

Seven Years experience in the use of SLT

Clinical examples-cases and results after long term use

Matthias Maus, MD
AUGENZENTRUM MAUS
augenzentrum.de
Cologne, Germany

Own history

Personal history

- **Shanghai 2000 - Key lecture about SLT**
 - **Messages:**
 - Controlled and selective “damage” to TM
 - Energy compared to ALT 1:100 (1:6000)
 - Repeatable
 - Same effectiveness as ALT
- **Decision:**
 - Bought a Coherent SLT two months later

Glaucoma Strategy

Glaucoma at a glance

- Over 60 million people suffer from some form of glaucoma
- Glaucoma is the second leading cause of blindness
- WHO estimates that 4.5 million people are blind due to Glaucoma, accounting for 12% of all global blindness¹
- Over 12 million people will have Glaucoma in Europe by 2010²
- The number is estimated to grow to almost 14 million by 2020²

1) Glaucoma Research Foundation

2) Quigley H.A., Broman A.T. BMJ 2006;90::262-267

Ideal Rx for Glaucoma

- Should offer sufficient reduction in IOP
- Should provide reduction on long term basis
- Should be associated with minimal IOP fluctuation
- Should be independent of the compliance factor
- Should offer tolerable systemic & local side effects or be devoid of S/E.
- Should be economically sound

Glaucoma treatment options

- Medication (eye drops):
 - Travatan, Xalatan, Lumigan, Betopic, Timolol, Azopt, Trusopt, Iopidine, Alphagan...
 - Cosopt, Combigan, Duotrav...
- Laser treatment
 - ALT
 - SLT
- Surgery
 - Trabeculectomy, shunts, etc

My “Old” Profile

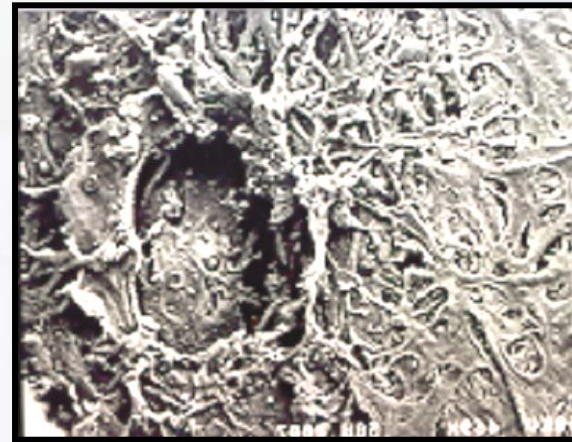
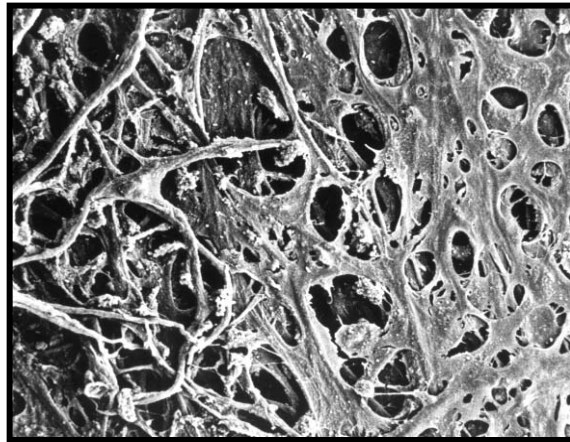
1. Medical therapy
2. Maximally tolerated medical therapy
3. Laser trabeculoplasty (ALT)
4. Surgical filtering

Treatment issues: Medication

- Known side-effects
- Non-responsiveness to drugs
- Expensive
- Patients may become intolerant to drugs
- Patient compliance issues
- Life-long regimen to follow
- Daily drops have negative impact on patient's quality of life

Treatment issues: ALT

- Permanent damage to trabecular meshwork
- Not repeatable
- Time-limited success



Tissue damage following ALT

Treatment issues: Surgery

- Invasive
- Post-operative complications
- Possible reduction of visual acuity
- Increased risk of cataract

Advantages of SLT

SLT issues: a risk-free treatment opportunity

SLT...

