One Technique for Laser Peripheral Iridotomy

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We are often asked for our technique for LPI that has been outlined in this chapter; however, what follows is a brief synopsis of our LPI method.

Following informed consent, the patient receives a drop of apraclonidine just prior to the procedure and a drop of pilocarpine 2%. When adequate miosis and akinesia of the pupil are achieved, the patient is seated at the laser. The Nd:YAG laser is set at 3 to 4 mJ, 3 pulses per burst. A drop of proparacaine 0.5% is instilled, and the Nd:YAG laser Abraham iridotomy lens is placed on the eye, using methylcellulose as the coupling solution. The patient is instructed to look straight ahead, and the lens is held perpendicular to the laser beam. The 2 or 4 spots of the Nd:YAG laser aiming beam are brought into a single spot by focusing the laser. If the spots cannot be brought together, it is due to malposition of the lens, which is moved slightly to join the beams.

The laser is then moved *slightly* toward the patient to defocus the beam just the smallest amount (Figure 55-3). The patient may see a flash or hear a pop, but should feel no pain and should not move. The laser is fired, and an iridotomy is often achieved with the first burst. If an iridotomy is not achieved, the focusing and firing procedure are repeated until a patent iridotomy is present.

If the iridotomy is small, it is enlarged by changing the laser setting to the single pulse mode and lowering the power, and the laser is aimed at the edges of the opening. The laser is fired until the iridotomy is of adequate size, generally about 200 µm.

The lens is removed, a drop of prednisolone acetate 1% is placed in the patient's eye, and the patient is asked to wait 1 hour. Following this, the IOP is checked, and the patient is told to instill prednisolone acetate 1% every 2 hours until bedtime and then 4 times a day for 4 days. The patient is seen 1 week later.

If the IOP is greatly elevated at 1 clock-hour postoperative, for example, 35 mm Hg or higher, or too high for a compromised optic nerve, additional IOP lowering meds and Diamox (acetazolamide), if necessary, are given in the office. The IOP is checked every 30 to 40 minutes until adequate control is achieved. If necessary, the patient is sent home on aqueous suppressants and is followed up in a day or 2 to ensure that the IOP is controlled.

The measures presented in this chapter are specific for Nd:YAG laser iridotomy, but the same principles apply for argon or diode laser iridotomy or for combined argon or diode and Nd:YAG laser iridotomy. If a photocoagulator is used, either the short pulse technique, for dark brown irides (50-µm spot, 0.02 to 0.05 s, 1000 to 1500 mW, 20 to 50 spots, Abraham or Wise lens), or the long pulse technique, for blue, hazel, or light brown irides (50-µm spot, 0.2 s, 1000 mW, 20 to 30 spots, Abraham or Wise lens), is used. The laser is focused to a tight spot and fired repeatedly into the crater, creating an iridotomy. The LPI is complete only when the anterior lens capsule can be seen through the opening; a plume of pigment is not a signal that the procedure is finished.

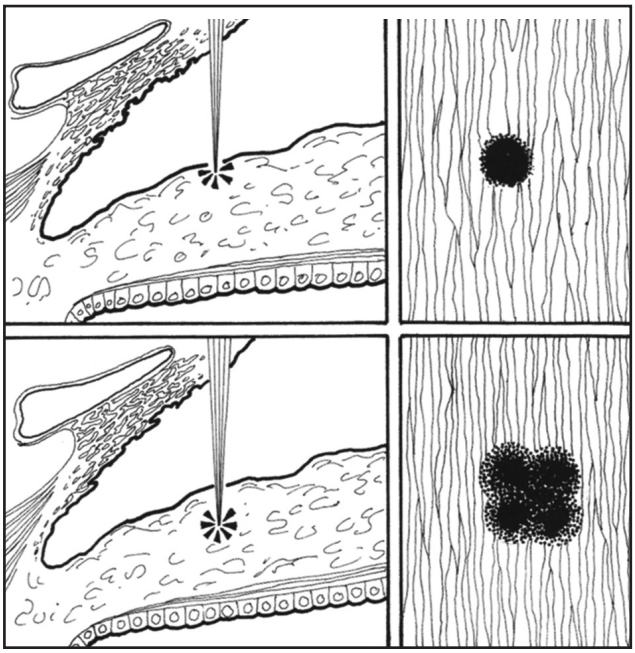

Figure 55-3. The top panel demonstrates sharp focus of the laser, with the 4 aiming beams joining to form a single spot when the laser is focused on the surface of the iris. The laser is defocused slightly posteriorly by moving it toward the patient, and the beams separate minimally (below panel). This is the optimal condition for Nd:YAG laser iridotomy, as it makes maximal use of the shock wave generated by the laser by focusing the laser slightly below the surface of the iris. Subsequent exposures are treated in the same manner, focusing slightly deep to the surface of the tissue, to maximize laser effect and minimize the number of shots necessary to create a patent iridotomy.

diode LPI may not progress, evidence of fluid movement into the crystalline lens must be monitored. Lens injury represents the main unknown long-term potential complication of this procedure.

Pigment Dissemination

The TM in the open portions of the angle frequently contains additional pigment after LPI. Possibly, this relates to the moderate IOP elevation that may occur for several weeks to months after the procedure. The long-term consequences of this pigment dissemination on the outflow pathways is not known.

Retinal Burn

We have not observed this complication of photocoagulation of the iris, but it has been reported by others. Some protection may be gained by performing LPI far peripherally beyond the lens equator and by aiming obliquely rather than perpendicularly through the cornea.

Corectopia

The pupil often becomes irregularly dilated toward the lasered quadrant when photocoagulation is used during the LPI procedure, but most often this returns to normal in a few days. Rarely has it persisted.