Sir,

Bilateral improvement of persistent diffuse diabetic macular oedema after unilateral intravitreal bevacizumab (Avastin) injection

Case report

A 59-year-old man was referred for clinically significant diabetic macular oedema (CSDME), which was unresponsive to multiple bilateral focal laser treatments. The last treatment was 2 months before in the left eye (OS). Best-corrected visual acuity (BCVA) was 20/40-2 in the right eye (OD) and 20/100-1 OS. The anterior segments were unremarkable. Biomicroscopy demonstrated CSDME and proliferative diabetic retinopathy in both eyes. Optical coherence tomography (OCT) and fluorescein angiography were performed.

Intravitreal injection of 1.25 mg bevacizumab was given OS. There were no significant changes in the patient's systemic health/habits during or immediately before this time. At week 1, nearly complete resolution of the CSDME occurred OS and panretinal photocoagulation (PRP) was performed. At week 2, there was considerable improvement in the CSDME OD (Figure 1). Bevacizumab was injected OD as there were small cysts present and PRP was planned for the following week (which can exacerbate CSDME). By week 20, the patient still did not require further bevacizumab or PRP treatment in either eye.

Comment

The Early Treatment Diabetic Retinopathy Study showed that focal laser treatment of CSDME reduced moderate visual loss ($\geqslant$15 letters) from 24 to 12% 3 years after randomization.[1] The low rate of VA improvement has prompted research into other therapies, including intravitreal bevacizumab.[2,3]

Bevacizumab is a full-length humanized monoclonal antibody that inhibits all isoforms of vascular endothelial growth factor-A. Although previous studies have demonstrated the effect of intravitreal bevacizumab injection on reducing proliferative diabetic retinopathy in the contralateral eye,[4] there have been no reports to date showing a similar effect with CSDME. This crossover effect is supported by recent findings in animal studies, demonstrating that bevacizumab could be detected in the serum and in fellow uninjected eyes. Interestingly, this finding was not observed in animal models after intravitreal injection of ranibizumab.[5]

Our patient demonstrates that resolution of CSDME can occur in the contralateral eye after intravitreal bevacizumab injection. The precise duration of this effect is unknown given that this patient had a contralateral injection 2 weeks later. Studies are needed to elucidate the systemic implications and bilateral duration effects of intravitreal bevacizumab injections.

References

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R Scartozzi, JR Chao, AC Walsh and D Eliott

Doheny Retina Institute, Department of Ophthalmology, University of Southern California, Keck School of Medicine, Los Angeles, CA, USA
E-mail: deliott@doheny.org

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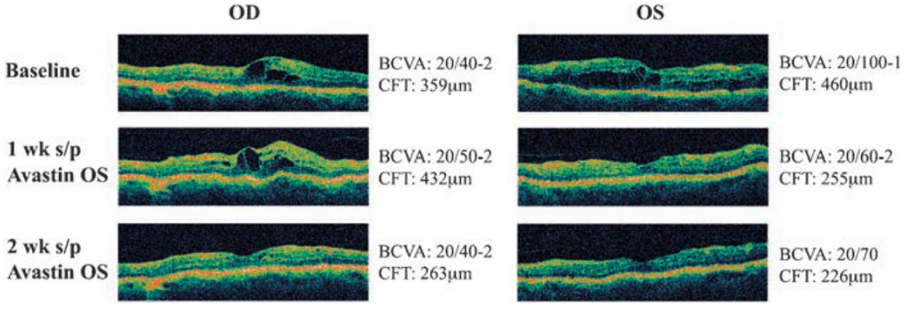

Figure 1 Macular optical coherence tomography images (vertical scans) of both eyes at various time points. Macular oedema nearly resolved in the left eye by 1 week after intravitreal injection of bevacizumab. Near resolution of macular oedema in the contralateral right eye occurred by 2 weeks after injection. OD = right eye; OS = left eye; BCVA = best-corrected visual acuity; CFT = central foveal thickness; wk = week; s/p = status post.