

Cataracts: Part I "An enjoyable, new beginning for many"

by Louis J. Catania, O.D., F.A.A.O. and Ernst Nicolitz, M.D., F.A.C.S.

Summary: The occurrence of cataracts is generally viewed as a negative experience in the maturing process. It really means the eyes are following the normal aging process and indeed, people are living long enough to "enjoy" them. So perhaps a better understanding of cataract development, their surgical removal and "life after cataracts" will help people view the experience as "a new beginning." This first part aims to create an understanding of cataracts in a new way.

Our last column discussed the series of changes that occur in the crystalline lens (the lens) of the eye. We described how throughout life it retains its aging cells and byproducts leading to hardening and inflexibility with a resultant reduction in near focusing ability ("presbyopia") and ultimately clouding. This clouding effect increasingly reduces light transmission into the eye and when clinically significant, it is called a "cataract."

It is important to understand that aging is only one of the ways cataracts develop, albeit the most common. Cataracts are also associated with genetic and hereditary factors that can produce them at birth, in childhood or in young adults. They can occur secondary to a number of systemic diseases and syndromes like diabetes, Down's syndrome, hypothyroidism, certain kidney ailments, etc. And they can occur from acute or chronic injury like blunt or lacerating trauma, ultraviolet exposure (acute or chronic - a good reason to wear sunglasses regularly), etc. But after all is said and done, well over 95% of all cataracts are produced by the aging of the lens.

The development of cataracts and your awareness of their development are dependent on numerous factors. Some of these factors are biological, some psychological and some environmental. It's worth understanding each category so you can "relate to" and feel comfortable with your very own cataracts, "if and when" they develop. Oops! Pardon me. I meant "when" your cataracts develop, because we must all hope that "we should live to enjoy" the development of our cataracts and their removal."

The biology of a cataract relates to where in the lens it will form. For varying reasons, most of which we really are not entirely certain, the clouding of the lens can develop in the middle (nucleus), the periphery (cortex) or in the front or back (subcapsular). The effects cataracts will have on your vision, including changes in your sight (distance and near) and the speed of development, are conditional on their biological development. These biological effects can also produce changes in your prescription even before you begin to notice any reduction in your vision. Sometimes these prescription changes are in your favor (called "second sight") which temporarily gives a person the impression they have "beaten the system" and their eyes are getting better with age. Give it time, however, and that "second sight" will slowly, over months and years, convert to reducing vision as well.

The psychological factors in cataract development can work for you or against you. Some people accept their slowly diminishing sight during aging as a "softening effect" on things. That sharp focus that once was part of their faster paced life and needs is no longer critical to them and a softer vision is perceived as quite acceptable, if not enjoyable. Others, meanwhile, want to maintain the sharpness of vision they enjoyed in earlier years and the slightest reduction of crisp, clear focusing is an unpleasant, if not unacceptable experience.

And finally, environmental factors play perhaps the greatest role in a person's awareness and acceptance of their cataract development. By environmental factors we are speaking about the basic visual needs a person requires to fulfill their daily and routine tasks, be them occupational, job related or avocational like reading, watching TV, sporting events (as a spectator or participant) and simply the desire to see things in

their surroundings as clearly as possible. But perhaps the most important "environmental factor" a person experiencing cataract development must address is their continuing ability to safely and effectively operate a motor vehicle. Vision reduction that threatens a person's ability to drive and to legally maintain their driver's license is one of the greatest fears of aging. We will go into this important topic in depth in a future column.

Given all of these variables that effect the development of cataracts uniquely in each maturing person, it becomes important to understand that it is ultimately YOU, the patient, that eye doctors must rely on to share with them the effects your cataracts are having upon you and your life style and needs. Looking at your cataracts with our examination instruments only tells us about the biological factors associated with your normal lens changes and the degree of clouding. No eye doctor, however, can assess as well as you yourself how your developing lens clouding (your cataracts) are affecting you personally. Thus, it is critical for you to carefully and accurately define to your eye doctor the effects your cataract development is having on you psychologically and relative to your "environmental needs."

Once we understand, through your help, the effects your cataracts are producing in your life, we can advise you on what options are available. While some people are apprehensive about "cataract surgery," a clear understanding of the current technologies and procedures available usually proves to be reassuring and comforting to most cataract patients. In fact, almost invariably after a cataract procedure, the patient describes the experience as "almost enjoyable" and their visual result as "a new beginning!" Understanding your personal journey into, and eventually out of cataracts may prove to be a much more positive experience than you ever imagined. We will pick up on that "enjoyable, new beginning" in our next column, "*Cataracts: Part II: Modern Cataract Surgery.*"

Cataracts: Part II Modern cataract surgery: "This isn't your grandfather's surgery anymore!"

by Louis J. Catania, O.D., F.A.A.O. and Ernst Nicolitz, M.D., F.A.C.S.

