# MicroPulse® Laser Therapy Reduces Injection Burden in PDR With Chronic Diabetic Macular Edema

**Jason Friedrichs, MD, MS, founder of Friedrichs Eye in Sycamore, Ill., provides medical and surgical care for ocular diseases and conditions of the anterior and posterior segments.**

Since I opened my own practice nearly 2 years ago, I have been performing MicroPulse laser therapy to treat multiple retinal disorders and glaucoma (MicroPulse Laser Trabeculoplasty). I use the IRIDEX IQ 577™ laser platform. It's a versatile laser system that offers both MicroPulse and continuous-wave laser treatment modes. Its TxCell™ pattern scanning delivery system makes continuous-wave (CW) PRP and high-density MicroPulse laser applications extremely efficient.

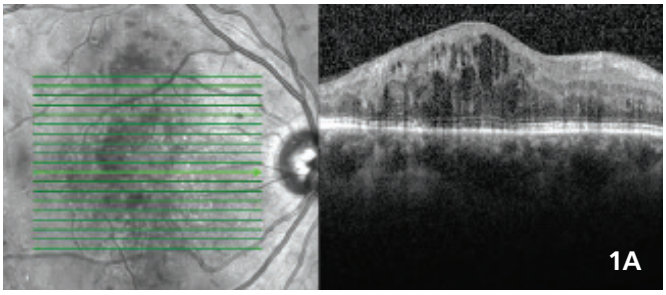
I incorporate MicroPulse as either monotherapy and/or as an adjunct to anti-VEGF for the treatment of retinal disorders, such as macular edema due to diabetes and vein occlusions, cystoid macular edema, central serous chorioretinopathy, and wet AMD.

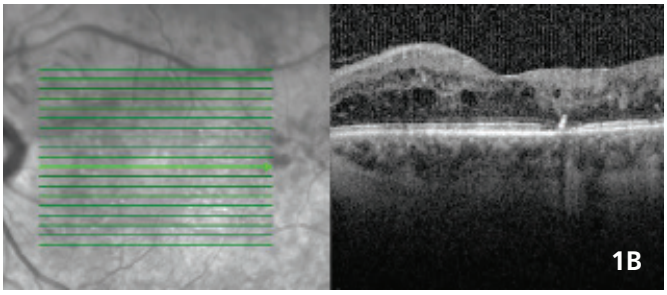
In my experience, MicroPulse extends the time between anti-VEGF treatments and has reduced the injection burden in all of my patients, as represented in the following case example.

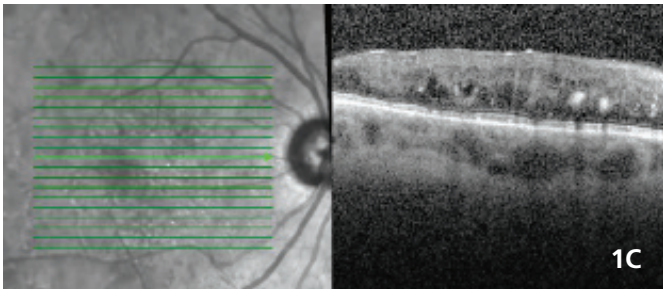
## NO MORE MONTHLY INJECTIONS

A 46-year-old male, who had uncontrolled diabetes for quite some time, had eventually become compliant; his HbA1c level hadn't exceeded 7 while under my care. Nevertheless, he had proliferative diabetic retinopathy in the past and his macular edema had been chronic. In the 3 years prior to his Nov. 30, 2015 visit with me, he had received monthly Avastin, Lucentis, and Eylea injections and multiple sessions of CW grid laser treatment. Despite this, his macular edema remained chronic (**Figures 1A and 1B**), and his vision was 20/30 in both eyes.

After receiving two MicroPulse treatments (**Table 1**) in his right eye (Dec. 14, 2015 and Apr. 12, 2016) and one MicroPulse treatment in his left eye (Dec. 22, 2015), his retinal anatomy normalized, and his central macular thickness (CMT) decreased from 442 µm to 341 µm OD and from 580 µm to 395 µm OS (**Figures 1C and 1D**). From November 2015 to May 2017, a 1.5-year period, he required only 4 anti-VEGF injections in each eye.



