



How to Implement SLT into your clinic

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Kentucky Optometric Association
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Financial Disclosures

- None

History of laser use in eyecare

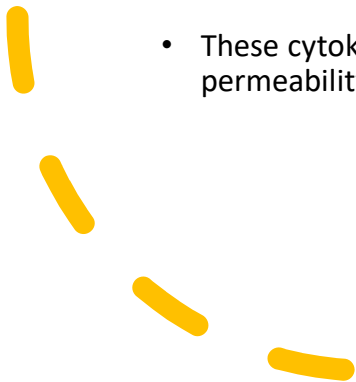
- Argon Laser Trabeculoplasty, originated in 1979 was effective at lowering IOP up to 4-5 years. Risks included uveitis, PAS, and IOP spike
- Selective Laser Trabeculoplasty was introduced by Latina and Park in 1995 and received FDA approval in 2001. Risks are generally less than ALT and the laser can successfully be repeated more frequently
- As of April 2026, 15 states have optometric laser privileges
- Personal Experience?



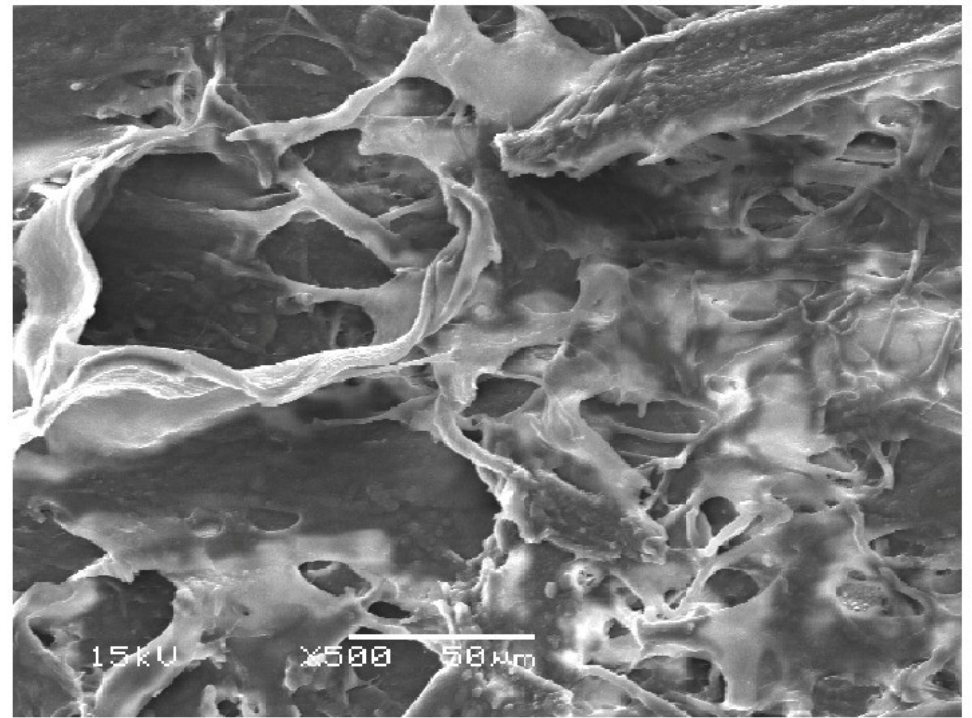
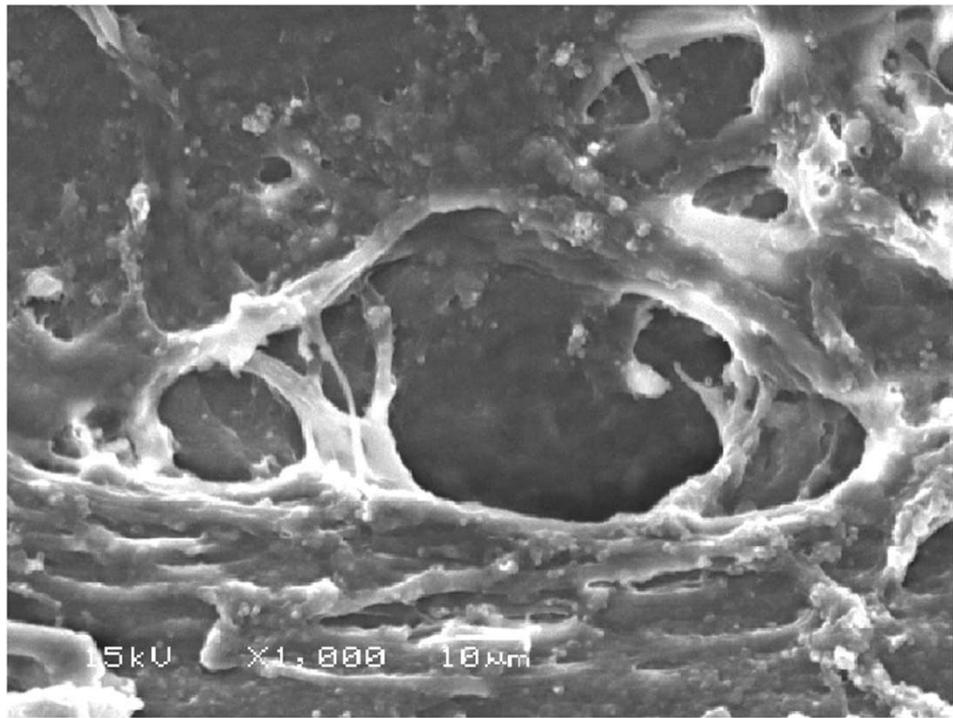


