

Superior Quality
Longevity Flexibility
Laser Excellence Usability Safety Comfortable

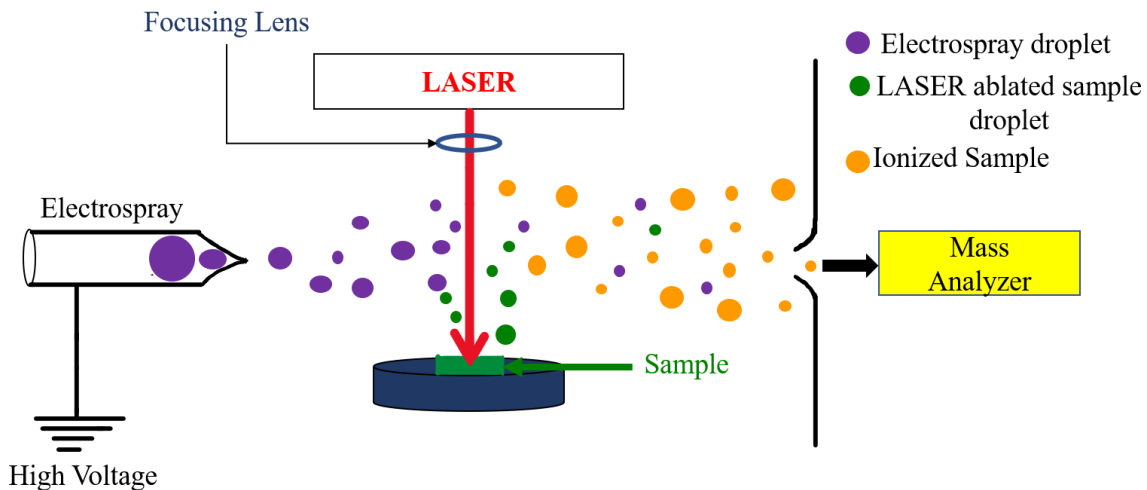
Treating with Merilas 810
shortpulse

your laser specialist



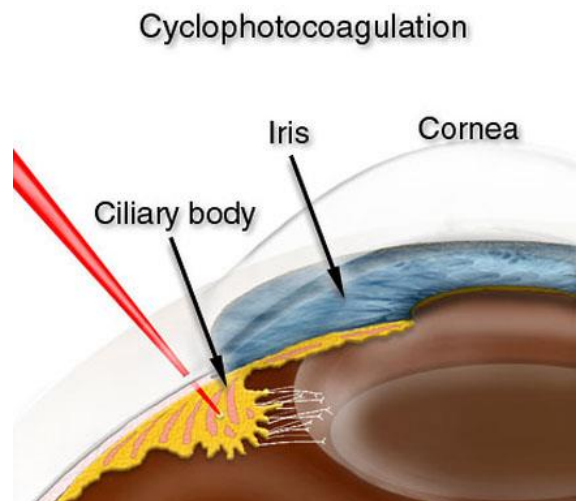
Laser effect

Laserablation or photoablation is the process of removing material from a solid (or occasionally liquid) surface by irradiating it with a laser beam. At low laser flux, the material is heated by the absorbed laser energy and evaporates or sublimates. At high laser flux, the material is typically converted to a plasma.



Transscleral Cyclophotocoagulation (TSCPC)

- The ciliary body produces aqueous humor.
- To decrease the production of aqueous, the ciliary body can be treated with a laser. This process is called ablation.
- When previous medications and treatments were not effective, and with congenital stages; TSCPC has been shown to be very effective and safe in reducing intraocular pressure
- IOP reduction has been reported 30-60% depending on power settings
- Efficacy adults 50-70% / kids 20%



TSCPC in CW mode

TREATMENT	MODE	EXPOSURE	Power	Shots
TSCPC	CW	1.5 Sec	1.5 W	30 shots / 270°
TSCPC	CW	1.5 Sec	1.5 W	30 shots / 270°
TSCPC	CW	2.5 Sec	1.25 W	30 shots / 270°

Please note:

CW laser energy was titrated such that the minimum power required to produce a pop was applied.

Power was based on iris pigmentation, which serves as an estimation of laser energy absorption in the ciliary body. For dark or light brown irises, 1.25 W and a 4.0- to 4.5-second duration were used. Eyes with other iris pigmentation received 1.5 W and a 3.5- to 4.0-second duration treatment.

TSCPC in shortpulse (SP) mode

TREATMENT	MODE	EXPOSURE	Power	Duty Cycle
TSCPC	Shortpulse®	500 mS	1600 -2500 mW	31.3%
TSCPC	Shortpulse®	500 mS	2000 mW	31.1%

A duty cycle of 31.3%, i.e., an “on” time of 0.5 ms and an “off” time of 1.1 ms per cycle.

