When Goldmann applanation tonometry is not reliable in post Lasik situations

Dear Editor,

It was interesting to read the article “Misleading Goldmann applanation tonometry (GAT) in a post Lasik eye with interface fluid syndrome (IFS)”[1] by Senthil et al.
It is prudent for a lasik surgeon to remember the central message of this article, that in post lasik situations, the various techniques of measuring the intra ocular pressure (IOP) do not always give a reliable reading because of alteration in the thickness and curvature of cornea. Since more and more eye surgeons of different subspecialties are venturing in to the Lasik arena, it is prudent that we do get to read more detailed articles of this nature.

In our own center (Jyothi Lasik vision centre, Bangalore, India), we do around 130 eyes a month of Lasik and PRK/epi Lasik and we used to come across raised IOP as a problem in around 20% of patients. Though our patients are, after Lasik or PRK routinely prescribed fluoromethalone now a days, instead of steroid drops, it was not unusual to come across a high IOP in many of these patients. Our patients presented in the first post operative week after Lasik with reduced vision and examination revealed slight corneal haze. In our Lasik centre, we did come across a number of patients in the first and second post operative weeks after Lasik, with slight corneal haze and blurred vision. It was difficult to decide whether to treat this as corneal haze due to early stage of DLK or due to fluid in the stroma and interface secondary to an increased IOP due to steroid drops. Recording of the IOP was not helpful as the recorded pressure always tended to be very low in these cases. The treatment for DLK is more frequent steroid drops and this would worsen the situation if the corneal haze is due to high IOP. The GAT in these eyes is not reliable at all in view of the reasons mentioned above. Erroreously treating these patients with more steroids for a diagnosis of diffuse lamellar keratitis (DLK) would worsen the situation. Before ordering corneal optical coherence tomography (OCT), an expensive but non invasive test, we do a simple clinical test. We decided to do this simple clinical test to help us decide the course of action. In the out-patient setting, we instill a drop of Beta blocker and give 250 mgm tablet of Diamox and recheck the cornea and vision after an hour. If the reduced vision and corneal haze is due to high IOP, this simple treatment is effective, dramatically so, in ameliorating the corneal haze and improving the vision. If the reduced vision is due to DLK, then the above treatment will not dramatically alter the situation nor will it worsen the situation. The patient with DLK will need more frequent steroid drops. I do hope that the authors agree with this simple clinical test. The proof of high IOP as the cause of the corneal haziness in situations where GAT is not reliable is to instill a drop of IOP lowering drug. Perhaps what starts as high IOP ends up as IFS if unrecognized and left untreated.

The next question that has puzzling is, why do we see more steroid induced pressure spikes in post Lasik eyes as compared to the normal myopic eyes receiving steroids for other reasons? What makes these eyes to spike the pressures in post lasik situation?[2]

May be that in these eyes, pressure spikes occur more often due to:
1. Reduced corneal thickness leading to quicker transport of drug in to the anterior chamber
2. The potential intra corneal space acts as a reservoir for the steroid and so a greater amount of the drug enters the anterior chamber quickly and is sustained for a longer duration

The source of the fluid in the interface space could be tear film or from anterior chamber. It is difficult to prove the exact nature of the interface fluid due to the small quantity present and difficulty in extracting it. Also, it is usually not easily recognizable with slit lamp.

I fully agree with the authors’ observation that the clinicians are more likely to encounter similar situations after Lasik.

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