

Cataract is not always cloudy

By **DR. PAMELA KAW**

Cataract surgery is currently one of the most commonly performed surgery. For most patients, improvement in vision is dramatic.

I'd like to give an analogy of a camera to educate about cataracts. This is because the human eye works like a camera.

There is a lens combination (lens and cornea) that allows light to focus inside the eye, a shutter mechanism (iris and pupil) that controls the amount of light that enters and a picture card (retina) where the images are processed. Among the two parts of the lens combination, cornea retains a relatively stable structure lifelong but the lens starts to age early and fails to focus properly between the ages of forty and fifty. This is when people need reading glasses or bifocals to focus on near or small objects. In some people, no more progression occurs.

But in many people, who develop visually significant cataracts, not only does the lens not focus, it also loses its transparency and limits or distorts the entry of light into the eye. Now the glasses do not work anymore. In most people this is a slow process. A combination of factors like genetics, exposure to UV light, diabetes, trauma, use of chronic steroids, malnutrition play a role in the speed by which the human lens ages. When the cataract starts to interfere with patient's vision and quality of life, it needs to be surgically removed and replaced by an artificial implant, also called the intraocular lens (IOL)

Ophthalmology has always embraced cutting-edge technology. An engineering field devoted exclusively to optics has resulted in extremely sensitive microscopes with the excellent resolution that transformed the visualization of the eye during surgery. The same field helped refine the intraocular lens technology and now it is possible to offer patients the kind of vision that they desire for themselves based on their own specific needs. Prior to the lens implant technology, people had to wear glasses with extremely thick lenses to have functional vision after cataract surgery.

However, these glasses were very difficult to adapt to because of significant distortions created by the thickness of the lenses. Thankfully by the end of last century, scientists could miniaturize these lenses to the size where they could be inserted inside the eye into the exact location of the natural lens. No more of distortions!!! And the bonus is less dependence on glasses because these implants are available in so many sizes that we generally find one to fit everyone.

The technique of removal of cataract, called phacoemulsification, is by far the brightest innovation so far. This technique allowed the surgeons to reduce the cataract incision size to about 2-3 mm, small enough to not need a suture, and has resulted in decreasing the surgical time to about 20 mins. All of this has resulted in drastically low rates of vision-threatening complications. This, in turn, has enabled surgeons to remove cataracts at an earlier stage, sometimes as early as when patients first start to have vision changes from cataract formation. So now patients do

not have to wait for a cataract to get mature or 'cloudy' before it can be removed!!

A variety of IOLs are available in the market. The terms can be confusing. It's best to start the discussion with the surgeon because depending on the health of the eye, some IOLs may be contraindicated. Some eye conditions, for e.g., glaucoma, macular degeneration, history of retinal detachment, diabetic retinopathy and others are not suited for some IOLs. Surgeons also like to ask multiple questions about your lifestyle and may examine the size of the pupil in light and dark before making recommendations.

The following are some salient features of some of the IOLs commonly used:

First generation IOLs are mono focal and provide clear vision for either distance or for up-close but not both. Most people prefer to be able to see far without having to wear glasses and don't mind using over-the-counter reading glasses for near work. Provided these people do not have significant astigmatism (where the shape of the eyes is not completely spherical but oblong), these IOLs work extremely well. These IOLs create least amount of halos and glare after surgery. Health Insurance covers the cost of the lens implant and the testing involved. Many patients are mostly spectacle free but at times need over the counter readers or bifocals.

Second generation IOLs are multifocal and have different zones for near and distance focus. A reasonable degree of independence from glasses is achieved provided both eyes are operated within two to three weeks. Halos and glare may occur in the postoperative period, sometimes lasting for a few months. These symptoms generally do get better with time though. Health Insurance does not cover the cost of the lens implant and the testing involved over what it would pay for the first-generation lens.

Toric IOLs that are recommended to correct moderate to high degree of astigmatism. These lenses do not generally cause halos and glare. Patients may need bifocals or readers for occasional use. Health Insurance does not cover the cost of the lens implant and the testing involved over what it would pay for the first-generation lens.

To summarize, cataract is a common age related condition that causes reversible distortion in vision. Vision is corrected significantly either with glasses and/or surgery. Technology has significantly lowered the complication rate of cataract surgery and most people have excellent outcomes.

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