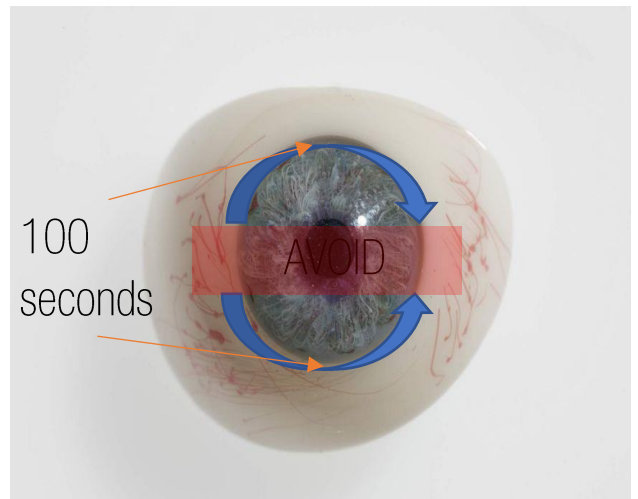
Treatment procedure

Typically, a surgeon moves the probe in a continuous sweeping or fast, sliding, or “painting” or slow motion over the upper and/or lower limbus (180 or 360) of the eye, avoiding the 3 and 9 o’clock positions to protect the ciliary neurovascular structures from an injury.

Cystic blebs and other areas of thin conjunctiva should be avoided.

Total treatment duration has varied between 100 to 360 seconds per session in reported studies, and in many cases is selected based on surgeon preference.

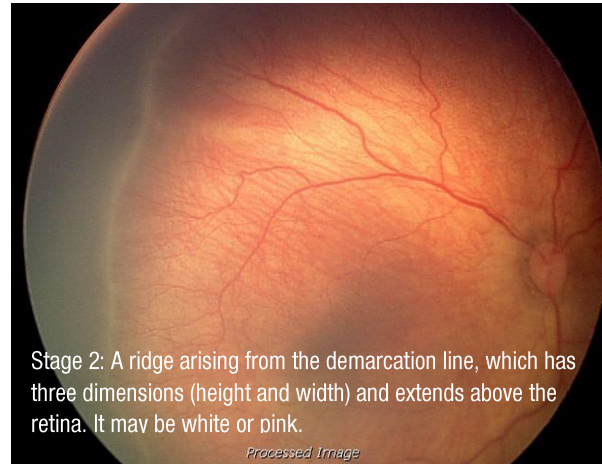
There is no current consensus on ideal treatment duration, though a higher duration may be associated with higher likelihood of adverse events.



Retinopathy Of the Premature (ROP)

ROP is a problem with the way the blood vessels develop on the surface of the retina. When a baby is born prematurely (under 1250 g) these blood vessels are immature like the rest of the baby. In most premature babies the retinal blood vessels grow properly. In some premature infants the blood vessels start to grow the wrong way. Instead of branching like a tree the vessels link up side to side and in some cases grow away from the retina towards the centre of the eye. The severity of ROP is graded from stage one to stage five. Stage one is the mildest and stage five the most severe.

Retinopathy of prematurity (ROP) is a significant cause of childhood blindness. The criteria for laser therapy have been revised from threshold ROP to include the earlier stage of high-risk prethreshold ROP. Laser photocoagulation is an established technique for the treatment of ROP.



Stage 2: A ridge arising from the demarcation line, which has three dimensions (height and width) and extends above the retina. It may be white or pink.

Processed Image

ROP procedure

The rationale of laser use in ROP is to destroy the nonvascular retina, which is the source of new vessels, thus interrupting the pathogenic chain ultimately leading to vision loss.

LENS	Spot Size	EXPOSURE	Power	Shots
	500+	0.2 - 0.3 Sec	100 – 450 mW	300-1200
+20D +28D	LIO	0.05 – 1 Sec	150-200 mW Titration	1000-5000
	LIO	0.15 Sec	250mW	As required



References

- https://eyewiki.aao.org/Micropulse_Transscleral_Cyclophotocoagulation
- https://www.rch.org.au/ophthal/patient_information/What_is_ROP/
- Jalai et al., 2010, Technical aspects of laser treatment for acute retinopathy of prematurity under topical anesthesia, Indian J Ophthalmol. 2010 Nov-Dec; 58(6): 509–515
- <https://www.bettersafecare.vic.gov.au/resources/clinical-guidance/maternity-and-newborn-clinical-network/retinopathy-of-prematurity-rop>



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