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Central herpes corneal scar with divot

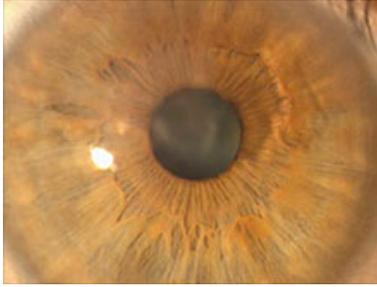
Gulani Planning System (GPS): Showing it like it should be



A 68-year-old, Caucasian male, a PhD by profession, was referred to me after seeing multiple corneal surgeons nationwide. On presentation, he had long-standing poor vision in his right eye from a central, dense corneal scar (herpetic scar) with corneal tissue compromise with an indented divot—seen in the preop topography and corneal densitometry analysis as well as on OCT during femto laser capsulorhexis in the video—and poor central visibility with cataract with best corrected 20/150 vision.

His final surgical result is unaided vision of 20/25+ in this affected eye, and he is extremely happy with his vision, comfort, and restoration of lifestyle. Let's look at my Gulani Planning System (GPS) for this case where I begin by taking into account everything from anatomy, physiology, optical status, and pathology to each patient's personal goals. All I want here is unaided 20/20 vision while keeping patient safety and ethics as my top priorities.

I do a thorough informed consent where the patient and family fully understand their guarded prognosis, including that there are no guarantees for outcomes and that corneal transplant is the definitive treatment. Once this essential formality is cleared, I get to work and apply my 5S system to break down every complex situation into basic modules and always have my surgery idea pass through my Corneoplastique mental filters, which ensure that any surgery/procedure I do must be brief, topical, aesthetically pleasing, least interventional with a goal for maximal uncorrected vision. The patient has an active lifestyle and after seeing numerous corneal specialists in the country was referred to me for options knowing that corneal transplant would be his definitive treatment. I reiterated to the patient that all the specialists nationwide were correct in



suggesting a corneal transplant and that too under guarded prognosis for herpes reactivation. This is because even with corneal transplant, the danger of herpes infection reactivation could nullify all the good any surgeon may attempt on this eye. As I refracted this patient to the bewilderment of visiting surgeons (who expected me to make decisions based on the multitude of technologies I have including topographers, anterior segment analyzers, and OCT technologies), I reached

my refractive goal and planned to first make this cornea “sensible.”

Having started him on valacyclovir (as I do for all herpes laser cases in collaboration with the patient’s primary care physician), I planned a staged surgery with the patient explaining that he would eventually need cataract surgery. I began with an “in corneal” laser PRK module as the Corneoplastique approach over the scar area as stage 1 to make the cornea measureable/sensible so we can accurately plan for an IOL-based cataract surgery to a more predictable vision endpoint. Using my multidirectional spatula (Gulani NexGen spatula), I did manual epithelium removal (without any alcohol) and proceeded with refractive laser in PRK mode with mitomycin application. The patient healed with BCL removal in 5 days uneventfully. He was so pleased with his unaided 20/30 vision that he enjoyed that vision and postponed his cataract surgery.

When he came in for cataract surgery a few years later, I reviewed the initial plan and explained my concerns of poor measurability by IOLMaster (Carl Zeiss Meditec, Jena, Germany) even though the cornea was measureable, and yet I wanted unaided emmetropic vision (my expectation, not his) and suggested a staged IOL placement for more accuracy. My mindset was, “Don’t give up on the goal of unaided emmetropia, and take every opportunity to get even more accurate data.” Therefore, I planned for aphakia to be followed by staged refraction (acknowledgments to Richard Mackool, MD). I suggested femto laser-assisted capsulorhexis for a predictable capsular bag in size, location, and consistency through his central scars since I was planning for aphakia with as accurate refraction as I could get. This would be followed by IOL implantation as the next stage over a week.

On successful completion of his cataract surgery with aphakia, I refracted him the next day and 1 week later was able to refract him to 20/40. Armed with confidence, I addressed all of his refractive errors using a toric lens implant. On implantation of a toric IOL a week after his cataract surgery, he had unaided 20/25+ vision in this eye.

Taking this patient from 20/150 vision to an unaided 20/25+ and keeping all of my Corneoplastique principles underscores a dedicated attempt to think visually for each and every patient in designing surgery, no matter how complex they may seem. I saw him at 2 years postoperative, and he continues to see 20/20 in this operated eye and has since undergone cataract surgery with me in his other (normal) eye; he sees 20/20 out of that, too. Of course the quality of 20/20 in the normal eye is much better than 20/20 in this eye. But given that this eye with all of its iterations came to 20/20, without

interventional corneal transplant surgery and with staged surgery—each being brief with topical anesthesia and aesthetically elegant—highlights the appeal of Corneoplastique principles. So our GPS for this case worked. For argument's sake, let's imagine we had proceeded with cataract surgery first. We had no input from the cornea (as it was insensible/inaccurate), and the IOL power even with aphakia staged would have been off. Also, approaching the cornea after cataract surgery would have made no sense as there would have been no correctable refractive endpoint. Doing a corneal transplant would have defeated our goal of emmetropic vision, and the least interventional approach would be out the window.