SANDRA SIEMINSKI, MD
University at Buffalo, Ross Eye Institute
Buffalo, NY United States

PATIENT CASE REVIEW

MicroPulse Therapy – Not Just for End Stage Glaucoma Patients

Traditional cyclophotocoagulation has been deeply ingrained as a procedure that is only for severe, end stage glaucoma in patients with poor vision. However, MicroPulse Transscleral Cyclophotocoagulation (MP-TSCPC) is a therapy that has the benefits of traditional CPC without the destruction and inflammation that often accompanies it. Consequently, this procedure can be utilized for patients in earlier stages of the disease.

I am increasingly comfortable using this on patients with good vision, including patients who are surgery naïve. As it is safer and less complicated than incisional surgery, I have found it works particularly well with patients with a variety of contradictions or objections to more invasive surgeries. Patients who have already undergone a tube shunt are also good candidates as they do not have many treatment options if their pressure remains uncontrolled. MicroPulse provides a safe and effective option and can be repeated if necessary. The high safety profile and minimal inflammation allows me to perform bilateral procedures in a single visit. With a standard post-cataract dose of steroid, patients have very little to no cell one-week post procedure.

CASE DESCRIPTION

- 39-year-old African American male
- Pre-severe stage glaucoma, left eye (poor vision in right eye)
- 4 medications/IOP of 26 mmHg
- Previous surgery with a Baerveldt Valve
- Visual acuity in the left eye was 20/30, visual field damage, significant cupping, and thinning on his OCT. He did want treatment, however, due to the pain, inflammation, and poor vision resulting from the surgery in his right eye, he was very opposed to incisional surgery in the left.

DISCUSSION

I suggested MP-TSCPC with the IRIDEX Cyclo G6® Laser with confidence that the procedure would have very little risk in terms of significant pain or inflammation. Pre-operatively, the patient was given Ocufen (flurbiprofen ophthalmic, Allergan) and topical lidocaine gel. I also applied Goniosol (hydroxypropyl methylcellulose) on the ocular surface and administered a small 50/50 mix of lidocaine and Marcaine (bupivacaine hydrochloride, Pfizer) retrobulbar. I treated him with one round at 80 seconds inferiorally and 80 seconds superiorly at 2000 mW. Post-operatively, patients typically administer one drop of Durezol (difluprednate, Alcon) twice daily for the first week and once daily the second week. At his post op Week One follow up, his IOP had reduced to 12 mmHg and he had experienced no pain or inflammation. At post op Month 6, his medications had been reduced and his IOP was 15 mmHg on 3 meds. Visual acuity remained 20/30. We have been very pleased with his outcomes. The patient experienced a significant decrease in pressure and has been able to eliminate one medication. Additionally, as he did not experience any significant operative or post operative pain, inflammation, vision loss, or other adverse events, he is not opposed to repeating this procedure in the future to further reduce his pressure..

IRIDEX | MicroPulse®

BEFORE THE CASE

- OP 26mmHg (Left Eye); 4 medications
- Visual Acuity 20/30; visual field damage
- Significant cupping and thinning (OCT)
- Previous surgery – Baeverveldt Valve
- Pain, inflammation and poor vision from previous surgery (right eye)
- Patient opposed to incisional surgery

CASE SETTINGS

- Pre-op: Ocufen + Lidocain (Topical Gel)
- Ocular Surface given Goniosol + 50/50 mix of Lidocaine+ Marcain (Retrobulbar)
- 2000 mW Power (31.3% duty cycle)
- 80 sec superiorly and 80 sec inferiorly

AFTER THE CASE

- Administer Durezol 1 drop (2xDaily for week 1; 1x Daily week 2)
- IOP 12 mmHg (week 1 follow up); IOP 15 mm (6 mo follow up)
- Meds reduced to 3
- Patient is extremely pleased: no pain, no inflammation, no other adverse effects
- Patient is not opposed to repeat procedure if needed in the future

PROCEDURAL TIPS

I advise performing this procedure as directed by IRIDEX when first starting out. Surgeons will gain confidence and familiarity without worrying about the severe inflammation or discomfort patients may experience with more invasive surgeries. More experience with the procedure will allow surgeons to choose which elements of the process work best for them. For instance, I no longer use a lid speculum as I feel it prevents me from easily sweeping the probe across the globe. I have not found any issues with the lid getting in the way without the speculum as the probe pushes it out of the way as I sweep.

While MicroPulse treatments can be performed in-office, being in the operating room setting is advantageous. I have found that even with a retrobulbar block patients can be stimulated, so I prefer to have anesthesia on hand. My anesthesia team has discovered that using a small amount of ketomine is extremely helpful in keeping patients comfortable.

Overall, I have found great success with this procedure. In my experience, I have not encountered hypotony, phthisis, vision loss, inflammation, or post operative pain as can be experienced with traditional diode CPC. I have found this treatment to be exceptionally safe and efficacious, including in earlier stage patients with good vision.

1. Kuchar S, Moster M, Reamer C, Waisbourd M. Treatment outcomes of micropulse trans-scleral cyclophotocoagulation in advanced glaucoma. Lasers Med Sci (2016) 31:393–396.
2. Tan A, Chockalingam M, Aquino M, Chew P. Micropulse transscleral diode laser cyclophotocoagulation in the treatment of refractory glaucoma. Clinical and Experimental Ophthalmology 2010; 38: 266–272.

IRIDEX | MicroPulse®