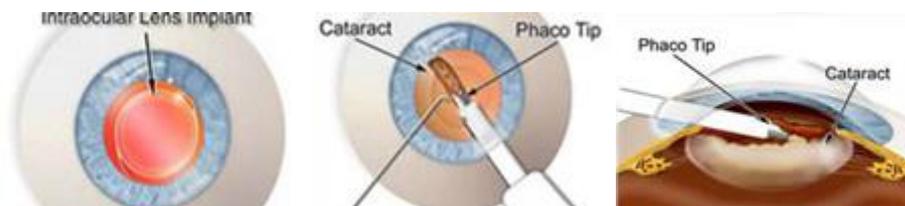


Phacoemulsification



Cataract surgery removes the natural cloudy lens from the eyes and replaces with artificial lens. Phaco means lens and Emulsifying means to break into pieces. Today, phacoemulsification is performed as an out patient basis, under local anaesthesia or 'eye drop' anaesthesia. The surgery entails the removal of the natural cataractous lens which is opaque and replacing it with an artificial clear lens, called an Intraocular lens (IOL). The most popular technique for cataract surgery is Phacoemulsification ("phaco" meaning lens and "emulsify" means to break into pieces). Cataract surgery is customized: We make the surgery PERSONALISED as per each individual eye needs.

We at **Shreeji Eye Clinic** are a step ahead and offer, a customized and treatment with a human touch, making the surgical experience as easy and comfortable as possible.

Today, **Shreeji Eye Clinic** is doing pioneering work in the field of cataract and refractive surgery.

Foldable Lenses

Small 3 mm incision, Soft lens, Less spectacle dependence, Fast healing.

Advanced Optic

Aberration free images, superior Image quality, enhance contrast sensitivity, better night **visions**.

1.8 mm - 2 mm Cataract Surgery Safe, Small incision, Rapid (MICS) with Microincision Lens visual restoration, least post Operative care.

Multifocal IOL - Micro incision lens

able to achieve clear reading and distance vision.

This surgery is popularly known as laser cataract surgery. However traditionally ultrasound is used for break the cataract and aspirate. Newer machines are available where laser can be used. However the final outcome remains similar.

Phacoemulsification cataract surgery is a procedure in which an ultrasonic device is used to break up and then remove a cloudy lens, or cataract, from the eye to improve vision. The insertion of an intraocular lens (IOL) usually immediately follows phacoemulsification.

Phacoemulsification, or phaco, as surgeons refer to it, is used to restore vision in patients whose vision has become cloudy from cataracts. In the first stages of a cataract, people may notice only a slight cloudiness as it affects only a small part of the lens, the part of the eye that focuses light on the retina. As the cataract grows, it blocks more light and vision becomes cloudier. As vision worsens, the surgeon will recommend cataract surgery, usually phaco, to restore clear vision. With advancements in cataract surgery such as the IOL patients can sometimes experience dramatic vision improvement.

Demographics

As people age, cataracts are likely to form. In one Indian study, it was found that more than 70% of people above the age of 65 years have a cataract. People who smoke are at a higher risk for cataracts. Increased exposure to sunlight without eye protection may increase the chance of developing cataract. Injury to eye, exposure to toxins, or diseases such as diabetes can cause complicated cataract. Congenital cataracts are caused by genetic defects or developmental problems, or exposure to some contagious diseases during pregnancy.

However, the most common form of cataract in India is age related cataract. More than 40,00,000 cataract surgeries are performed in the India each year. Cataract surgery is one of the most common surgeries performed, and also one of the safest and most effective. Phaco is currently the most popular version of cataract surgery.

Description

Phacoemulsification is a variation of extra capsular cataract surgery, a procedure in which the lens and the front portion of the capsule are removed. Formerly the most popular cataract surgery, the older method of extracapsular extraction involves a longer incision, about 0.4 in (10 mm), or almost half of the eye and requires stiches. Recovery from the larger incision extracapsular extraction also requires longer time, and limited physical activity for weeks or even months.

Charles Kelman created phacoemulsification in the late 1960s. His goal was to remove the cataract with a smaller incision, less pain, and shorter recovery time. He discovered that the cataract could be broken up, or emulsified, into small pieces using an ultrasound tip. At first,

phaco was slow to catch on because of its high learning curve. With its success rate and shorter recovery period, surgeons slowly learned the technique. Over the past decades, surgeons have constantly refined phaco to make it even safer and more successful. Innovations in technology such as the foldable IOL also have helped improve outcomes by allowing surgeons to make smaller incisions.