Summary: Nobody likes to hear that they have cataracts. Understanding them and knowing that they're part of the normal aging process is reassuring until it's time for their surgical removal. Often, even understanding cataracts doesn't completely relieve the fears and confusion about the surgery necessary to remove them. A clear discussion about modern cataract surgery should help renew that reassurance and eliminate undue fears.

Do you remember the stories and descriptions you use to hear about cataract surgery? They usually included at least one week in the hospital, lying in bed with no movement and sandbags on each side of your head. But worst of all, after you recovered, you had to wear thick, heavy, "coke-bottle" lenses that took months, if ever, to adjusted to. Not a very enjoyable experience to look forward to during aging. Yet, as we mentioned in last week's column, that is no longer the case for patients having cataract surgery. Now, instead, the experience is described by many as "an enjoyable, new beginning."

Today modern cataract surgery is the most common surgical procedure performed in all health care and is considered one of the safest and most effective surgical procedures provided. It has minimal (less than 2%) complications and as an outpatient procedure taking only minutes (with pre and post operative care, total time is a few hours), it produces few inconveniences for the patient. In fact, by the next day, with the exception of strenuous activities for a week or so, the person is back to their normal life...except, with a vastly improved, if not perfect vision.

The reasons for the enormous progress, improvements and advancements in cataract surgery are 4 developments over the past 25 years that have occurred in the technologies and procedures used that we'll be discussing. They include: 1) the use of mild sedatives and topical anesthesia only (instead of general anesthesia); 2) a procedure called phacoemulsification (a thin, ultrasonic instrument, sometimes

called a "phaco" probe) which liquefies and suctions out the cataract; 3) intraocular lenses (IOLs) to replace the lens power lost with the removal of the cloudy lens; and 4) a small-incision, sutureless, surgical procedure, thanks to the thin "phaco" probe and small, foldable IOLs.

Let's discuss these new developments in cataract surgery by walking through the events a typical patient experiences with modern cataract surgery as compared to "your grandfather's cataract surgery." It will show you why people see it a whole lot differently now.

OK. You and your eye doctor have agreed that it's time to have your cataracts removed. Two surgery dates are scheduled (the eyes are done one at a time, generally at about 1 to 2 weeks apart). A few days in advance of the first surgery date, you will get a physical examination from your family doctor to make sure you're general health is satisfactory for a surgical procedure.

On your scheduled day of surgery, a family member or friend will drive you to the "ambulatory surgery center" (ASC) where your procedure will be done. A little hint - request a morning time so you get started early (6 to 7 AM). That will get you home early, usually before noon, and you'll be watching your favorite TV show - "clearly!" - that same evening. A great way to spend the day!

The first thing that happens at the ASC is the friendly and cheerful nursing staff (even in the early morning - Honest!) helps you with your surgical gown and gets you comfortable in a surgical gurney (a rolling bed). Then the anesthesia folks visit with you, ask you a bunch of questions to make sure you're OK for anesthesia and then start an intravenous (I.V.). That probably will be the one and only pinch you'll feel through the whole process. Through that I.V. will go your sedation ("relaxation") medications which will be controlled throughout the procedure based on how much or how little your surgeon feels you need.

The actual procedure begins with lots of sterile draping around the eye and topical antibiotic and anesthetic eye drops. Then a small incision is made at the border of the colored portion and white of the eye through which the surgeon will pass some fine hand instruments, then the thin phaco probe and finally, the foldable IOL. The phaco probe will produce a slight humming sound which you may or may not hear as it liquefies and suctions out the cataract. Then the foldable IOL is carefully centered and secured in the chamber from which the cataract was removed. Finally, the incision closes itself like a self-sealing valve with no sutures necessary unless the surgeon had to enlarge it during the procedure for any reason. A soft contact lens is often applied to protect the eye's surface for the first 24 hours and antibiotic and anti-inflammatory drops are added as protection. For ultimate protection, those drops will be continued for a few weeks after the surgery as well.

And that's it! After a short observation period in the ASC's recovery area you're on your way home to relax and enjoy, almost immediately, your new, clear vision. The next day you'll visit your eye doctor for a brief check to make sure everything is OK and you're on your way to "a new beginning." Based on the type of IOL you received during your surgery, that "new beginning" will include understanding how you will adjust to your "new vision." Our next column, "*Cataracts Part III: Choices and life after cataracts*" will explain that experience in detail.

