

## Multifocal IOL Nightmare: Reversed to 20/20

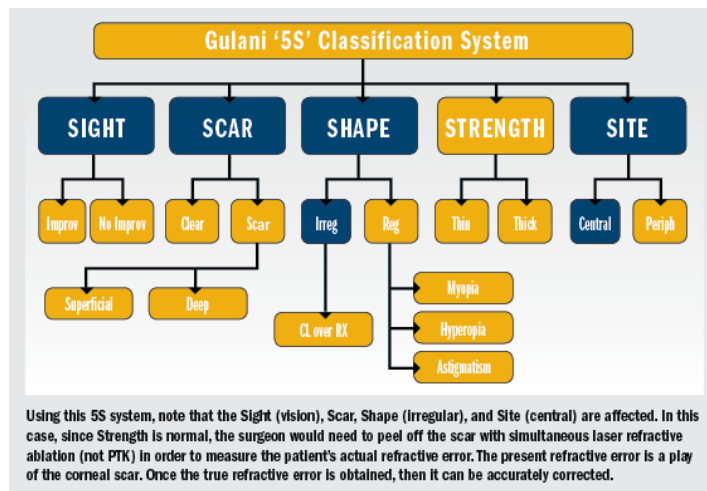
Gloves Off With Gulani by Arun C. Gulani, MD

*When practiced as an art, full-spectrum refractive surgery not only can address virgin eyes with all levels of ametropia, but it also can reverse and correct complex and complicated cases back to 20/20 vision.*

*I will share with you a case study that demonstrates how using Corneoplastique principles and applying the “5S” system in practically any refractive situation (corneal/lens/anterior segment)—no matter how complex or complicated—can be successful.*

*The patient is a 73-year-old white female with a history of IOL implant (AcrySof ReSTOR model SN60D3, Alcon Laboratories) and YAG posterior capsulotomy (YAG PC) done by another surgeon. She was referred to me with corneal scar from multiple laser vision surgery attempts, poor vision, and an angry demeanor, ready to sue her surgeon.*

### DETAILED PATIENT HISTORY WITH HER SURGEON

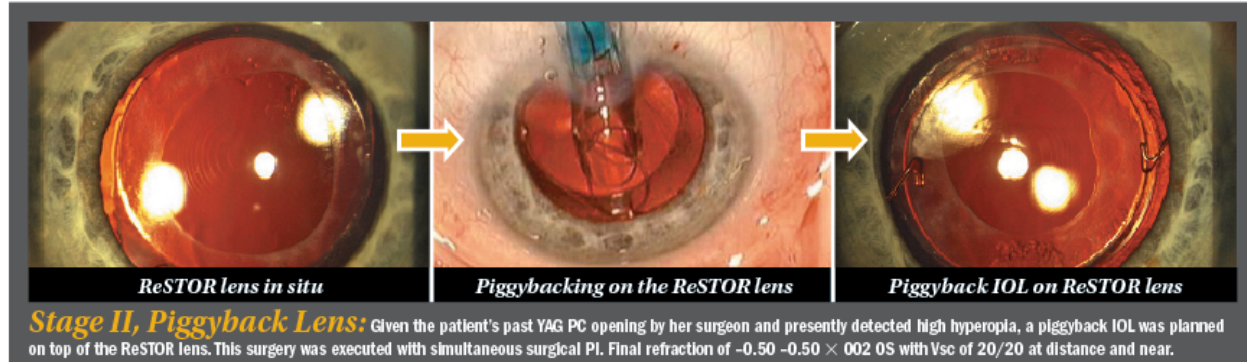


In 2005, the patient underwent lens implantation in the left eye, with a preoperative refraction of +2.25, - 0.5 × 70, with a +22 D lens. This resulted in vision of 20/40 and near vision of J2. She was never happy with her vision. One year later, she presented again to her surgeon with vision of 20/40, and she was still not seeing clearly. Her refraction at this time was +1.25 Sph best corrected to 20/25.

Her physician did photorefractive keratectomy (PRK) in April 2006, aiming to correct 1 D sphere as a refractive input. Two months later, the

patient presented with 20/80 vision with corneal haze, a refraction of +2.50, - 1.00 × 105, best corrected to 20/40, but with double/distorted vision. One month later, the patient was still unhappy with vision of 20/100. Refraction now was +4.50, - 0.75 × 90, best corrected to 20/25 (distorted).

Her surgeon now proceeded to perform a repeat PRK for 4 D spherical refractive error. The patient never improved, however, and remained unhappy with her results. She presented again 4 months later, with vision of 20/60 (with double and distorted vision), and a refraction of +2.25, -1.00 × 180. The patient was referred to me by her physician 3 months later.



## **APPROACH WITH APPROPRIATE MINDSET**

My approach and stance in every case referred to me with bad outcomes is always the same: How do we take what we have and lead this to “perfect” vision?

Perhaps the point of paramount importance here is the mindset. We should not think we are doing the patient or referring surgeon a favor by merely attempting to help, and being satisfied with any improvement, however mediocre.