During surgery, the patient will probably breathe through an oxygen tube because it might be difficult to breathe with the draping. The patient's blood pressure and heart rate also are likely to be monitored.

Before making the incision, the surgeon inserts a long needle, usually through the lower eyelid, to anesthetize the area behind the eyeball. The surgeon then puts pressure on the eyeball with his or her hand or a weight to see if there is any bleeding (possibly caused by inserting the anesthetic). The pressure will stop this bleeding. This force also decreases intraocular pressure, which lowers the chances of complications.

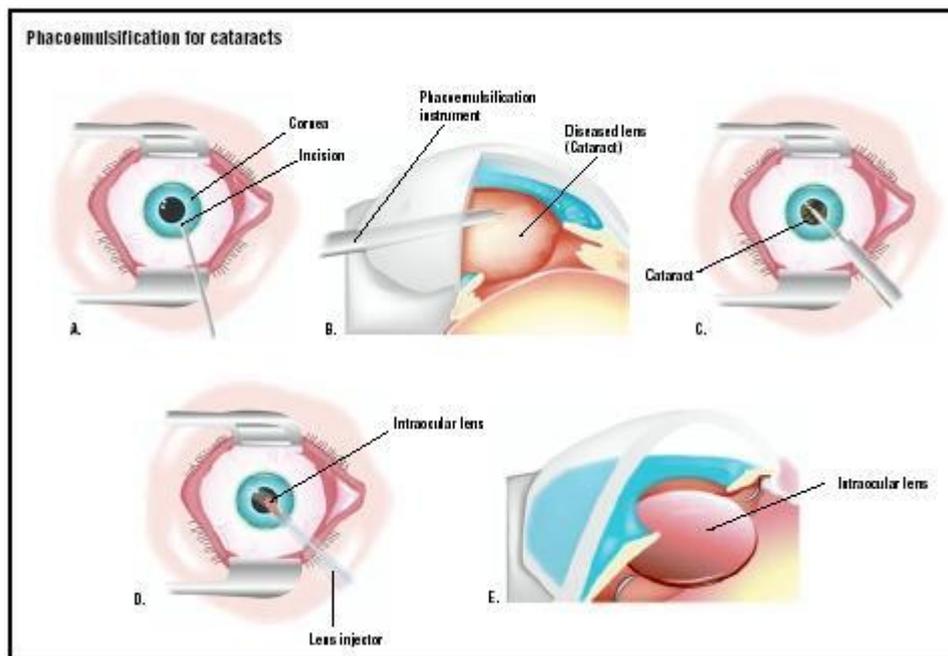
After applying the pressure, the surgeon looks through a microscope and makes an incision about 0.1 in (3 mm) on the side of the anesthetized cornea. As of 2003, surgeons are beginning to favor the temporal location for the incision because it has proved to be safer. The incision site also varies depending on the size and denseness of the cataract. Once the incision is made, a viscoelastic fluid is injected to reduce shock to the intraocular tissues. The surgeon then makes a microscopic circular incision in the membrane that surrounds the cataract; this part of the procedure is called capsulorhexis. A water stream then frees the cataract from the cortex. The surgeon inserts a small titanium needle, or phaco tip, into the cornea. The ultrasound waves from the phaco tip emulsify the cataract so that it can be removed by suction. The surgeon first focuses on the cataract's central nucleus, which is denser.

While the cataract is being emulsified, the machine simultaneously aspirates the cataract through a small hole in the tip of the phaco probe. The surgeon then removes the cortex of the lens, but leaves the posterior capsule, which is used to support the intraocular lens.

The folded IOL is inserted by an injector. The folded IOL means that a larger incision is not required. After the IOL is inserted into the capsular bag, the viscoelastic fluid is removed. No sutures are usually required after the surgery. Some surgeons may recommend that patients wear an eye shield immediately after the surgery.

The entire procedure takes about 20 minutes. The phaco procedure itself takes only minutes.

Most surgeons prefer a certain technique for the procedure, although they might vary due to the cataract's density and size. The variations on the phaco procedure lie mostly on what part of the nucleus the surgeon focuses on first, and how the cataract is emulsified. Some surgeons



In a phacoemulsification procedure, an incision is first made in the cornea, the outer covering of the eye (A). A phacoemulsification instrument uses ultrasonic waves to break up the cataract (B). Pieces of the cataract are then suctioned out (C). To repair the patient's vision, a folded intraocular lens is pushed through the same incision (D) and opened in place (E).

prefer a continuous "chop," while others divide the cataract into quadrants for removal. One procedure, called the "phaco flip," involves the surgeon inverting and then rotating the lens for removal. Advances in technology also may allow for even smaller incisions, some speculate as small as 0.05 in (1.4 mm).

