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Consultation Corner

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What would you do?

Case presentation: The patient is a 32-year-old white man whose occupation is a welder. He states that he started to note blurriness in his vision 2 years ago and that it has since worsened, especially during night driving conditions. He has no history of trauma and no medical or family history of these symptoms. He is not on any medications and is otherwise healthy.

Best corrected vision in the right eye is 20/40 with a refraction of –2.00+1.00×095. Best corrected vision in the left eye is 20/20 with a refraction of –0.75+0.75×083. Brightness acuity testing under medium light reduced vision in the right eye to 20/70. Corneal pachymetries are 627 µm in the right eye and 617 µm in the left eye.

Scotopic pupil size is 4 mm in each eye. Photopic pupil size is 3 mm in each eye. IOP is normal in both eyes. Topography and specular microscopy are both normal.

Which type of lens would you use in this patient, and why?

Approach 1: Brad Elkins, MD

Essentially, this is a pre-presbyopic patient with a unilateral cataract. I'm a big proponent of the +3 D ReSTOR (Alcon) for such patients. Robert Cionni, MD, recently published a nice paper on the benefits of the ReSTOR in patients with unilateral cataracts. My partners and I have had similar excellent results in these cases. I prefer the +3 D to the +4 D in virtually all patients because of fewer complaints about glare and halos, somewhat better distance vision and, most importantly, better intermediate vision.

The only concern in this patient is the topography, which shows potential inferior steepening. The scale is in 0.5 D increments (rather than 1 D or 1.5 D steps), and hence is probably not true inferior steepening; however, I certainly would do a Pentacam (Oculus) or Orbscan (Bausch + Lomb) on this patient and look for clinical signs of keratoconus. I would not use a diffractive IOL on a keratoconus suspect.

Assuming this is regular astigmatism, limbal relaxing incisions (LRIs) will be needed at the time of the cataract surgery. I also caution any patient with preexisting astigmatism who is receiving a ReSTOR about the possibility of PRK enhancements postoperatively. A younger patient with 1 D of with-the-rule astigmatism would need large LRIs and thus would be more likely to need a PRK enhancement.

Approach 2: P. Dee G. Stephenson, MD, FACS, ABES, FSEE

I would first expound on my evaluation of this patient. He is a 32-year-old patient and has had a 2-year deterioration of vision in his right eye. I would want to know if he has a cataract, because he may be at more risk for one because he is a welder. I would check for changes in his glasses prescription over the last few years, as well as for a distorted retinoscopy, muscle imbalance and/or a history of amblyopia with stereoptic testing. I would also look at old topography, if available, and get an Orbscan and corneal thickness measurement.

The reasons for my questions are related to his difference in refraction, borderline topography, and a slightly irregular bowtie pattern in the right eye that is worse than in the left eye. The patient has some hallmark signs of late-onset keratoconus or keratoconus frusta: increased myopia and decreased nighttime vision that has slowly worsened during the last 2 years. Both of these entities have asymmetry and can be very slow in progression. With all of today's technology, you would think it would be easy to make this diagnosis, but it isn't always and you don't want to overread the technology. But more importantly, you don't want to cause a problem without first working him up further.

I would suggest trying a hard gas-permeable contact lens on him first to see if I can improve his vision and symptoms. If the symptoms improve, I would just follow him at regular intervals and explain in detail my findings and that this approach is safest for him. If a significant cataract is present, I would still use a conservative approach.

Approach 3: James S. Lewis, MD

Eighty percent of patients are right-handed. The more-advanced cataract in the closer right eye may be hastened by the greater exposure (inverse square law) to ultraviolet-B radiation in a right-handed welder.

Numerous reports, particularly out of Nigeria, where eye protection is scarce, have shown an increased likelihood of glaucoma, skin tumors, uveal carcinomas and retinal damage in addition to the well-known corneal and lens toxicities from ultraviolet-B radiation exposure. Reduced dilation in scotopic conditions may be explained by this exposure.

Our first responsibility is to enforce compliance with industrial eye protection. While his studies show fewer endothelial cells, greater pleomorphism and a higher central corneal pachymetry in the right eye, I doubt the clinical relevance of these data.

Both eyes demonstrate enough of an asymmetric bowtie to have them rejected from my corneal refractive practice. I do not recommend LRIs in forme fruste keratoconus patients. Corneal power determination is difficult and less reliable in this patient and, consequently, IOL power calculations tend to be less accurate than those of the general population.

I would implant either a nanoFLEX (Staar Surgical) or an Akreos MI60 (Bausch + Lomb), because they both appear to have some accommodative properties not sanctified by the U.S. Food and Drug Administration and they can be provided at zero expense to the patient. I would not want to risk surface ablation, let alone sub-Bowman's keratomileusis LASIK, in this forme fruste keratoconus patient because I had promised excellent distance and near vision without spectacles.

Dr. Chu's response

After a long discussion concerning his IOL options, the patient chose to proceed with a Crystalens (Bausch + Lomb) in his right eye.

Although our experience has been good clinically using multifocal lenses in this younger age group, the patient felt that the difficulty with potential night vision issues such as glare, decreased contrast sensitivity and halos would be more bothersome to him than the possibility of having to wear a reader for his near vision.

As a welder, the patient's main concern was for his working distance of 2 to 3 feet, and if he had to wear glasses beyond that, he would be all right with that outcome. Therefore, the patient felt his best option was a Crystalens IOL for his right eye.

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