Rather, we should approach such scenarios with an attempt to take the baton from where we received it and run with it to the finish line of 20/20 or the patient’s best vision potential (BVP) and therefore truly helping the patient and their surgeon.

The first step in the repair of such situations includes restoring patient trust with the initial surgeon, and gaining confidence in you, presuming that the referring surgeon has confirmed that they would prefer that you proceed.

Always listen to the patient. In most cases, the patient’s anger will stem from the surgeon having not listened/admitted to the problem, or not reacting to it as important and failing to provide options.

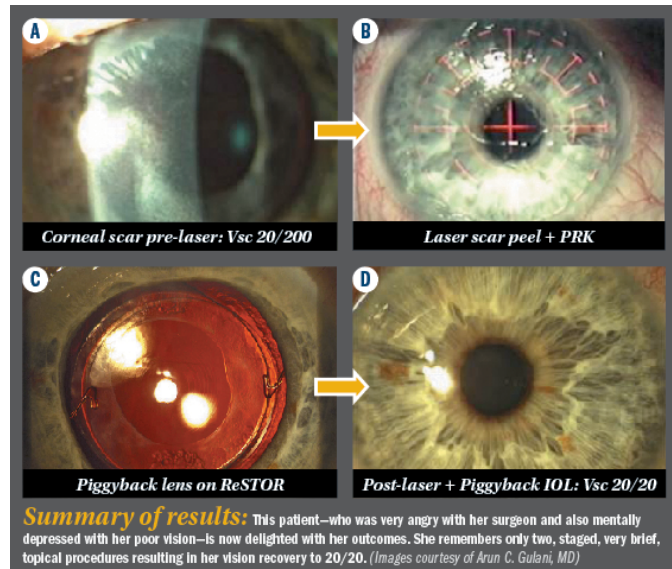
Reassure the patient that outcomes like these are possible with the best of surgeons. Involve them in making a logical plan to follow. Make them a team player with you in the journey of vision correction. Remember, no patient wants any more surgery after such outcomes.

The Corneoplastique mindset calls for the least interventional techniques, which must qualify as brief, topical, aesthetically pleasing, visually promising, and still maintaining patient candidacy for any back-up surgery, such as penetrating keratoplasty.

## APPLY THE 5S SYSTEM

The backbone behind technique selection and plan formation is the Gulani 5S classification system: Sight, Scar, Shape, Strength, and Site. This algorithm makes any complex case scenario simple to understand and treat effectively.

Using the 5S system on this patient, we find that the Sight (vision) is affected adversely, there is a Scar, Shape is irregular, and central cornea Site is affected. Strength is not involved, as the cornea is neither too thin nor thick. Given that the patient had Sight, we must do something. Since Strength is normal in this case, we do not need any corneal building or stabilizing surgery (i.e., lamellar keratoplasty, corneal ring implants, cross linking etc.), but must centrally (Site) address the Scar and Shape.



Remember that the refraction in these “on cornea” cases is a camouflage; therefore, we need to determine this patient’s real refraction. The single surgery that can do all of these is excimer laser myopic PRK.

Under the excimer laser, I proceeded with manual epithelial debridement to study the scar underneath and found slivers of plastic wrap-like scar layers; I have seen this consistent look in multiple PRK scars that I have corrected. Gently and patiently peel these scars off the cornea in toto.

My pearl here is never to use sharp instruments or blades and always let the cornea be a resistance-guided platform. This same principle can be used for Salzmann’s nodules, epithelial ingrowth, pterygium head removal, etc., to reveal a near-smooth stromal bed underneath.

The excimer laser (VISX, Abbott Medical Optics) was programmed for a –3 D large zone, myopic ablation and mitomycin C (0.02%) was used on a wek cel centrally to be copiously washed off after a minute.

Standard PRK regimen of eye drops was followed, and a bandage contact lens was placed on this eye.

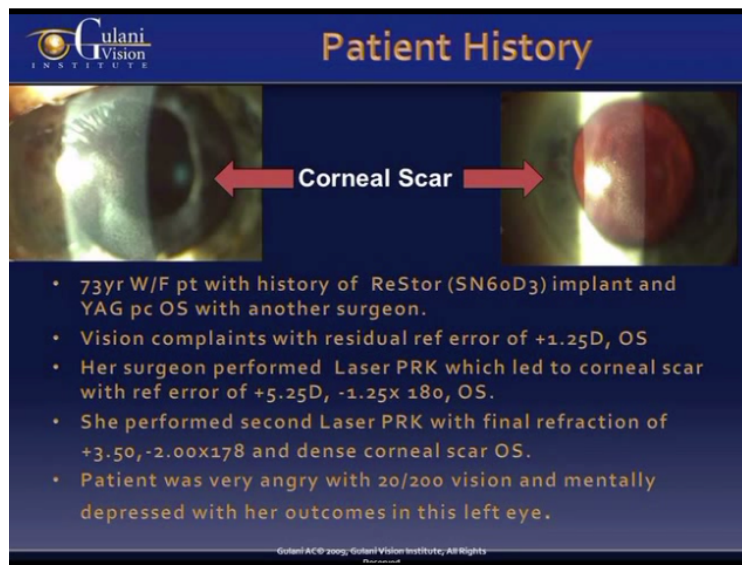
As the patient healed, her cornea healed and cleared completely, and her best-corrected vision (20/25) was measurable, with a refraction of +6.00, -0.25 × 170 best corrected to a clear and appreciable 20/25 Vsc.

