

MicroPulse® Laser Therapy: An Essential Asset for a Comprehensive Practice



Jonathan Zelenak, DO, is a senior resident at Michigan State University, Hillsdale Hospital Campus in Hillsdale, Mich.

At the beginning of my residency, the program director, a comprehensive ophthalmologist, had been using MicroPulse laser therapy for a number of years. During my training, I've had the opportunity to see what an asset it is in a comprehensive practice. We use MicroPulse frequently to treat a variety of conditions including diabetic retinopathy and DME, macular edema due to BRVO, AMD, macular telangiectasia, and glaucoma (MicroPulse laser trabeculoplasty). Depending on the case, we may use MicroPulse as first-line treatment or as an adjunct to other treatment options. Its appeal is its efficacy, which is comparable to traditional thermal laser, with no damage to the retinal vasculature.¹ Recently, I used MicroPulse alone to successfully treat a macula-involving macroaneurysm.

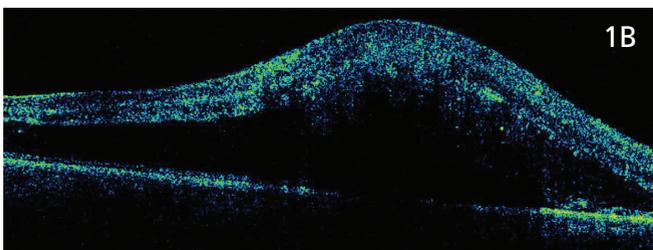
ARRIVING AT MICROPULSE AS BEST TREATMENT OPTION

Macroaneurysms are typically an asymptomatic incidental finding. In this patient — an 84-year-old Caucasian female with a history of uncontrolled hypertension — leakage from a macroaneurysm in the right eye had produced an extensive area of subretinal fluid involving the macula, resulting in poor visual acuity (Figures 1A&B). No consensus exists on how best to treat symptomatic macroaneurysms, but observation, direct or scatter laser photocoagulation, and anti-VEGF therapy are acceptable options. Given this patient's poor vision, observation wasn't ideal. Previous studies have shown a risk of vascular occlusion following treatment with traditional laser as well as collateral damage to the treated area.² This patient was averse to an intravitreal injection so we suggested MicroPulse, which would allow us to treat the macula, including the fovea, without damage to the retinal vasculature or the tissue itself. The patient agreed.

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On the day of treatment (Table 1), the patient's visual acuity (VA) OD was 20/400 and OCT measured central macular thickness (CMT) at 524 μm (Figure 2).

By the first follow-up visit 6 weeks later, CMT had



Figures 1A&B. Initial presentation, 3 weeks prior to MicroPulse CMT 358 μm | VA CF at 4 ft.

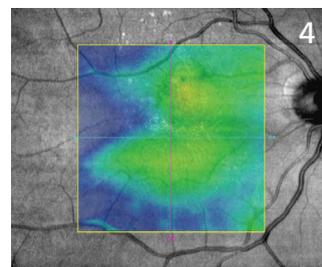
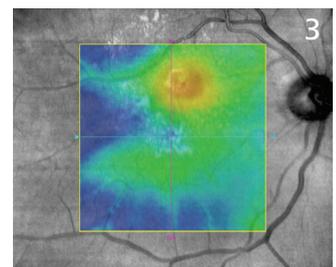
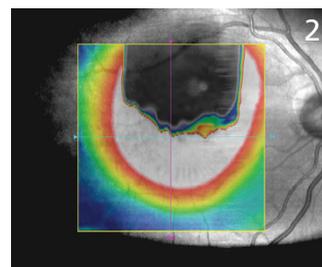


Figure 2. Day of MicroPulse treatment | CMT 524 μm VA 20/400.

Figure 3. 6 weeks after MicroPulse | CMT 263 μm VA 20/70.

Figure 4. 19 weeks after MicroPulse | CMT 296 μm VA 20/40.

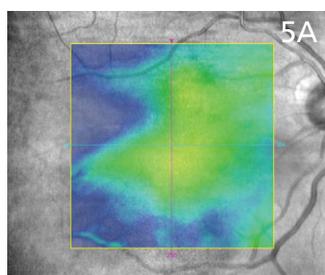
Ideal for:
Non-compliant patients
Multiple retinal disorders
Glaucoma

Ideal to:
Treat sooner
Reduce treatment burden
Reduce financial burden

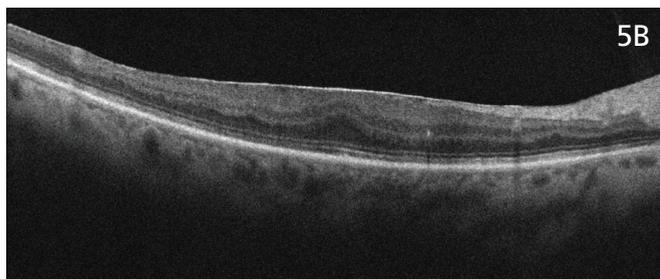
Ideal as:
Alternative to anti-VEGF non-responders
Alternative to continuous-wave and to observation
Adjunct to other interventions

