In the days before the anti-VEGF era, focal laser application in patients with diabetic macular edema (DME) was an effective therapeutic option that came with a price: The heavy burn created by the laser blanched tissue and left permanent scarring. After anti-VEGF agents were found to be effective in the treatment of DME, many clinicians abandoned focal laser in favor of pharmacotherapy for DME.

Patients with diabetic eye disease undergoing anti-VEGF therapy require frequent treatment. Young, phakic, working-age patients with bilateral disease are particularly affected by this treatment burden. The need for frequent injections can be disruptive to patients’ lives and may lead to patients skipping treatments altogether. Some clinicians may choose to employ steroid therapy, but that strategy comes with a certainty of cataract formation in phakic patients and a risk of glaucoma development. Using steroids in working-age, phakic patients, then, seems counterproductive: The need for frequent anti-VEGF injections is eliminated but replaced by potential ocular complications.

Applications of subthreshold laser therapy in young, phakic, working-age patients can, in my experience, lower the treatment burden for patients with DME.
without sacrificing efficacy. This has been particularly true in patients who have non–center-involving DME.

**SUBTHRESHOLD TECHNOLOGIES**

The evolution of lasers for retina therapy has brought the field two sub-threshold laser platforms: MicroPulse on the IQ 532 and IQ 577 lasers (Iridex) and Endpoint Management on the

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Figure 2. At 3 months, retinal thickening had decreased and the patient’s VA had improved slightly, to 20/25.

Figure 3. At 6 months, the patient’s VA remained 20/25 and no recurring thickening was noted.
Pascal suite of lasers (Topcon). Subthreshold laser treatment has been shown to be effective in treating microaneurysms without causing permanent tissue damage.\textsuperscript{1} Subthreshold laser therapy can also be reapplied in patients with recurring or new microaneurysms.

In my experience, a number of patients with DME who received subthreshold laser therapy have not needed subsequent anti-VEGF injections or have reduced the burden of injections. I estimate that patients who require retreatment after subthreshold laser therapy visit the office every 3 months.

When applying subthreshold laser with the Pascal platform, I test the laser intensity in an area outside the macula, usually nasal to the disc. If, after 10 seconds, there is no tissue blanching, I then initiate Endpoint Management, which reduces the laser’s intensity by 50%. This allows the laser to treat microaneurysms without causing permanent tissue damage.

I target only microaneurysms found outside of the center, and I avoid application of subthreshold laser directly to the fovea. I do not target individual microaneurysms, but rather a region of microaneurysms with a pattern generated by the laser.

The patient is usually in the chair for about 5 minutes during a laser application session.

A RECENT CASE

A 48-year-old woman with an 8-year history of type 2 diabetes mellitus presented with clinically significant macular edema in her left eye. VA was 20/30-2. Juxtafoveal and perifoveal thickening was noted on examination, as were exudates and microaneurysms. Leakage was noted on fluorescein angiogram.

I treated the patient with subthreshold laser using the Endpoint Management system. At 1 month follow-up, the patient’s VA had improved to 20/25-2 and retinal thickness had decreased in the treated areas (Figure 1). At her 3-month follow-up visit, the VA had improved to 20/25 and areas of resolution were noted in areas of thickening identified previously (Figure 2). At 6 months, VA remained 20/25 and no recurring thickening was seen (Figure 3).

DON’T RULE OUT LASER

For clinicians concerned that their working-age patients with DME may skip anti-VEGF therapy sessions due to treatment burden (or who are concerned about recent literature linking glaucoma development to frequent anti-VEGF injections for neovascular age-related macular degeneration\textsuperscript{2}), I suggest considering subthreshold laser therapy on the Iridex or Pascal platforms.


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