A Combined Approach Using Antivasular Endothelial Growth Factor and Modified Panretinal Photocoagulation in the Management of Proliferative Diabetic Retinopathy

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Background
Diabetic retinopathy is one of the leading causes of blindness among adults aged 50 years and older worldwide. Panretinal photocoagulation (PRP) therapy has been the standard treatment of Proliferative Diabetic Retinopathy (PDR) since 1980s as established by the Diabetic Retinopathy Study. Traditional PRP is associated with significant side effects including diminished peripheral visual field. The efficacy of the combination of anti-VEGF injections with less extensive or modified midperipheral PRP (Figure 1) has been under debate.

Purpose
To evaluate the effects of combined modified midperipheral panretinal photocoagulation (mPRP) and intravitreal Anti-Vascular Endothelial Growth Factor (Anti-VEGF) injections for the management of newly diagnosed high risk proliferative diabetic retinopathy (HR-PDR).

Study Design
Retrospective case series.

Methods
38 consecutive eyes of 19 patients with newly diagnosed high-risk PDR were included in the study. All participants underwent modified panretinal photocoagulation under indirect ophthalmoscopy from anterior to midperipheral retina performed in 2 or more sessions followed by anti-VEGF injections as needed. Visual acuity, status of diabetic macula edema, number of anti-VEGF injections, the need for surgical intervention and DR status outcomes were tracked for 1 year after treatment.

Results
The mean age of patients was (53.16 ±12.17 years) and 68.4% of the participants were male. About 63.2% of the patients had high-risk PDR without diabetic macular edema (DME), 31.6% had high-risk PDR with DME, and 5.3% had high-risk PDR, DME, and focal tractional retinal detachment at the initial visit. The mean total number of Anti-VEGF Injections administered after mPRP was (5.95 ±6.91 injections) and all patients were compliant with their follow up and treatment. The main indications for Anti-VEGF Injections after mPRP were recurrent PDR with DME (55.3%), recurrent PDR (21.1%), recurrent DME (7.1%), and neovascular glaucoma (5.3%). The mean visual acuity was 0.37 ±0.27 logMAR (Snellen=20/46) at baseline and remained stable 0.30 ±0.22 logMAR (Snellen=20/40) at final follow-up, p=0.523, 95% confidence interval: [-0.07, 0.15]. Resolution of PDR was achieved in 100% of eyes 1 year after initiating the treatment.

Conclusions
Combined modified midperipheral panretinal photocoagulation and anti-VEGF as needed is an effective treatment approach in diabetic eyes with newly diagnosed high risk PDR. This treatment protocol minimizes a patient’s visual field loss while preserves the visual acuity and yielded PDR regression in the majority of eyes with no patient in this study requiring surgical intervention at 1 year follow-up.

References