- Is effective over time
- is non-invasive
- Is repeatable
- has no known side-effects
- can be performed as an in-office, ambulatory procedure
- can be conducted as an adjunct therapy to meds

“The consensus among experts participating in the SLT/med study is that SLT may represent the most efficacious way to treat open-angle glaucoma”

L. Jay Katz, Wills Eye Hospital – Glaucoma Today, 07/05

SLT advantages

- Obvious clinical advantages
 - Safe & effective
 - Physician controls the therapy rather than the patient
 - Enables offering of a non-invasive alternative
 - Modular treatment options to address IOP on different levels
 - Primary therapy
 - Combination with meds
 - Delay surgery (longer patient retention)
- Patients who will be able to go off medication are more likely to refer other patients
- Less referrals to specialized clinics necessary

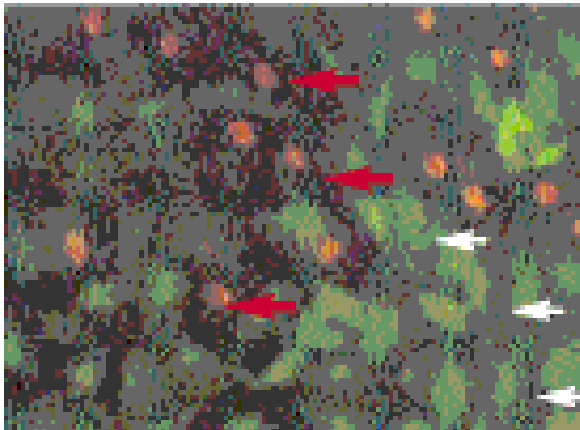
My Current Profile

1. **Laser trabeculoplasty (SLT)**
2. Medical therapy
3. Maximally tolerated medical therapy
4. Surgical filtering

Success does not depend on my patients anymore

How it works

- SLT uses low energy laser light to target and irradiate melanin-rich cells in the trabecular meshwork
- The laser pulses only affect melanin-containing cells, leaving surrounding structures and tissue unaffected
- The body responds by releasing macrophages that clear the irradiated cells and rebuild the meshwork with increased porosity
- As the trabecular meshwork's normal function is restored, intraocular pressure is reduced



Phase contrast micrograph of pigmented and non-pigmented trabecular meshwork cells. Red arrows show cell death occurring in pigmented cells, white arrows show unaffected, non-pigmented cells

(Lee, D.A., Netland, P.A., Review of Ophthalmology, April 2001)

Clinical indications

SLT

- Patients who qualify for SLT:
 - 90% of all POAG patients,
 - 50% of all ACG patients,
 - and 60% of all other glaucoma patients
- 95% of qualifying patients consent to SLT therapy
- 70% respond positively after initial treatment
- 50% of patients are re-treated every two years
- 20% of patients are re-treated every three years

In what types of glaucoma does SLT work?

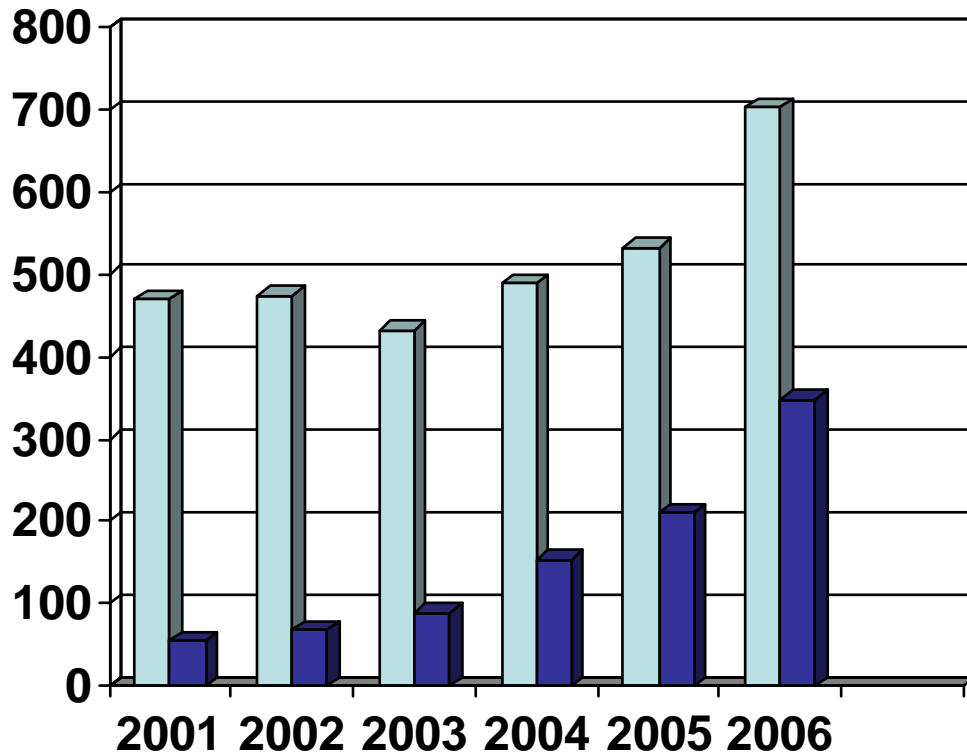
Table 3. IOP Decrease in Different Types of Glaucoma

