

CORNEA

contact Rolando Toyos - rostar80@gmail.com

INTENSE PULSED LIGHT

Skin treatment appears to clear meibomian gland

by Howard Larkin in Paris

Intense pulsed light treatment, long used for treating the skin condition rosacea, also may be effective for treating dry eye associated with meibomian gland dysfunction (MGD), according to studies by Rolando Toyos MD, Memphis, Tennessee, US. In his most recent study, presented at the XXVIII Congress of the ESCRS, Dr Toyos treated 15 patients with MGD and symptomatic dry eye who had a tear-film break-up time of less than six seconds. Patients received two to four treatments, depending on when symptoms improved. One month after the final IPL treatment, all eyes showed improved TBUT, averaging just over five seconds longer, ranging from three to 12 seconds longer.

Subjectively, all 15 patients also reported improvement in dry eye symptoms, with two reporting that one eye improved more than the other, Dr Toyos said. Typically, patients reported relief immediately following the final procedure as well as in the following weeks. Dr Toyos also observed reductions in objective MGD signs, including reduced lid telangiectasia, fewer blocked meibomian glands and less-inflamed lid margins.

"Over the past eight years, we have improved the intense pulse light system, and have produced one that works well for the treatment of meibomian gland dysfunction," said Dr Toyos, who is a consultant for DermaMed International (Lenni, Pennsylvania, US), which manufactures the IPL device.

Heat and light Dr Toyos began investigating IPL treatment for dry eye in 2002 when he noticed that patients treated

for rosacea often reported improvement in dry eye symptoms. In a 2006 contralateral eye study in 100 patients, he found the IPL-treated eyes had significantly longer TBUT after the third and fourth treatments. However, the effect was less than in the current study, possibly because it was an earlier device that was less effective in reaching the eyelid, he said.

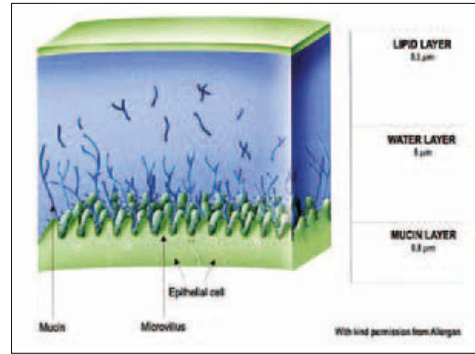
IPL uses a filtered xenon source to expose skin to millisecond-length bursts of light in the 500 to 800 nm range, which is the peak absorption range for oxyhemoglobin and near peak for melanin. The light penetrates deeply into the papillary epidermis, reaching the abnormal blood vessels associated with both rosacea and MGD.

"When you flash this light at a blood vessel it is absorbed by blood cells and coagulates the blood vessel," Dr Toyos explained.

He believes the heat of photocoagulation also melts abnormal meibomian secretions, allowing them to be expressed with pressure, which unblocks the glands.

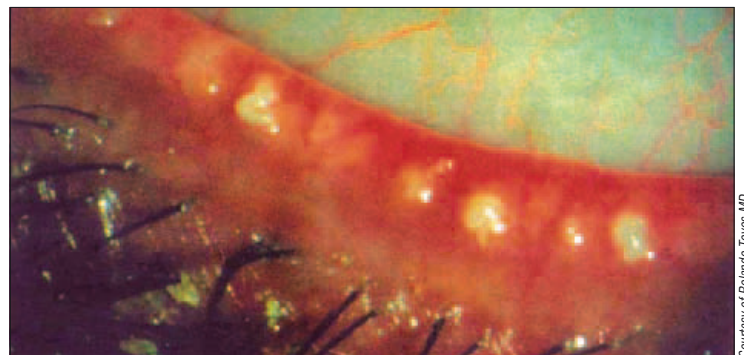
The immediate effect is like the most intense and effective warm compress these patients will ever get," Dr Toyos said. Shutting off the blood vessels also may reduce the inflammatory mediators they secrete, which block the glands.

Dr Toyos is examining the possible impact of IPL on demodex mite infestations and bacteria on the eyelid. Some studies also suggest that IPL decreases interleukin-9, which has been associated with improved meibomian gland function. Other unknown factors may also be at play, and further study is needed to confirm the mechanism of action, he said.

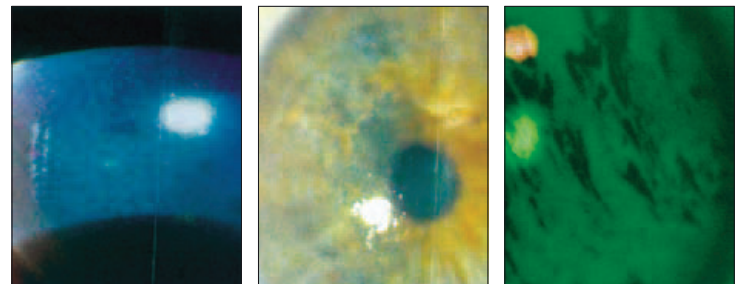


Tear Film:

- Lipid Layer (anterior layer)
- Polar (adjacent to aqueous layer) and Non Polar (outermost) sections
- Two major functions
 - Prevention of Evaporation
 - Tear Breakup Time
- Maintenance of a Smooth Ocular Layer for optical clarity



Meibomian gland dysfunction – Leading cause of evaporative dry eye



Clinical signs of MGD (left to right): SPK, poor tear film, rapid TBUT

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