Cataract surgery is done on an outpatient basis, so patients must arrange for someone to take them home after surgery. On the day of the surgery, doctors will review the pre-surgical tests and insert dilating eye drops, antibiotic drops, and a corticosteroid or nonsteroidal anti-inflammatory drop. Anesthetic eye drops will be given in both eyes to keep both eyes comfortable during surgery. A local anesthetic will be administered. Patients are awake for the surgery, but are kept in a relaxed state.

The patient's eye is scrubbed prior to surgery and sterile drapes are placed over the shoulders and head. The patient is required to lie still and focus on the light of the operating microscope. A speculum is inserted to keep the eyelids open.

After Care

Immediately following surgery, the patient is monitored in an outpatient recovery area. The patient is advised to rest for at least 24 hours, until he or she returns to the surgeon's office for follow-up. Only light meals are recommended on the day of surgery. The patient may still feel drowsy and may experience some eye pain or discomfort. Usually, over-the-counter medications are advised for pain relief, but patients should check with their doctors to see what is recommended. Other side effects such as severe pain, nausea, or vomiting should be reported to the surgeon immediately.

There will be some changes in the eye during recovery. Patients may see dark spots, which should disappear a few weeks after surgery. There also might be some discharge and itching of the eye. Patients may use a warm, moist cloth for 15 minutes at a time for relief and to loosen the matter. All matter should be gently cleared away with a tissue, not a fingertip. Pain and sensitivity to light are also experienced after surgery. Some patients may also have slight drooping or bruising of the eye which will improve as the eye heals.

Patients have their first postoperative visit the day after surgery. The surgeon will remove the eye shield and prescribe eye drops to prevent infections and control intraocular pressure. These eye drops are used for about a month after surgery.

Patients are advised to wear an eye shield while sleeping, and refrain from rubbing the eye for at least two weeks. During that time, the doctor will give the patient special tinted sunglasses or request that he or she wear current prescription eyeglasses to prevent possible eye trauma from accidental rubbing or bumping. Unlike other types of cataract extraction, patients can resume normal activity almost immediately after phaco.

Subsequent exams are usually at one week, three weeks, and six to eight weeks following surgery. This can change, however, depending on any complications or any unusual postoperative symptoms.

After the healing process, the patient will probably need new corrective lenses, at least for close vision. While IOLs can remove the need for myopic correction, patients will probably need new lenses for close work.

Risk

Complications are unlikely, but can occur. Patients may experience spontaneous bleeding from the wound and recurrent inflammation after surgery. Flashing, floaters, and double vision may also occur a few weeks after surgery. The surgeon should be notified immediately of these symptoms. Some can easily be treated, while others such as floaters may be a sign of a retinal detachment.

Retinal detachment is one possible serious complication. The retina can become detached by the surgery if there is any weakness in the retina at the time of surgery. This complication may not occur for weeks or months.

Infections are another potential complication, the most serious being endophthalmitis, which is an infection in the eyeball. This complication, once widely reported, is much more uncommon today because of newer surgery techniques and antibiotics.

Patients may also be concerned that their IOL might become displaced, but newer designs of IOLs also have limited reports of intraocular lens dislocation.

Other possible complications are the onset of glaucoma and, in very rare cases, blindness.

It is possible that a secondary cataract may develop in the remaining back portion of the capsule. This can occur for as long as one to two years after surgery. YAG capsulotomy, using a laser, is most often used for the secondary cataract. This outpatient procedure requires no incision. The laser makes a small opening in the remaining back part of the lens to allow light to penetrate.

Results

Most patients have restored visual acuity after surgery, and some will have the best vision of their lives after the insertion of IOLs. Some patients will no longer require the use of eyeglasses or contact lenses after cataract surgery. Patients will also have better color and

depth perception and be able to resume normal activities they may have stopped because of impaired vision from the cataract, such as driving, reading, or sports.

Morbidity

Phacoemulsification has taken the previous risks from cataract surgery, making it a much safer procedure. Other serious complications such as blindness also have been reduced with the widespread use of phaco. Better antibiotics have enabled physicians to combat former debilitating infections that previously would have caused blindness.