Physics!

- LASER (Light Amplification by Stimulated Emission of Radiation)
- Neodymium: Yttrium Aluminum Garnet Laser Medium (Nd:Yag)
 - Light source activates a solid-state crystal exciting the release of photons (1064nm)
 - An SLT uses a Q-switched, frequency doubled laser that delivers a shorter pulse duration (3ns) at 532nm (green color)
 - SLT's wavelength is specifically chosen to be absorbed only by the melanin. The duration of the burst is so short a thermal reaction is unlikely, the proposed mechanism is a stimulation of cytokines
 - These cytokines lead to migration of macrophages to phagocytize pigment within the meshwork thus increasing its permeability



Electron Microscope ALT vs SLT



Clinical indications

- Primary Open Angle Glaucoma
- OHTN
- NTG
- Exfoliative Glaucoma
- Anti-VegF induced glaucoma
- Previous glaucoma surgery



When to recommend?

- First line vs second line treatment
- Young patients or patient's intolerance to drops
- Significant ocular surface disease
- Economical impact of medication cost?
- Unilateral disease
- Mission trips



Randomized Controlled Trial > Ophthalmology. 2023 Feb;130(2):139-151.

doi: 10.1016/j.ophtha.2022.09.009. Epub 2022 Sep 17.

Laser in Glaucoma and Ocular Hypertension (LiGHT) Trial: Six-Year Results of Primary Selective Laser Trabeculoplasty versus Eye Drops for the Treatment of Glaucoma and Ocular Hypertension

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Affiliations + expand

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Free article

Erratum in

[Corrigendum.](#)

[No authors listed]

Ophthalmology. 2025 Nov;132(11):1323-1325. doi: 10.1016/j.ophtha.2025.07.029.

PMID: 41110942 No abstract available.

Abstract

Purpose: The Laser in Glaucoma and Ocular Hypertension (LiGHT) Trial has shown selective laser trabeculoplasty (SLT) to be clinically and cost-effective as a primary treatment of open-angle glaucoma (OAG) and ocular hypertension (OHT) at 3 years. This article reports health-related quality of life (HRQoL) and clinical effectiveness of initial treatment with SLT compared with intraocular pressure (IOP)-lowering eye drops after 6 years of treatment.

Design: Prospective, multicenter randomized controlled trial.

LIGHT trial

- Laser vs drops (primary treatment)
- Slightly better at reaching target IOP control at 3 and 6 years
- Lower percentage in laser arm needed surgical intervention over the course of the study
- Lower cost to patient



Clinical Efficacy

- Typical IOP reduction between 18-40%
- Amount of lowering capability is influenced by starting IOP
- Success rate of lowering IOP>20% is between 67-77% at 6 months
- IOP effect wears off gradually over time, generally between 12 months to 4 years



Indications & Ins Requirements

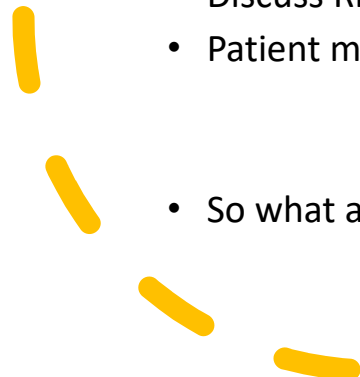
- Argon Laser Trabeculoplasty (ALT) and Selective Laser Trabeculoplasty (SLT) are options used in the treatment of primary open-angle glaucoma (POAG). These procedures may be performed as the initial treatment, when medical therapy fails, or when a patient is unable to tolerate medications. These laser procedures improve the outflow of aqueous humor by photocoagulation of the trabecular meshwork to lower intraocular pressure.
- Must document medical necessity for laser (examples)
 - *Glaucoma requiring treatment, progressive glaucoma needing further treatment, unable to tolerate topical medication, uncooperative with topical medication,*





