

# CRST

Cataract & Refractive Surgery Today

## Femtosecond Lasers in Complex Cataract Surgery

Treating nystagmus and a mature cataract.

by Arun C. Gulani, MD

An optician with a career spanning more than 30 years was referred to my practice by his ophthalmologist. The patient had a mature white cataract and associated nystagmus with corneal astigmatism in his right eye. Because I always try to maximize the vision endpoint of any eye surgery, in keeping with my “corneoplastique” principals, I try to harness every technology to the patient’s advantage.<sup>1-3</sup> When treating a mature white cataract, the most precarious surgical step is creating the capsulorhexis, which in a split second, can lead to the Argentinian flag sign (capsular tear typically possible in white cataracts), which could mean the end of that patient’s 20/20 potential.

### THE CAPSULORHEXIS

Given we surgeons’ prior experience of successfully creating capsulorhexes manually, we could question the advantage of femtosecond laser technology. If we had even one capsulorhexis in a white cataract that resulted in the Argentinian flag sign, or if we did have a capsulorhexis, which although circular could be decentered given the dynamics of such an eye, and then again, even if we had a well-centered, circular capsulorhexis, what if the size was inadvertently too small to bring out these big pieces of hard cataract that could inherently lead to tears during the surgery again jeopardizing the planned outcome eventually? Now add to that the difficulty level of a constantly moving eye while we are creating the capsulorhexis (eg, nystagmus) as in this case, and femtosecond laser-assisted surgery quickly becomes a necessity on our wish list.

### DISCUSS THE TECHNOLOGY WITH THE PATIENT

The availability of femtosecond laser technology today underscores the importance of discussing this technology with patients, particularly with a mature white cataract, subluxated or dislocated cataracts, pseudoexfoliation, or associated uncontrolled eye movements, as the patient in this case.<sup>4-6</sup>



Figure. The author used the femtosecond laser on a mature white cataract (eyetube.net/?v=lkume).

For this patient, I used the femtosecond laser not only to enable a consistent, central, circular, and predictably sized capsulorhexis in this mature white cataract but also to stabilize and control the eye by docking while performing the capsulorhexis to negate the effects of constant nystagmus (Figure).

## CONCLUSION

Fortunately, the surgery turned out well. The result was a well-predicted capsulorhexis in size and centration that enabled the rest of the procedure's steps to be completed flawlessly while I controlled the eye movements with my second instrument and worked in the patient's null-point position.

Although the femtosecond laser can surely be used for premium cataract surgery cases,<sup>7-9</sup> I believe that in cases such as this one and other complex cataract surgical scenarios that I have described in previous publications, a discussion with the patient regarding its advantage could be mandatory in aiming for vision outcomes of emmetropia despite the complexity of the case and its associated pathologies.

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