“...[MicroPulse] reduces healthcare costs because, in my experience, it reduces the utilization of more expensive treatment options that may require retreatment as frequently as monthly.”

decreased from 524 μm to 263 μm and VA had improved from 20/400 to 20/70 (Figure 3). Further improvement was documented at the 19-week follow-up visit with a VA of 20/40 (Figure 4). At the most recent



visit, in March 2017, the subretinal fluid showed no signs of recurrence and VA had returned to baseline at 20/30 OU (with 2+ nuclear sclerotic cataract, a limiting factor) (Figures 5A&B). There



Figures 5A&B. 32 weeks after MicroPulse | CMT 321 μm | VA 20/30.

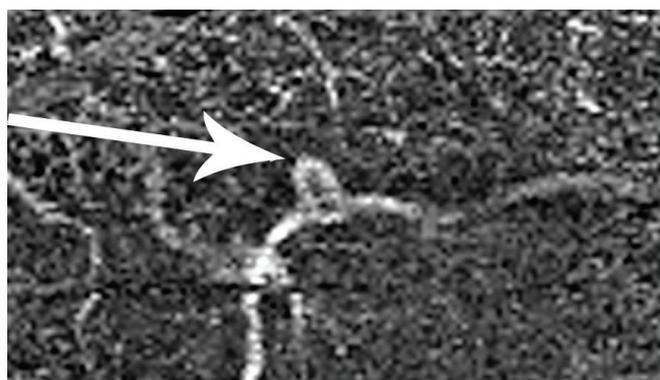


Figure 6. Post-MicroPulse, OCT angiography showed no detriment to the downstream retinal circulation. The affected vessel remodeled as if it hadn't been treated at all.

were no observable ill effects of treating the macula on either fundus examination or OCT scans. Interestingly, OCT angiography showed a vascular “kink” at the location of the resolved macroaneurysm, the natural remodeling we would expect to see had the eye not been treated (Figure 6).² Thanks to MicroPulse, we were able to achieve a favorable final result for this patient, quickly restoring her vision without complication.

THREE LASERS IN ONE

In the near future, when my residency is complete, the IRIDEX IQ 532™ Laser System is definitely a piece of equipment I plan to acquire. It's attractive to a comprehensive practice because it is essentially three lasers in one. It can be used to deliver focal or pan-retinal laser treatment in either continuous wave or MicroPulse mode as well as treat glaucoma with MicroPulse laser trabeculoplasty. From a broader perspective, MicroPulse reduces healthcare costs because, in my experience, it reduces utilization of more expensive treatment options that may require retreatment as frequently as monthly. ■

REFERENCES

1. Vujosevic S, Bottega E, Casciano M, Pilotto E, Convento E, Midena E. Microperimetry and fundus autofluorescence in diabetic macular edema: subthreshold micropulse diode laser versus modified early treatment diabetic retinopathy study laser photocoagulation. *Retina*. 2010;30(6):908-916.
2. Abdel-Khalek MN, Richardson J. Retinal macroaneurysm: natural history and guidelines for treatment. *Br J Ophthalmol*. 1986;70(1):2-11.

Table 1. TREATMENT PARAMETERS

IRIDEX IQ 532™ MicroPulse Laser with TxCell™ Scanning Laser Delivery System for treatment of symptomatic macroaneurysm

- Wavelength: 532 nm
- Spot size on slit lamp adapter: 200 μm
- Contact lens: Mainster (standard) focal/grid (Ocular Instruments)
- Power: 200 mW
- Exposure duration: 200 ms
- Duty cycle: 5%
- MicroPulse Delivery: 720 spots over the entire area of retinal elevation, which overlapped the aneurysm and the fovea
- TxCell pattern: 7x7 grid with zero spacing

Treatment techniques and opinions presented in this case report are those of the author. IRIDEX lasers are cleared for retinal photocoagulation of vascular and structural abnormalities of the retina and choroid; and iridotomy, iridectomy and trabeculoplasty in angle-closure glaucoma and open-angle glaucoma. IRIDEX assumes no responsibility for patient treatment and outcome. IRIDEX, IRIDEX logo, and MicroPulse are registered trademarks, and IQ 532 is a trademark of IRIDEX Corporation.

IRIDEX | 1212 Terra Bella Avenue | Mountain View, CA 94043 | 800.388.4747 (U.S. inquiries) | info@iridex.com (U.S. & int'l inquiries) | www.iridex.com

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