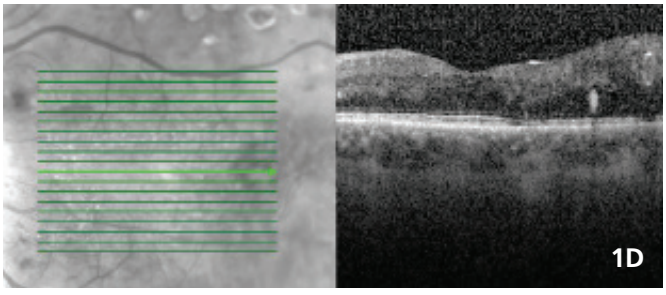




**Figure 1A.** Right eye | Nov. 30, 2015, prior to MicroPulse | CMT 442 µm | VA 20/30; **Figure 1B.** Left eye | Nov. 30, 2015, prior to MicroPulse | CMT 580 µm | VA 20/30; **Figure 1C.** Right eye | March 9, 2017, 11 months after second MicroPulse | CMT 341 µm | VA 20/30; **Figure 1D.** Left eye | March 9, 2017, 15 months after one MicroPulse | CMT 395 µm | VA 20/30.

***"By incorporating MicroPulse, my injection burden decreases by one-third at a minimum, which is a conservative estimate."***

This case exemplifies the decreased injection burden for these types of patients who would have been injected monthly, possibly causing chronic atrophy and decreased retinal function. By incorporating MicroPulse, my injection burden decreases by one-third at a minimum, which is a conservative estimate. I still use anti-VEGF injections on patients with CMT >400 µm. Studies have shown,[1] and in my experience, MicroPulse is more effective when the CMT is ≤400 µm.

***"…the versatility of MicroPulse to treat retinal disorders and glaucoma allows me to provide my patients with a treatment that's clinically effective, cost effective, and time effective."***

## MICROPULSE IS A WIN FOR PATIENTS, PHYSICIANS & SOCIETY

As a physician running my own practice, I'm very financially conscious of everything that I do. I feel a big responsibility to my community; and the versatility of MicroPulse to treat retinal disorders and glaucoma allows me to provide my patients with a treatment that's clinically effective, cost effective, and time effective.

My patients appreciate fewer injections and office visits. They don't have to take as much time off from work, and they may benefit from reduced deductibles. Also, I find they are less anxious knowing they need fewer injections.

We win as physicians. MicroPulse is highly efficient and increases patient flow through. A MicroPulse session is typically completed in less than 5 minutes. I found that delivering fewer injections has opened more time slots; and from an infection standpoint, my risk profile is lowered. From a financial perspective, my anti-VEGF expense has been substantially reduced, while MicroPulse laser reimbursement has increased my practice revenue. I use the same CPT codes already in place for diabetes and focal laser treatment.

Society wins. We know the cost of injections is $1,800 for the FDA-approved drugs. If we deliver monthly injections for patients who could be converted to fewer injections with MicroPulse, the cost savings to insurance companies and Medicare would be great. And I think taking less money out of the societal bucket, while offering safe and clinically effective treatment options, is part of our responsibility as physicians. ■

## REFERENCE

1. Mansouri A, Sampat KM, Malik KJ, Steiner JN, Glaser BM. Efficacy of subthreshold micropulse laser in the treatment of diabetic macular edema is influenced by pre-treatment central foveal thickness. *Eye (Lond).* 2014;28(12):1418-1424.

### Table 1. TREATMENT PARAMETERS

IRIDEX IQ 577™ MicroPulse Laser with TxCell™ Scanning Laser Delivery System for chronic diabetic macular edema (OD x 2, OS x 1)

- Wavelength: 577 nm
- Spot size on slit lamp adapter: 200 µm
- Contact lens: Mainster Standard
- Power: 450 mW
- Exposure duration: 200 ms
- Duty cycle: 5%
- TxCell pattern scanning delivery: 7x7 grid, high-density, zero-spot spacing; applied to edematous area, including the fovea

Hear more about how Dr. Friedrichs and other comprehensive ophthlamologists have incorporated MicroPulse into their practice.



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