Cataracts: Part III: Choices and life after cataracts

by Louis J. Catania, O.D., F.A.A.O. and Ernst Nicolitz, M.D., F.A.C.S.

Summary: During cataract surgery, surgeons implant an "intraocular lens" (IOL) to replace the power of the cloudy lens (the cataract) they remove. Current IOL technologies offer multiple options from which patients can choose based on their visual needs and desires. Understanding the strengths and weaknesses of each type of IOL with counsel and advice from the surgeon will help patients select their most effective vision correction for "life after cataracts."

During the cataract surgery that we described in our previous column, the surgeon replaced the cloudy, cataract lens with an intraocular lens (IOL) to restore the focusing power of the eye. The type of IOL used is a product of 2 important considerations: 1) the surgeon's judgment as to what the best IOL would be for your eye, decided during the actual procedure; and 2) the results of a discussion you will have had with the surgeon or the surgical counselor prior to your procedure.

After you and your doctor decided that it was time to have your cataracts removed, there probably was a discussion about your options for correction after surgery. If your examination revealed the need for one specific type of correction, the surgeon would have explained the exact type necessary and why it is best for your specific eye. However, most eyes can handle multiple types of IOLs and the surgeon (or counselor) would have discussed these options with you. That conversation might go something like this:

"Assuming everything goes well during your surgery, as it does in 98% of cases, based on your needs and desires, there are 2 major types of IOLs we can use to correct your vision: the monofocal IOL or the multifocal IOL. The monofocal IOL corrects only distance vision and will require you to wear bifocals or near vision glasses for your close vision like reading, sewing, computer use, etc. The multifocal IOL corrects distance and near vision and reduces or, in many cases, eliminates your need for bifocals or near vision glasses."

"Let me ask you some questions to determine which type of IOL you might prefer and which will best suit your needs."

1. *"Would you like to be less dependent on glasses for distance and near vision after your surgery or would you be happier continuing to wear bifocals or reading glasses?"*

If you indicate that you would be happier continuing to wear bifocals or reading glasses, your surgeon probably would recommend the monofocal IOL. If you indicate that you would prefer reducing or eliminating your need bifocals or reading glasses, your surgeon would probably ask you the next question.

2. *"Would you be willing to accept the use of reading glasses for certain limited occasions?"*

If you indicate that you would not want to accept reading glasses for any occasions, your surgeon probably would recommend the monofocal IOL (we'll explain why in a moment). If you indicate that you would accept reading glasses for limited use, your surgeon would ask you the third and final question regarding multifocal IOLs.

3. *"The multifocal IOL produces some halos around lights at night that will take 2 or 3 months for your brain to adapt to. Would that bother you?"*

If you indicate that you would not be able to tolerate halos at night nor a 2 to 3 month adaptation period, your surgeon probably would recommend the monofocal IOL. If you indicate a willingness to adapt to the halos at night (so that you would be able to reduce or eliminate you need for glasses), your surgeon probably would recommend the multifocal IOL.

Of course, no matter what the results of this discussion might be, if during your procedure your surgeon determines the need for an alternative type of correction than had been discussed, that type would be substituted for best results. But generally, what was recommended pre-operatively is what is used by the surgeon.

You can see from this discussion that both major types of IOL correction, monofocal and multifocal, have their strengths and weaknesses based on individual patients' needs and desires. Let's try to summarize the 2 choices and their expected results:

	Strengths	Weaknesses
Monofocals IOLs	<ul style="list-style-type: none"> > Clear, sharp distance vision, usually without need for glasses >Excellent near vision with the use of bifocals or reading glasses >Minimal adaptation period 	<ul style="list-style-type: none"> >No near vision without bifocals or reading glasses >Will always need some form of glasses for reading
Multifocal IOLs	<ul style="list-style-type: none"> >Clear, sharp distance vision usually without need for glasses >Excellent near vision with limited or no need for bifocals or reading glasses 	<ul style="list-style-type: none"> >Halos at night >Adaptation period from one to three months May need reading glasses occasionally

Whatever correction is ultimately utilized after cataract surgery, the vast improvement in vision and quality of sight (brighter colors, eliminating blurred vision, less distortions, glare, etc.) almost always lead to a contented, happy patient and an enjoyable experience. Indeed, "life after cataracts" can truly be viewed as "a new beginning."