Macular hole formation following panretinal photocoagulation in proliferative diabetic retinopathy

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DESCRIPTION

A 61-year-old woman with diabetes mellitus and hypertension presented with both eyes (OU) floaters. The best corrected visual acuity (BCVA) was 20/30 OU. Anterior segment OU showed grade 2 nuclear sclerosis and fundus revealed proliferative diabetic retinopathy (PDR). Further work-up revealed right eye (OD) vitreomacular traction (VMT), mild cystoid macular oedema on optical coherence tomography (OCT, [figure 1A](#)) and high-risk PDR ([figure 1B](#)). After informed consent, she underwent OD panretinal photocoagulation (PRP) in two sittings 2 weeks apart. After 1 month, she presented with sudden drop in OD vision (BCVA 20/200). Fundus examination revealed development of fibrous tissue and regression of retinal neovascularisation ([figure 1C](#)). OCT showed full thickness macular hole (FTMH, [figure 1D](#)). After informed consent, she underwent combined phacoemulsification and 25-gauge pars plana vitrectomy, removal of fibrous membranes, brilliant blue assisted internal limiting membrane peeling and 20% sulphur hexafluoride gas tamponade 1

Learning points

- ▶ Macular hole formation can occur after panretinal photocoagulation in proliferative diabetic retinopathy with vitreomacular traction.
- ▶ Increase in fibrosis and macular oedema are probably contributory factors.

month later. Postoperatively, at 1 month, BCVA improved to 20/40, media was clear and PDR had regressed ([figure 1E](#)). OCT showed type 1 macular hole closure though mild oedema was noted. The clinical picture was maintained till 6 months of follow-up.

Lack of symptoms of macular involvement and good BCVA prompted us to proceed with PRP in spite of presence of VMT and mild macular oedema. Ablation of ischaemic retina with PRP leads to downregulation of vascular endothelial derived growth factor and promotes fibrosis.¹ The increasing fibrosis along with VMT may have contributed to the formation of FTMH in this case. Though macular oedema is a common complication following PRP in the setting of PDR, formation of FTMH has not been described to the best of our knowledge.² Intraretinal exudation combined with increased VMT may also contribute towards formation of FTMH once the oedema increases following PRP in such cases.³ The release of VMT with formation of macular hole and cystoid spaces at edges would indicate likelihood of spontaneous closure of macular hole. Patient was observed for 1 month but no change was observed which may be because of retinal changes in diabetics. Because of persistent decreased vision, decision to perform vitrectomy was taken. Vitrectomy resulted in closure of hole and improvement in BCVA.^{4,5} This case highlights an unusual complication of PRP in a patient with PDR and VMT.

Figure 1 Optical coherence tomography (OCT) of right eye shows vitreomacular traction and few cystoid spaces (A). Fundus fluorescein angiography showing multiple areas of retinal neovascularisation and capillary nonperfusion (B). Colour fundus photograph (CFP) showing development of fibrous tissue along supero-temporal arcade (C, white arrow depicts direction of OCT scan). OCT shows macular hole and retinal oedema (D). CFP after vitrectomy shows resolution of retinopathy and membranes (E, white arrow depicts direction of OCT scan). OCT shows closure of macular hole, macular oedema and outer retinal lucency (F).

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