I followed her at regular intervals to determine stability and also to allow her to decide whether she wanted to proceed with the planned stage 2 lens-based procedure. At 7 months’

postoperative, she proved good stability and had a clear cornea. I had her simulate her vision with the stable refraction using a soft contact lens, and she appreciated 20/25 vision and was very happy.

Given her real and stable refractive error of +6.00 sphere and the previous YAG PC opening by her surgeon—which excludes IOL exchange as an option—I planned for a piggyback IOL on top of her previously implanted lens. Through the patient's previous incision, I implanted a piggyback lens (AQ2010V, STAAR Surgical) of 9 D with a simultaneous surgical iridectomy. This resulted in 20/20 vision at distance and near for the patient, with a residual refractive error of -0.50, -0.50 × 002.

## IN THE END ZONE



**Patient History**

- 73yr W/F pt with history of ReStor (SN60D3) implant and YAG pc OS with another surgeon.
- Vision complaints with residual ref error of +1.25D, OS
- Her surgeon performed Laser PRK which led to corneal scar with ref error of +5.25D, -1.25x 180, OS.
- She performed second Laser PRK with final refraction of +3.50, -2.00x178 and dense corneal scar OS.
- Patient was very angry with 20/200 vision and mentally depressed with her outcomes in this left eye.

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Using the 5S classification system algorithm makes any complex case scenario simple to understand and effectively treat. In this case, since the patient's strength was normal, we needed to peel off the scar with simultaneous laser refractive ablation (PRK not phototherapeutic keratectomy) in order to measure her actual refractive error. The presence of refractive error is a play of her corneal scar. Once we have the true refractive error, we can accurately correct it.

<http://youtu.be/iks0xJn5VRc>

My advice in complex cases such as this is: Do not give it a complex name that will scare you or the patient into planning for a mediocre outcome. Break it down into an optical challenge with a vision goal and use surgical technique and technology as a means to get there. The road map is provided by the 5S system, which results in the patient and you mutually enjoying the journey to their BVP.

In summary, this patient—who was very angry with her surgeon and also mentally depressed with her poor vision—is now delighted with her outcomes. She remembers only two, staged, very brief, topical procedures resulting in her vision recovery to 20/20.

We maintained all principles of Corneoplastique surgery in that the procedures selected were topical, brief, aesthetically pleasing, and visually promising. Also, had they not worked, she could still have a corneal transplant/lens exchange.

Today, this patient is 6-years' postoperative and continues to enjoy her vision at distance and near.

## References

- Gulani AC. Shaping the future and reshaping the past: The art of vision surgery. In: Afshari N, Copeland R, eds. Textbook of Cornea & Refractive Surgery. 1st ed. J.P. Publishers; 2013: 1252-1273.
- Bansal J, Gulani AC. Excimer laser enhancements after multifocal IOLs. In: Hovanesian J, ed. Textbook of Premium Cataract Surgery: A Step By Step Guide. 1st ed. Thorofare, NJ: Slack Inc.; 2012:135-145.
- Donnenfeld E, Gulani AC. Femtosecond laser for astigmatism correction during cataract surgery. J.P. Publishers; 2012:155-161;21.
- Gulani AC. Using excimer laser PRK—not PTK—for corneal scars: Straight to 20/20 vision. Advanced Ocular Care 2012 (Sept/Oct);Volume:1-3.
- Gulani AC. Algorithm addresses corneal scarring. Ophthalmology Times. Nov. 30, 2011. <http://ophthalmologytimes.modernmedicine.com/ophthalmologytimes/news/modernmedicine/modern-medicine-news/algorithm-addresses-corneal-scarring>. Accessed Sept. 25, 2013.
- Gulani AC. Pentacam technology in LASIK. Corneal Refractive Surgery in Video Atlas of Ophthalmic Surgery. XVII. (2). 2008.
- Gulani AC. Corneoplastique. Video Journal of Ophthalmology. III. 2007.
- Gulani AC. Principles of Surgical Treatment of Irregular Astigmatism in Unstable Corneas. TextBook of Irregular Astigmatism. Diagnosis and Treatment. Thorofare, NJ. Slack Inc., 2007:251-261.
- Gulani AC. Corneoplastique. Techniques in Ophthalmology. 5(1);11-20:2007.
- Gulani AC. Corneoplastique. Video Journal of Cataract and Refractive Surgery. XXII. Issue 3, 2006.