

Before revision

“The 2 instruments are then moved in opposite directions to divide the nucleus into halves.”

After revision

“The two instruments are then spread apart laterally to divide the nucleus into halves.”

(Discussion section, line 2-8, page 9)

Before revision

“Surgeons often try to perform a subsequent chop in an unchopped region of the nucleus by rotating the nucleus but frequently encounter the same problem. In cases in which the first chop is unsuccessful, the phaco-flip technique may be beneficial. However, this technique applies
significant force to the zonules and lens capsule, as a result, may be unsuitable in cases in which the zonules are weak.”

After revision

“Surgeons have to rotate the nucleus to position the unchopped region opposite to the phaco tip and subsequent repeated chops are performed to achieve a complete division of the nucleus. Some techniques such as phaco-flip may be beneficial in cases in which the first chop is not successful. However, significant force is applied to the zonules and lens capsule when additional manipulation is needed, which may not be suitable in cases with weak zonules or fragile capsule.”

(Discussion section, line 10-16, page 9)

Before revision

“We adopted the consecutive drilling idea from mining engineering. Miners drill multiple holes in a line and then use jimmy to exert inside-out forces to crack a rock into halves. According to the mechanical rock excavation systems and Griffiths theory of brittle fracture, these brittle hard objects are stronger in compression but weaker in tensile strength. So it is always difficult to segment these hard materials with compressive forces but relatively easier to crack and break, with inside-out dispersive mechanical forces.”

After revision

“We adopted the consecutive drilling idea from mining engineering. Miners drill multiple holes in a line and then use jimmy to exert inside-out forces to crack a rock into halves. Normally brittle hard materials are stronger in compression but weaker in tensile strength according to the Griffiths theory of brittle fracture. So it is always easier to segment these hard objects with inside-out dispersive mechanical forces than with compressive forces.”

(Discussion section, line 19-20, page 9)

Before revision

“The weakening of the hardest central core will ease the fracture line to propagate posteriorly during the following action of phaco chop.”

After revision
“The weakening of the hardest central core will make the fracture line to propagate posteriorly easily during the following action of phaco chop.”

(Discussion section, line 1-3, page 10)

Before revision

“In addition, debulking the central portion of the nucleus allows safer and easier endocapsular phacoemulsification of the nuclear fragments after chopping or splitting.”

After revision

“In addition, consecutive drilling debulks the central portion of the nucleus, which allows safer and easier endocapsular phacoemulsification of the nuclear fragments after chopping or splitting.”

Comments 2: Please add a “Conclusions” section after the “Discussion” section. This should state clearly the main conclusions of the research article and give a clear explanation of their importance and relevance.

Author Response:

Thank you for your kind reminding. We have added a “Conclusions” section after the “Discussion” section.

(Conclusions, line 10-18, page 11).

“Conclusions

We have described a modification of the original phaco chop technique named “consecutive drilling combined with phaco chop” in coaxial microincisional phacoemulsification. To the best of our knowledge, this technique has not been described in the literature previously. The technique is an efficient, safe, simple, and swift procedure for full-thickness nuclear segmentation, delivering advantage of microincisional phacoemulsification for hard cataract with fewer ocular complications. Further clinical studies are needed to objectively compare this technique with other techniques for managing hard cataracts.”

Comments 3: Thank you for the statement you have provided in the Consent for publication section of your manuscript. Consent for publication refers to consent for the publication of identifying images or other personal or clinical details of participants that compromise anonymity. If identifying images or other personal or clinical details of participants are presented that compromise anonymity, a statement of consent to publish from the patient should be included. If consent to publish is not applicable to your manuscript please write ‘Not Applicable’ in this section.
Author Response:

We appreciate your detailed explanation of the Consent for publication. We do not have identifying images or other personal or clinical details of participants that compromise anonymity. So we have changed to “Not Applicable” in the Consent for publication section.

(Declarations, line 17, page 17).

“Consent for publication: Not Applicable.”

Comments 4: Please add a section "Additional files" (after the References/Figure legends) where you list the following information for each additional/supplementary file in the file inventory:

- File name (e.g. Additional file 1)
- Title of data
- Description of data

Author Response:

We have added a section "Additional files" (after the References/Figure legends) and listed the required information for each additional/supplementary file in the file inventory:

(Additional files, page 15).

Comments 5: At this stage, please upload your manuscript as a single, final, clean version that does not contain any tracked changes, comments, highlights, strikethroughs or text in different colours. All relevant tables/figures/additional files should also be clean versions. Figures (and additional files) should remain uploaded as separate files.

Author Response:

Thank you for your professional comment. We have uploaded the manuscript and relevant tables/figures/additional files as instructed.

This is the end of Author Response.

Thank you very much.

Best wishes.

Fan Lu, MD, OD
Professor