Diagnosis	No. of Eyes	Preoperative IOP, mm Hg*	Final IOP, mm Hg*	% IOP Decrease	<i>P</i> Value†
POAG	29	25.5 ± 2.0	18.5 ± 2.8	27	<.001
OHT	6	25.5 ± 1.1	17.0 ± 2.6	31	<.001
PXFG	5	28.6 ± 3.2	16.8 ± 0.8	41	.001
PDG	3	26.0 ± 2.6	19.7 ± 2.3	24	NA‡
NTG	2	20.5 ± 0.7	14.5 ± 2.1	29	NA‡

Melamed Arch. Ophthalm. 2003; 41:957

Own SLT numbers

SLT development in our office



Total No. Of SLT:
1120

■ Glc
■ Treatments

2001
2006

54 SLT
348 SLT

SLT Business Case Study

“The primary reason why I chose to introduce SLT to my patients was the clear clinical benefit that it provides.

The ability to offer patients an option that may take them off medication or at least reduce medication should be compelling to any ophthalmologist.

However, the business aspect cannot be left aside. SLT has the potential to be a very profitable business for our clinic”

Patient education

What we talk to patients about SLT

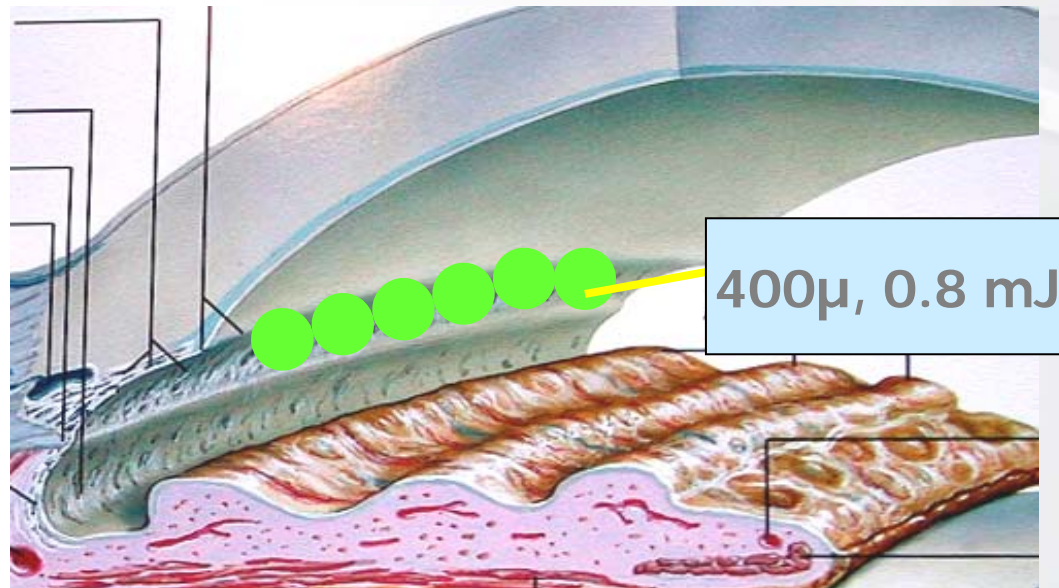
Clinical efficacy

- Proven: approved since 1999, thousands of patients have been treated to date No associated side-effects
- Non-invasive: no permanent damage to tissue structures
- Quick and comfortable in-office procedure
- Long term reduction in IOP
- Possibility of foregoing medication all together
- Delaying combination therapy or surgery
- Repeatable

