Commentary: Retinal detachment in eyes treated with Aurolab aqueous drainage implant for refractory glaucoma - Incidence and outcomes

The principal indication for glaucoma drainage devices (GDDs) is usually glaucoma refractory to filtering surgery.[1] Currently, commonly available GDDs are either valved like the Ahmed glaucoma valve (AGV; New World Medical Inc., Rancho Cucamonga, CA, USA) or non-valved GDDs like the Baerveldt glaucoma implant (BGI; Abbott Medical Optics, Abbott Park, IL, USA) and Aurolab aqueous drainage implant (AADI; Aurolab, Aravind Eye Hospital, Madurai, India), which have been shown to be safe and effective in both pediatric and adult populations. AADI has certain advantages over AGV. Since it is indigenously manufactured, it is highly cost-effective when compared to AGV. Studies have shown that it has a higher success rate, achieves significantly lower intraocular pressure (IOP), and the patients require less number of anti-glaucoma medications postoperatively. Some studies also indicate that the long-term IOP control is better with AADI when compared to that with AGV.[1-3]

Postoperative posterior segment complications that may arise after usage of GDDs are hypotony and its consequences like hypotony maculopathy, serous choroidal effusion, choroidal detachment, suprachoroidal hemorrhage, retinal detachment, and endophthalmitis.[4,5] Overall, retinal complications have been described in 14%-50% of eyes with GDD implantation and majority occur within 35 days after GDD implantation.[5] Rhegmatogenous retinal detachment (RRD) occurs in approximately 5% of eyes after aqueous humor shunt implantation, with most occurring within 4 months of surgery.[6] Khan *et al*.[7] reported the incidence of RRD after AADI and AGV implantation to be 5.4% and 4.3%, respectively. The present authors analyzed the outcomes of 10 cases of RRD/1158 (0.86%) cases after AADI implantation.[8] Few points are to be kept in mind in these cases. As has been pointed out by the authors, some predisposing factors for the development of retinal detachment may have been there, such as uveitis, vitreous incarceration, scleral perforation, and retinal dialysis after pars plana tube placement. Nowadays, vitrectomy is often the preferred mode of treatment than scleral buckling procedure. Intraoperative choroidal drainage is often required as these RRDs are frequently associated with choroidal detachment. Rarely, suprachoroidal hemorrhage (SCH) is also a concomitant complication and intraoperative drainage of SCH is sometimes required. Moreover, retinal detachment after appositional choroidal effusion or expulsive hemorrhage can result in retinal adhesions, which are to be tackled meticulously. Use of heavy fluid perfluorocarbon liquid is particularly beneficial for retinal reattachment. Silicone oil is the preferred mode of endotamponade and it is recommended to use it at the end of surgery. Postoperative visual prognosis is often compromised as the chance of recurrence of retinal detachment is high. The present authors have also highlighted that poor visual recovery is primarily due to recurrent RRD as well as preexisting glaucoma. Tube blockade by silicone oil droplets may result in rise of IOP postoperatively, further worsening the glaucoma status. Many times, migration of emulsified silicone oil particles into the subconjunctival space through both the valved and non-valved devices has been reported.[9,10] When a scleral buckle is to be placed in a case with a preexisting GDD, utmost care should be taken to avoid the displacement of the tube placed in the anterior chamber. Studies have also shown the occurrence of phthisis bulbi following aqueous humor shunt implantation.[11]

So, as has been concluded by the authors, vitrectomy with silicone oil tamponade appears to be the preferred approach in the management of these eyes, with IOP being well controlled post-vitrectomy, but it should be kept in mind that the visual outcomes are largely unsatisfactory due to recurrent RRD and preexisting advanced glaucoma.

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