Breakthrough vitreous hemorrhage after ICGA guided PDT for PCV

Dear Editor,

Polypoidal choroidal vasculopathy (PCV) is a type of choroidal neovascularization, associated with recurrent serosanguineous detachments of the retinal pigment epithelium and the neurosensory retina, secondary to leakage and bleeding from the choroidal vascular lesions.[1] Indocyanine green angiogram (ICGA)-guided photodynamic therapy (PDT) with verteporfin in the treatment of associated choroidal neovascular membrane (CNVM) has shown encouraging results, with the postulation being that ICGA-guided targeting reduces collateral damage to the choriocapillaris, thus reducing the up-regulation of vascular endothelial growth factor.[2] We report a case of breakthrough vitreous hemorrhage after ICGA-guided PDT for PCV.

A 69-year-old Indian lady presented with sudden diminution of vision in the left eye since one week. Visual acuity was 20/20, N6 in the right eye and 20/30, N6 in the left eye. Anterior segment examination was essentially normal except for early cataractous changes in both eyes. Right fundus was normal. Left fundus revealed sub-macular hemorrhage. Fundus fluorescein angiography (FFA) [Fig. 1A] and ICGA suggested PCV with multiple subretinal polypoidal lesions and a peripapillary CNVM in the left eye. The patient underwent ICGA-guided PDT in that eye with two non-confluent spots of 3 mm each [Fig. 1B]. Three weeks later, vision dropped to bare perception of light. Fundus examination revealed vitreous hemorrhage with no retinal view. Ultrasound showed multiple vitreous echoes with attached retina.

The patient underwent pars plana vitrectomy for 'breakthrough vitreous hemorrhage' and the suspected site of breakthrough vitreous bleed was lasered. Fourteen per cent perfluoropropane served as endotamponade. Six weeks later, fundus evaluation revealed altered sub-retinal hemorrhage inferior to the macula [Fig. 2A]. FFA showed peripapillary staining and macular window defects with no leakage [Fig. 2B]. One month later, fundus remained stable. Best corrected visual acuity improved to 20/40, N6.

Recent case series analyzing the hemorrhagic complications of PDT for PCV have reported a 6.59% incidence of breakthrough vitreous hemorrhage subsequent to sub-retinal hemorrhage following treatment.[3,4] In our institute, 41 eyes of 26 patients underwent PDT for PCV between June 2001 and August 2007. However, breakthrough vitreous hemorrhage was noted only in a single eye. Hence, the incidence of vitreous hemorrhage after PDT for PCV in our practice amounts to 2%. This is much lower than that reported in the Japanese population (6.59%).[3] The earliest development of vitreous hemorrhage was noted at 29 days post-PDT. Significant visual decline was noted in 50% of cases, including that of massive suprachoroidal hemorrhage and profound visual loss.[3,4] Our case had the earliest reported presentation (21 days) following PDT. Although the patient had diabetes mellitus there was no evidence of proliferative retinopathy which could account for the vitreous hemorrhage. The PDT spot size in the reported case was 3.0 mm [Fig. 1B]. The mean PDT spot size in the other 40 eyes was 3.55 mm. Hence, we
did not find a positive correlation between the PDT spot size and the tendency for breakthrough vitreous hemorrhage following PDT. To the best of our knowledge, this is the first case report of breakthrough vitreous hemorrhage, after PDT for PCV, from the Indian subcontinent. The patient achieved satisfactory clinical and visual stability after surgery, at four months.

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Figure 1A: Fundus fluorescein angiography (FFA) reveals multiple, hyperfluorescent, pinpoint subretinal lesions around the optic disc suggestive of polypoidal choroidal vasculopathy in the left eye. Blocked fluorescence is secondary to subretinal hemorrhage.

Figure 1B: Indocyanine Green Angiography (ICGA) reveals numerous other polypoidal lesions with a peripapillary choroidal neovascular membrane (CNVM) inferior to the optic disc typical of polypoidal choroidal vasculopathy. Circles indicate photodynamic therapy (PDT) treatment spots.

Figure 2A: Color fundus montage of left eye at 13 weeks follow-up revealed altered subretinal hemorrhage, regressed peripapillary choroidal neovascular membrane (CNVM) and absorbing subretinal hemorrhage along the inferior vascular arcades. The yellow circle in the infero-nasal quadrant indicates the area of endolaser photocoagulation.

Figure 2B: Fundus fluorescein angiography (FFA) at 13 weeks follow-up reveals staining of peripapillary choroidal neovascular membrane (CNVM) with no leakage. Multiple peripapillary and macular window defects are also seen.

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