Chapter 60
Laser Trabeculoplasty

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Indications

Primary open-angle glaucoma (POAG), pigmentary glaucoma, pseudoexfoliation syndrome, steroid-induced glaucoma, and juvenile glaucoma

Essential Steps

1. Consideration of pretreatment with pilocarpine or α_2-agonists like brimonidine or apraclonidine up to 1 h before laser to blunt postoperative pressure elevation.
2. Administration of topical anesthetic.
3. Ensure comfort of the patient and surgeon with patient head positioning against the headrest.
4. Place appropriate lens onto the eye with Goniosol solution (Latina SLT lens, Goldmann 3-mirror lens, or Ritch trabeculoplasty lens).
5. Laser settings:
   (a) ALT: time, 0.1 s; power, 780 mW; and spot size, 50 μm.
   (b) SLT: power, 0.8–1.0 mJ.
   (c) MLT: time, 300 ms; power, 1000 mW; and spot size, 300 μm.
6. Laser trabeculoplasty can be done over 90, 180, and 360°. (The amount of area treated is likely proportional to the probability of success. This author prefers

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E. D. Rosenberg et al. (eds.), *Operative Dictations in Ophthalmology*,
https://doi.org/10.1007/978-3-030-53058-7_60

to treat 360° in all eyes except those with heavily pigmented TM. If treating 180°, treat inferior angle first because of increased pigment and higher likelihood of success.)

7. Application of 100 evenly spaced burns over 360° or 50 evenly spaced burns over 180°.
8. Endpoint:
   (a) ALT: Blanching (mild) with minimal or no bubble formation. If large bubbles form, then decrease energy (*if no tissue reaction, then increase energy*).
   (b) SLT: Small champagne bubbles or no reaction.
   (c) MLT: No tissue reaction.
9. Site of treatment:
   (a) ALT: Junction of anterior nonpigmented and posterior pigmented edge of TM
   (b) SLT: Straddling entire TM
   (c) MLT: Straddling entire TM
10. Check IOP 30–60 min later.
11. Postoperative topical steroid QID × 1 week (although typically not given post-MLT and rarely given post-SLT).
12. Reassess in 1 week.

Complications

– Transient rise in IOP
– Iritis
– Hyphema
– Formation of peripheral anterior synechiae (PAS)
– Very rare corneal burn/scar with refractive error shift (SLT)

Template Operative Dictation

Preoperative diagnosis: Open-angle glaucoma (*OD/OS/OU*)

Procedure: (*ALT/SLT/MLT*) (*OD/OS*)

Postoperative diagnosis: *Same*

Indication: This ____-year-old (*male/female*) with open-angle glaucoma (*OD/OS/OU*) requires IOP lowering. After a detailed review of risks and benefits, the patient elected to undergo the procedure.

Description of the procedure: Informed consent was obtained from the patient at which time the risks, benefits, and alternatives were discussed and all questions were addressed. The patient was identified, and the (*right/left*) eye was marked. One drop of pilocarpine 2% and one drop of brimonidine 0.1% were instilled into the eye. *_60_* minutes later the patient was brought into the procedure room. A proper time-out was performed. Proparacaine was instilled into the eye. The patient was comfortably seated at the laser with the forehead touching the guide bar. A (*type of lens*) was inspected and found to be clean and free of defects and then placed onto the eye with Goniosol solution.

[Choose one]:
If argon laser trabeculoplasty (ALT) was used – The argon laser was set at a power of ____mW, spot size of _50_ μm, and duration of _0.1_ s and aimed at the junction of the anterior nonpigmented and posterior pigmented edge of the TM. _#_ evenly spaced burns were applied over ____ degrees of the (inferior/superior/temporal/nasal) angle. (Blanching with minimal or no bubble formation was observed, OR large bubbles formed with the initial power so the energy was decreased to ____ mW, OR no tissue reaction was seen with the initial power so the energy was increased to mW).

If selective laser trabeculoplasty (SLT) was used – The Q-switched frequency-doubled Nd:YAG laser was set at a power of ____mJ and aimed at the TM. _#_ evenly spaced burns were applied over ____ degrees of the (inferior/superior/temporal/nasal) angle. (Small champagne bubbles were observed, OR large bubbles formed with the initial power so the energy was decreased to ____mJ.)

If micropulse laser trabeculoplasty (MLT) was used – The IQ Iridex laser was set at a power of _1000_ mW, spot size of _300_ μm, and duration of _300_ ms and aimed at the TM. _#_ evenly spaced burns were applied over ____degrees of the (inferior/superior/temporal/nasal) angle.

The patient was monitored in the waiting room for ___ minutes. IOP at ___ minutes following treatment was ____ mmHg. The patient tolerated the procedure well without any IOP spikes observed. The patient was instructed (*to use topical steroid therapy 1 gtt QID (OD/OS) for 1 week and*) to return in _2_ weeks for an IOP and AC check.