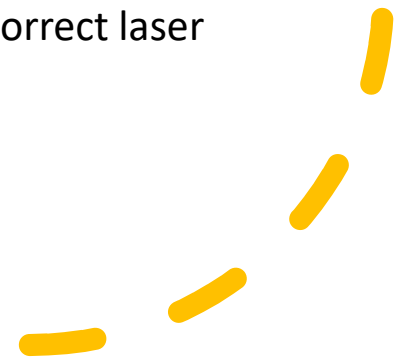
Pre-operative exam

- Standard comprehensive exam including diagnostic testing (VF or RNLF) that justify the presence of glaucoma.
 - Even in the absence of glaucomatous damage, document things like VF and RNFL as they can provide valuable insight into the risk of glaucoma development (glaucoma risk analysis)
- Informed consent
 - Required for any surgical procedure
 - Discuss procedure in layman's terms
 - Discuss Risk/Benefit/Alternatives and elective nature of procedure
 - Patient must wish to have procedure done.
- So what are the Risks? And who should we avoid?



Risk of procedure

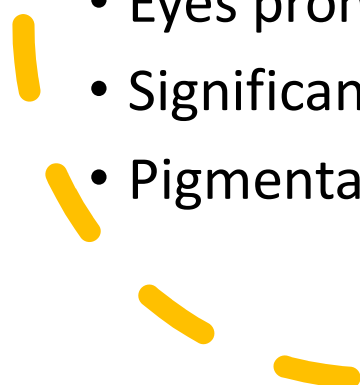
- Not 100% successful
- Acute IOP spike (risk is generally proportional to amount of energy and/or amount of pigment)
- Long term elevated IOP (risk increases with repeat treatments)
- Iritis (hx of inflammation, inflammatory glaucoma, elevated energy/pigment)
- Hyphema/CME/Foveal burn? (Incorrect laser settings, or diagnosis)





Who to avoid?

- Neovascular glaucoma
- Traumatic glaucoma
- Narrow angle glaucoma
- Inflammatory glaucoma
- Eyes prone to inflammation/CME
- Significant PAS/CACG
- Pigmentary Glaucoma? – debatable



Equipment

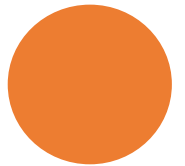
- Standalone 532nm frequency doubled Q-switch Nd Yag laser
- Combo unit (able to choose between 532 and 1064)
- Micropulse with Iridex™

In clinic? Roll on/off? ASC?



The procedure

- Latina lens or equivalent
 - 3 mirror gonio lens with flange
 - Big and bulky, can be difficult to insert in small fissures
- Requires coupling gel and anesthetic



The procedure

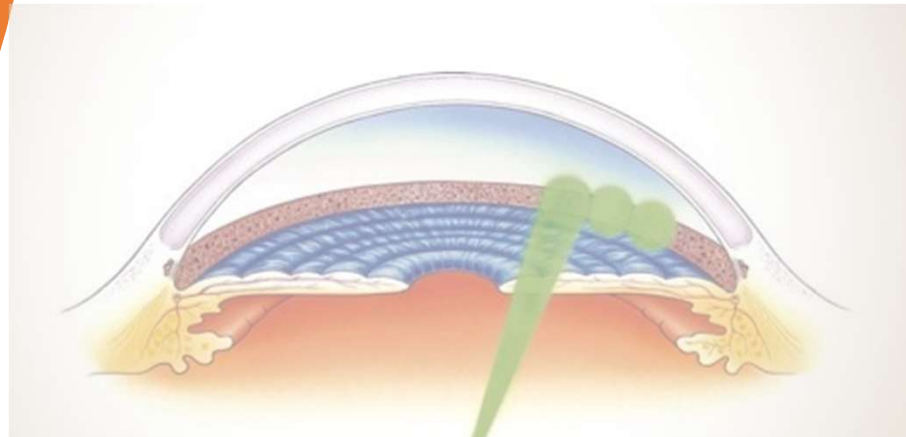
- Pilocarpine? Preoperative IOP medicine?
- Spot size is fixed at 400um
- Start with energy levels between 0.8mJ and 1.0mJ
- Recommend starting at a visible landmark
- Aim beam at pigmented TM
- Each laser shot should give small champagne bubble response
 - No bubbles (increase power)
 - Lots of bubbles (decrease power)
 - The amount of power needed is proportional to the amount of pigment

