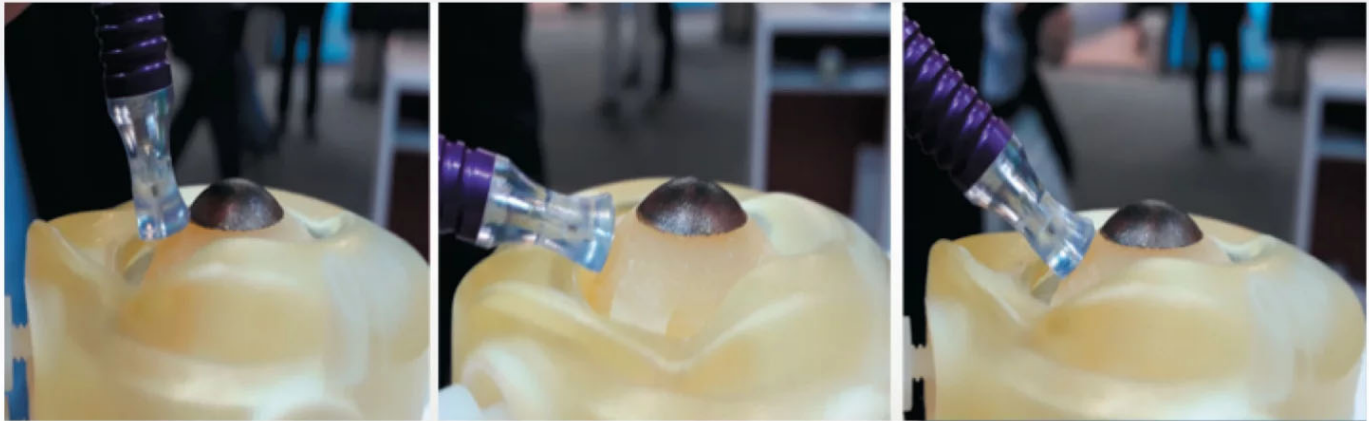


# Avoiding issues from inflow procedures

## *Probe axis*



By [Vanessa Caceres](#)

May 20, 2019

**Issue:** 8 [Glaucoma](#), [Glaucoma](#)

### **Abstract / Synopsis:**

**A careful use of technique, power parameters, and preventive moves against IOP spikes can make cyclophotocoagulation or phaco and ECP more effective.**

*Reviewed by Jeffrey Kammer, MD*

Close attention to details when performing [transscleral cyclophotocoagulation \(CPC\)](#) or [phacoemulsification with endocyclophotocoagulation](#) can go a long way in preventing complications and ensuring excellent results, according to [Jeffrey Kammer, MD](#), associate professor of ophthalmology, [Vanderbilt Eye Institute, Nashville, TN](#).

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With transscleral cyclophotocoagulation, the most vision-threatening complications include [hypotony](#), [phthisis](#), and [vision loss](#). The first step to help avoid these is to carefully select the surgical location. “If you can avoid the 3 and 9 o’clock locations, you are less likely to cause ischemia and its associated complications,” Dr. Kammer said.

“Surgeons also should titrate their power appropriately. “When using the classic [CPC treatment](#) parameters, I prefer to start at a lower power, titrate up just a little until you hear a little crackle, and then decrease the power to just underneath that level,” Dr. Kammer said.

### **Avoid the ‘pop’**

Dr. Kammer tries to avoid hearing a loud “pop” because this is indicative of tissue destruction. In these cases, he typically starts with a power between 1,750 to 2,250 mW (higher watts in patients with lighter pigmentation and lower watts in patients who are more heavily pigmented), with a duration of 2,000 mS and six spots per quadrant. Surgeons also may want to consider the use of the alternative Gaasterland “slow coagulation technique” that was popularized by glaucoma specialist [Doug Gaasterland, MD](#).

In this treatment paradigm, patients are treated with lower energy per pulse but with longer treatment duration. Patients typically experience less pain, less inflammation, and less macular edema, albeit with similar efficacy compared to the traditional CPC treatment paradigm, according to Dr. Kammer. Dr. Kammer also stressed that cyclophotocoagulation should not be relegated to endstage glaucoma.