Treatment Scheme

Treatment scheme

50 shot over	180°
Nonresponder	360°
Retreatment	180°/360°



Case Samples

SLT Cases

- Case 1: Male, 59y, long history of Glc meds, progressively intolerant versus a variety of eye drops
2002 SLT on both eyes
IOP from 25 down to 17 no change over 5 years
Got of all eye drops
- Case 2: Male, 21y, family history of POAG
OHT for 3 years.
2005 SLT as first line treatment
IOP from 23 to14, no change since

SLT Cases

Case 3: Female, 40y, POAG since 5y, Alphagan bd
2004 SLT on both eyes
IOP from 19 down to 14 no change
“Jumped to the offer”

Case 4: Female, 81y, POAG/PXFG since 50y
Compliance problems with fluctuations in IOP
2003 SLT 360° both eyes
IOP from 23 to 14, no meds necessary any more
No worry about compliance anymore

Reimbursement

SLT Reimbursement

Assumptions and facts

Number of total glaucoma patients:	700	
Percentage of patients with OAG:	80%	(540 patients)
Percentage of patients with ACG:	6%	(42 patients)
Percentage of patients with other:	14%	(98 patients)
Medicare and government insured:	65%	
Private patients:	35%	
Reimbursement for SLT for medicare patients:		€ 83,-
Reimbursement for SLT for private patients:		€361,-
Avg number of check-up visits per patient/year:		3

SLT Reimbursement

Number of treatments per year: 348 (Less than one patient per day)

Medicare and government insured: 226 (65%)

Private patients: 122 (35%)

Reimbursement for GM ins. patients: $226 \times 83 = 18.758 \text{ €}$

Reimbursement for private patients: $122 \times 361 = 44.042 \text{ €}$

Impact on economy (Insurance)

Economic impact of SLT

- A study conducted in Canada that evaluated the cost associated with medication and SLT for 707 patients found that the cost savings for the health care system over a period of six years was
 - CAN \$ 206.54
for patients that received SLT and no drugs
 - CAN \$ 1,668.64
for patients that received SLT and one type of drug
 - CAN \$ 2,992.67
for patients that received SLT and two types of drugs

Lee R, Hutnik, CM. Projected cost comparison of selective laser trabeculoplasty versus glaucoma medication in the Ontario Health Insurance Plan. Can J Ophthalmol. 2006 Aug;41(4):419-20

Marketing / PR

SLT for Ophthalmologists

- Marketing
 - Differentiate clinic as highend technology provider
 - Position surgeon as glaucoma specialist
 - Leverage SLT for PR and advertising
 - Utilize VASLT materials to demonstrate competence

SLT for Ophthalmologists

- Patient relations
 - Offering new, effective technologies builds stronger physician-patient relationships
 - Improving quality of life increases patient satisfaction and word-of-mouth referrals

SLT for Patients: Quality of Life

SLT...

- may help to get off medication all together
- may reduce amount of medication needed
- may save money for expensive medication
- May reduce or eliminate the need to self-administer drops or depend on a care provider to do so
- may delay the need for surgery
- may preserve vision longer

SLT for Patients: Clinical benefits

Clinical studies have shown that

- SLT may lead to a pressure reduction of 20-30% and more
- IOP lowering effect can last up to 5 years
- The average response rate of patients to SLT is 70%
- SLT has shown a complication rate of less than 5%, all complications were mild and treatable
- Long term observations of more than 5 years have not found any significant or long-term side effects

Kaulen P., International Clinical Experience with SLT. OSN, March 2000

Weinand FS, Althen F. Long term clinical results of selective laser trabeculoplasty the treatment of primary open angle glaucoma. EJO 2006;16:100-4

Take home message:

- No Rx available is 100% effective (SLT 70-75%).
- Effect of SLT does wear off with time like ALT.
- BUT unlike ALT, SLT is a repeatable procedure
- No need to worry about side effects unlike anti-glaucoma drops or their contraindications
- Role of SLT is not only to reduce IOP but also to
 - a) improve compliance
 - b) improve patient's QOL
- Highest therapeutical index. No treatment for Glaucoma has a better risk/benefit ratio than SLT.

Summary

- SLT is winning addition for physicians and patients alike
- With no critical side effects, long term efficacy and repeatability it is the ideal primary treatment approach for glaucoma patients
- SLT positively impacts the bottom line of the clinic, patients and the national health economy