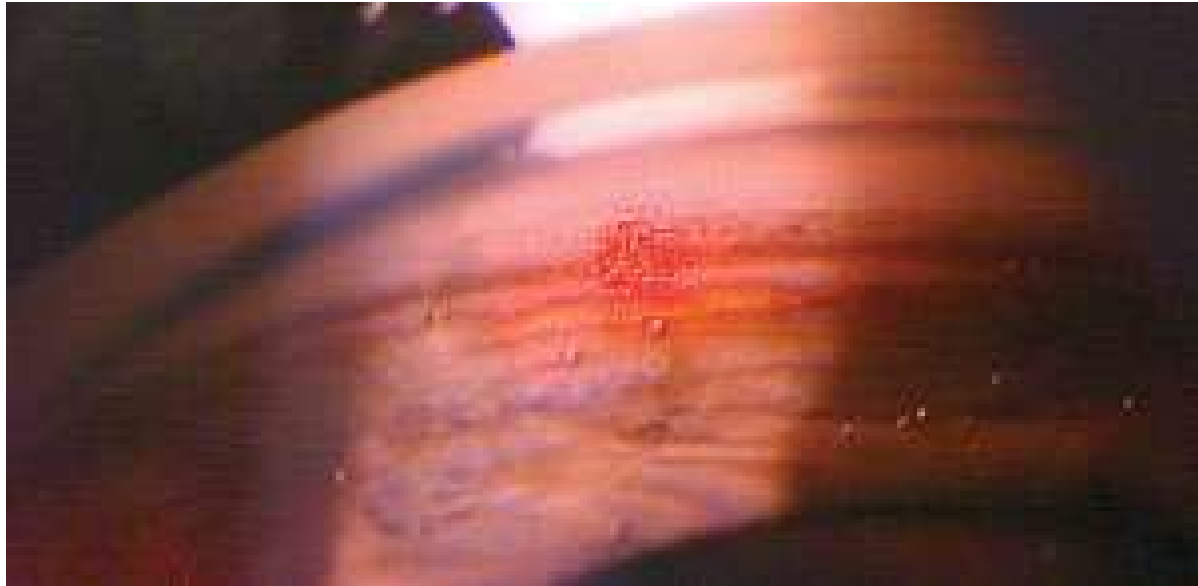




The procedure

- Rotate lens more than move laser
- Maintain a constant direction
- Spots should be adjacent to each other and not overlapped
- Treatment of 180 vs 360°
- Typical number of shots per 360° is 100

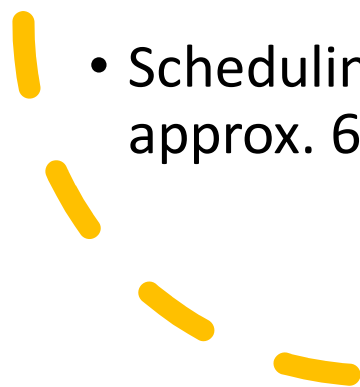






Post operatively

- IOP lowering medicine
- IOP check in 30-60 minutes
- Post operative prescribed medicine?
 - Steroid vs NSAID vs Nothing (3-4x per day for 1 week)
- Scheduling follow up, remember global period is 10 days but it takes approx. 6 weeks for maximum laser response



Procedure note

- Medications used
- Equipment used (ie: Lens)
- Number of shots
- Energy range of shots
- Total Energy
- Complications?
- IOP check?
- Post operative drops administered?





Complications

- Acute IOP spike
 - Increase in 5-10 mmHg is common within the first hour, generally responds to topical therapy
 - Less likely with preemptive post operative IOP drop
- Iritis
 - Responds well to topical therapy NSAID is preferred over steroid unless ineffective at controlling inflammation



A large orange shape on the left side of the slide, consisting of a rectangle with a rounded right edge.

Billing

- CPT 65855 Kentucky Medicare Reimbursement
- Office \$229 per eye
- ASC \$192 per eye



Billing

- CPT 65855
- Global period for procedure is 10 days
 - Exam gets 25 modifier if same day as EM visit
 - Procedure needs 79 modifier if second eye is done within 10 days
 - Can be done bilateral with 50 modifier but second procedure reimbursement is cut 50%

Billing

-54 Modifier – used when billing for procedure only

-55 Modifier – used when billing for post operative care only

Example for an est patient level 4 exam with same day laser

(H40.131) 99214 – 25

(H40.111) 65855 – RT

Example for same patient second eye laser only

(H40.121) 66821 -79 – LT



Questions?

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