

Comment on concurrent removal of intravitreal lens fragments after phacoemulsification with pars plana vitrectomy prevents development of retinal detachment

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Received: 2015-03-18 Accepted: 2015-06-01

DOI:10.18240/ijo.2016.06.27

Kim YC. Comment on concurrent removal of intravitreal lens fragments after phacoemulsification with pars plana vitrectomy prevents development of retinal detachment. *Int J Ophthalmol* 2016;9(6):935-936

Dear Editor,

I read with interest the article entitled "Concurrent removal of intravitreal lens fragments after phacoemulsification with pars plana vitrectomy prevents development of retinal detachment" by Chalam *et al*^[1]. In this study, none of the patients developed retinal detachment (RD) during the one-year follow-up after concurrent removal lens fragments following phacoemulsification with pars plana vitrectomy (PPV). The authors suggested that concurrent PPV for retained lens fragments after cataract surgery might prevent development of rhegmatogenous retinal detachment (RRD), because early PPV prevents development of intraocular inflammation and inhibits vitreous contraction, a common cause of retinal tears and detachment.

I agree that early vitrectomy for retained lens fragments produces better outcomes. However, I respectfully disagree that early vitrectomy should be concurrent with the primary cataract surgery to reduce RRD incidence. I believe that the retained lens may not induce sufficient traction to cause a retina break within several days. Rather, the retained lens becomes softer during this period, making it easier to remove without use of a fragmatome or light pick. Currently, only a

20-gauge (G) fragmatome is available and 20 G PPV is associated with higher incidence of iatrogenic retinal breaks than 23 G^[2]. The use of a fragmatome or light-pick may increase the chances of retinal break. The fragmatome does not have a vitreous-cutting function and cannot hold lens fragments during phacoemulsification. For these reasons, high vacuum in fragmatome may produce significant vitreous traction and bouncing of the lens fragment, which may cause retinal break. Retinal breaks are believed to develop during removal of the retained lens rather than from long-retained lens. Therefore, the most important factor to reduce the incidence of RD after PPV is how easily to remove the retained lens. Although no RD was identified by Chalam *et al*^[1], retinal tears were noted in 4 eyes (6.8%) and prophylactic circumferential endolaser was applied in all cases in the study. The low incidence of RRD is presumed to be due to the prophylactic circumferential laser treatment, and not to the concurrent PPV.

Chalam *et al*^[1] stated that the disadvantage of larger gauge ports is a potentially higher risk of endophthalmitis. However, small gauge sutureless PPV have been reportedly associated with a higher risk of endophthalmitis^[3].

In conclusion, lens fragments that are retained for a few days probably do not need removal using a fragmatome or light-pick, unless brownish-colored nucleus is apparent. Short-term delayed PPV and removal of a retained lens would be safer than concurrent PPV.

ACKNOWLEDGEMENTS

Conflicts of Interest: Kim YC, None.

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Author Reply to the Letter

Dear Editor,

We appreciate the letter from Kim YC regarding the article by Chalam *et al*^[1] reporting the results of concurrent vitrectomy for dislocated lens fragments removal during phacoemulsification. We agree that there is still a lot of debate regarding the timing of vitrectomy for removal of dislocated lens fragments during phacoemulsification^[2]. Our literature review and Meta-analysis of the outcomes suggest that there is a trend overall for surgeons to consider early vitrectomy. However, as we have explained in our article, there has been no prior literature on the results of concurrent vitrectomy for removal of lens fragments. The operative setting in our institution provided a unique opportunity to examine the outcome associated with concurrent vitrectomy. After a reasonable follow up of the patients who underwent concurrent vitrectomy, we found that none of the patients developed a retinal detachment^[1].

We agree that the lens fragments, by themselves, do not induce a retinal break, but the inciting inflammation due to the lens protein in the vitreous leads to abnormal vitreo-retinal adherence and results in the formation of retinal breaks. This has been observed by vitreo-retinal surgeons operating on patients with chronic non-infectious uveitis, and studies reporting outcomes of vitrectomy have found uveitis to be an independent risk factor for rhegmatogenous retinal detachment with a prevalence of 3.1 percent^[3]. By removing the inciting agent of inflammation (lens material) with concurrent vitrectomy, we hypothesize that downstream effects of inflammation (like cystoid

macular edema, glaucoma and retinal breaks) are prevented leading to better anatomical and visual outcomes. Prophylactic laser retinopexy also eliminates the development of consecutive retinal detachment. We agree that visualization during vitreo-retinal surgery is the key for better outcomes and recommend that concurrent vitrectomy for lens fragments be carried out only in patients in whom vitreo-retinal surgery can be safely performed without compromising the final outcome. This also eliminates the need for second separate surgery for removal of retained lens fragments.

ACKNOWLEDGEMENTS

Conflicts of Interest: Murthy RK, None; Chalam KV, None.

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