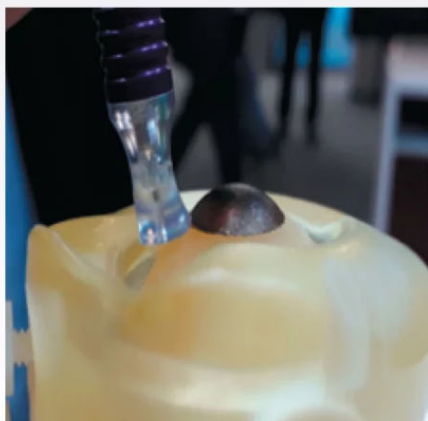
In fact, he noted that [transscleral CPC](#) is highly effective with a more favorable side effect profile in patients with mild-to-moderate glaucoma. This has been noted in traditional transscleral cyclophotocoagulation laser therapy as well as with the newer Micropulse cyclophotocoagulation.

Embracing the use of newer techniques, ([Micropulse Cyclophotocoagulation, Iridex](#)) offers a less destructive laser modality that provides excellent efficacy with a more tolerable side effect profile. In fact, due to the fact that this technique does not actually coagulate the underlying tissue, Dr. Kammer prefers to call this Micropulse Cyclo “modification.” In “modification” technology, a continuous-wave of energy is released in a series of repetitive short pulses. This allows the underlying tissue to be heated up and altered without actually destroying it.

Dr. Kammer also shared a Micropulse cyclophotocoagulation technique-related pearl, recommending that surgeons’ probe axis be placed roughly 1 mm behind the limbus and perpendicular to the sclera. This is in contrast to classic transscleral cyclophotocoagulation, where you hold the Gprobe immediately behind the limbus and parallel to the visual axis, he said.

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### **Avoiding spikes**

Dr. Kammer also took a closer look at common complications, such as IOP spikes, to analyze why they occur and how surgeons can avoid them. He said research has found that IOP spikes occur about 14.4% of the time in ECP procedures and that they typically can be caused by excessive inflammation, retained viscoelastic, excessive treatment, and can also be a steroid response.

Less commonly, the spikes are caused by aqueous misdirection and choroidal effusion. To help prevent an IOP spike secondary to excessive inflammation, Dr. Kammer recommended the use of subconjunctival dexamethasone ([Decadron](#), [Fera Pharmaceuticals](#)).

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If IOP elevation does occur, surgeons should use aggressive topical steroids, an oral steroid bolus, increase topical glaucoma drops and/ or augment treatment with oral carbonic anhydrase inhibitors (CAIs). To avoid IOP spikes secondary to retained viscoelastic material, surgeons should perform copious viscoelastic removal during irrigation/aspiration, with attention directed toward the posterior chamber.

If an IOP spike still occurs, treatment options include increasing topical drops and/or oral CAIs, “burping” the wound, and simply giving the viscoelastic time to break down on its own. If the IOP spike is recalcitrant to conservative options, returning to the OR for surgical removal is the most appropriate step, Dr. Kammer advised.

To avoid an IOP spike secondary to retained pigmentary debris, avoid causing a “pop” (explosion of tissue) during treatment. If this does occur, it can typically be remedied by spending additional time clearing out the debris during irrigation and aspiration. If a spike persists, increasing topical drops and/or oral CAIs and increasing the frequency of postoperative steroids usually ameliorates the situation.

To help avoid steroid-related IOP spikes, Dr. Kammer recommended staying away from some of the more potent topical steroids and minimizing topical steroid frequency and duration in patients who are known steroid responders. In these cases, it is advisable to supplement the less frequent topical steroid use with topical nonsteroidal anti-inflammatory (NSAID) drops.

## **CME risks**

Dr. Kammer also addressed the risk of cystoid macular edema (CME). He recommended pretreating ECP patients with topical NSAIDs, using ECP with caution in patients who have diabetes, and using subconjunctival Decadron. If CME occurs despite these preventative measures and if it persists despite continued treatment with topical NSAIDS, he treats it with aggressive topical steroids and topical NSAIDs. “If it still doesn’t go away, I’ll give subTenon’s steroids and watch it carefully,” he concluded.

## **Disclosures:**

**Jeffrey Kammer, MD**

E: [Jeffrey.kammer@vanderbilt.edu](mailto:Jeffrey.kammer@vanderbilt.edu)

*This article was adapted from Dr. Kammer’s presentation at the 2019 American Glaucoma Society annual meeting. Dr. Kammer is a consultant for Iridex.*

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