We respectfully submit our manuscript entitled "Acute uveal effusion during phacoemulsification with preoperative central serous chorioretinopathy: a case report." for consideration for publication in BMC Ophthalmology. The paper was coauthored by Ruiqi Chang, Yu Du, Zhou Peng, Yi Lu, and Xiangjia Zhu.

Uveal effusion is the accumulation of fluid in the suprachoroidal layers with consecutive choroidal and retinal detachment, considered as a precursor of uveal hemorrhage and expulsive hemorrhage. With the modern cataract surgical techniques including small-incision, the incidence of uveal effusion has thus been significantly reduced. Acute uveal effusion during phacoemulsification has been rarely reported. Here, we reported an acute uveal effusion during clear corneal phacoemulsification using topical anesthesia in an eye with preoperative chronic central serous chorioretinopathy (CSC).

The patient with a history of chronic CSC for over 18 months presented with bilateral opacified lens. Preoperative ophthalmic examination showed CSC in the left eye, suspected lenticonus and risky anatomies, including thick ciliary body, anteriorly rotated ciliary process and iris root in
both eyes. During phacoemulsification, the anterior chamber flattened. With suspected infusion misdirection syndrome, anterior vitrectomy was rapidly performed followed by uneventfully accomplished operation. Postoperative ophthalmic examination including fundus photograph, type B ultrasound and optical coherence tomography confirmed the presence of uveal effusion. Our case report revealed a potential association between preoperative CSC and uveal effusion during surgery, considering the choroidal hyperperfusion and hyperpermeability in CSC eyes.

This work has not been submitted elsewhere for publication, in whole or in part, and all the authors have approved the manuscript as enclosed.

Thank you for your consideration.

Sincerely yours,

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Author’s response to reviewers’ comments

Dear editors,

We greatly appreciate both your help and that of the reviewers concerning improvement to this paper. We cherish this opportunity to revise the manuscript and have tried our best to make the revisions.
Response letter:

Reviewer #1

Q1: What about postoperative intraocular pressure (IOP) fluctuation? Did the IOP change postoperatively? It might be better to describe more about it.

Response: Thank you for your suggestion. We have already given a more detailed description of postoperative IOP fluctuation in the revised manuscript (page 6, paragraph 2, line 8-9). During the follow-up period after the surgery, the IOP mildly elevated but was still within the normal range.

Q2: How to perform anterior vitrectomy? The surgery procedure should be described more.

Response: We really appreciate your suggestion. We have described this issue in the revised manuscript (page 5, paragraph 2, line 9-12). Dry pars plana anterior vitrectomy using 25G vitrector was firstly performed followed by vitrectomy with anterior chamber irrigation soon after slightly formation of anterior chamber.

Q3: Fundus Fluorescein Angiography (FFA) results better to be provided. The image of FFA might help strengthen your conclusion.

Response: Thank you for your advice. Fluorescein angiography (FFA) was performed preoperatively in another medical institution (not mentioned in the primary manuscript). The image was unable to obtain, and the repeat of FFA was refused by the patient. Fortunately, the
result of FFA was recorded in his outpatient medical record: there was a hyperfluorescent superofoveal area with leaking points in his left eye. We have already added the FFA results in the revised manuscript (page 5, paragraph 1, line 5-6).

Reviewer #2

Q1: Proper indications are needed to figure 1
Response: We really appreciate your advice. We have added the indications of figure 1.

Q2: As I see, preoperative B-scan photography showed thickening of uvea
Response: Thank you for your suggestion. Per this question, we consulted two B-scan experts in our department, and both of them told us that the thickening of uvea couldn’t be identified from Figure 2B. According to them, the thickening band structure you see actually includes sclera, uvea and retina, but the single layer of uvea can’t be differentiated from these 3 structures in this Figure.

Q3: Figure 2, proper indications for comprehension are needed.
Response: Thank you for your comments. We have added the indications of figure 2.

Q4: Figure 2, In oct, there is still mild SRD near the fovea, Is not acute uveal effusion and CSC a separate issue?
Response: We really appreciate your advice. We have already discussed the issue in the revised manuscript (page 8, paragraph 1, line 12-16). It is true that there is still mild SRD near fovea in postoperative OCT. However, the location and severity of SRD on the 50th postoperative day was quite close to that before operation. Moreover, the patient had a medical history of chronic CSC for over 18 months. In this case, CSC may serve as a risk factor for intraoperative acute uveal effusion.
Q5: Why was the visual acuity of the first day after surgery 30cm FC?

Response: Thank you for your comments. On the first day after surgery, the patient had corneal edema and moderate serous choroidal detachment at posterior pole, bulged macular choroid with edematous neuroepithelium and subfoveal effusion. Thus, his visual acuity was only FC/30cm.

Q6: The visual acuity of the other eye was also bad with cataracts. Was there any problem when author operated on the other eye?

Response: We really appreciate your suggestion. The patient hasn’t made up his mind to have second eye cataract surgery till now, as he was concerned about the occurrence of uveal effusion in his second eye again.

Q7: To clarify the CSC, did the authors not perform ICGA or Fluorescein angiography before or after surgery? If so, describe the result in the text and add it to the figure.

Response: Thank you for your suggestion. Fluorescein angiography (FFA) was performed preoperatively in another medical institution (not mentioned in the primary manuscript). The image was unable to obtain, and the repeat of FFA was refused by the patient. Fortunately, the result of FFA was recorded in his outpatient medical record: there was a hyperfluorescent superofoveal area with leaking points in his left eye. We have already added the FFA results in the revised manuscript (page 5, paragraph 1, line 5-6).

Q8: Preoperative CSC is also accompanied by PED, and chronic CSC with irregular internal serous detachment is suspected. Also, why does CSC remain after postoperative effusion has been resolved?

Response: We really appreciate your comments. Yes, the patient had a medical history of chronic CSC for over 18 months. After surgery, the location and severity of SRD in OCT-images on the 50th postoperative day is quite close to that before operation. We suppose that it might be very difficult for chronic CSC to completely heal without intervention such as anti-VEGF injection or laser treatment. Besides, constant suffering from insomnia might also precipitate CSC in this case.
Q9: The authors describe the diagnosis of infusion misdirection syndrome during surgery and performed vitrectomy. Nevertheless, why did not the effusion proceed any further?

Response: Thank you for your suggestions. The anterior vitrectomy was quickly performed by an experienced surgeon. After the vitrectomy, anterior chamber was reformed, and the remainder of the operation was uneventfully accomplished. The whole process took only about 7 minutes. The effusion didn’t aggravate perhaps either due to the adept surgical technique and prompt management of the surgeon or the patient's own luck.