Patients Suffering from GASH Post LASIK?

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The symptoms of GASH as an acronym for glare, ghosting, starburst, haloes and reduced contrast sensitivity have come to light in recent times by post LASIK patients who have written to the FDA and New York Times about these disturbing symptoms that occur at night and often associated with good 20/20 unaided daytime vision.

This phenomenon of 20/20 “unhappy” Lasik patients was discussed at the AECOS winter meeting in ASPEN by Dr Noel Alpins who presented a case study of a patient with all the symptoms of GASH And 20/20 unaided vision. To drive at night the patient had to shine the light of his mobile phone directly into his eyes to reduce pupil size and manage his symptoms in low light.

Using the patient as an example Dr Alpins demonstrated that he had excess corneal astigmatism post operatively of 1.12D R and 1.04D L. This was predictable as the patients preoperative corneal-refractive difference (ORA - ocular residual astigmatism) was 0.99D R and 1.24D L which when treating by 100% manifest refraction all this ORA would be left on the cornea to neutralise the internal aberrations.

By using a free web-based calculator available at www.assort.com to combine corneal and refractive parameters employing the method of Vector Planning [1] (Figure 1), the corneal astigmatism would have been 40% less on both eyes bringing the corneal astigmatism to below the threshold for tolerance to these unwanted GASH symptoms. No refractive excimer laser currently provides this facility which is also relevant to PRK and SMILE astigmatism procedures where corneal-refractive differences also prevail.

![Vector Planning](image)

_Figure 1: Vector Planning is a systematic method that incorporates both corneal and refractive parameters in the treatment plan by calculating the ocular residual astigmatism (ORA)._
The patient was treated by the latest generation Schwind Amaris 1050 laser demonstrating the prevailing problem for any astigmatism surgery. His postoperative corneal astigmatism was 1.12D R and 1.04D L. Dr Alpins classified the problem as a newly described syndrome called PALS being Predictable Avoidable Lasik Surprise with pre op ORA and post op corneal astigmatism > 1.00D. Between 34% [2] and 46% [3] of eyes with astigmatism have an ORA > 1.00D depending on which study is considered.

A study by Dr Maria Arbeleaz [4] established the effectiveness of Vector Planning comparing eyes treated using 100% refractive parameters to those with Vector Planning, showing that the patient’s corneae had 41% less astigmatism in those who had Vector Planning but the post-operative refractive cylinder was the same between the two patient groups. The overall result is less total astigmatism considering both refractive and corneal measures.

Dr Alpins recommended that excimer lasers have a “SAFE” button installed to activate the low astigmatism option by employing Vector Planning. This would lessen the incidence of GASH by reducing corneal astigmatism below 1.00D in most cases of high ORA.

**Financial disclosures**

Noel Alpins reports a financial interest in ASSORT Surgical Management Systems which holds trademarks in Vector Planning™

**Bibliography**


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