

Understanding Cataract

A patient's guide to causes, symptoms and modern surgical treatment

What Is a Cataract?

A cataract is clouding of the eye's natural crystalline lens. Just as a camera needs a clear lens to focus a sharp image, the eye needs a clear natural lens to see distant and near objects clearly. In youth, this lens is transparent and flexible, allowing us to see clearly without glasses across all distances. With age, the lens gradually loses its ability to focus on near objects — a normal change called presbyopia, which is why reading glasses become necessary.

In much the same way that skin develops wrinkles, hair turns grey, and blood vessels thicken with age (atherosclerosis), the once crystal-clear natural lens gradually becomes opaque. This opacification is called a cataract.

Types of Cataract

- 1. Cortical cataract:** Opacities develop in the soft outer layer of the lens, typically starting at the periphery and progressing radially towards the centre.
- 2. Nuclear sclerosis:** The central, harder core of the lens (nucleus) gradually thickens and turns brownish in colour.
- 3. Posterior subcapsular cataract:** Opacity develops in the central visual axis, at the back of the lens capsule. This type (which can also occur with steroid use) tends to affect vision earlier and more disproportionately than its size would suggest.

Symptoms

- Blurring of vision — often more noticeable when the cataract is more advanced in one eye, since we naturally use both eyes together and rarely test each eye separately.
- Altered or dulled colour perception, typically seen with nuclear sclerosis.
- Sudden glare or blurring when oncoming headlights or bright light sources fall on the eye — characteristic of posterior subcapsular cataract.

Treatment Options

In the early stages, updated spectacles can help correct vision affected by cataract. Once the cataract becomes visually significant, surgery is the standard and definitive treatment.

How Cataract Surgery Has Evolved

Intracapsular extraction (early technique): The entire lens and its capsule were removed; very thick glasses were needed afterward.

Extracapsular extraction: Only the lens contents were removed, leaving the capsular bag intact to support an artificial lens — a major functional improvement, though it required a larger incision and sutures.

Phacoemulsification: The modern standard. The hard lens nucleus is broken up using ultrasonic energy and removed through a very small, self-sealing incision that needs no sutures.

Femto Laser-Assisted Cataract Surgery (FLACS): A laser assists with key steps of the procedure — the corneal incision, opening of the capsular bag, and initial softening of the lens — while the remaining surgery follows standard phacoemulsification technique.

Surgical Techniques Used Today

Phacoemulsification is the most widely used modern technique. The hard part of the cataract (nucleus) is emulsified into fine fragments using ultrasonic energy, the softer cortex is suctioned out, and a new artificial lens is inserted. The incision is only about 2.2 to 2.8 mm and is self-sealing, requiring no sutures.

Small Incision Cataract Surgery (SICS) is a manual alternative in which the cataract is removed and the lens implanted without sutures, though through a somewhat larger wound than phacoemulsification. It remains an economical, effective option, particularly for very hard cataracts or eyes with a compromised cornea, and continues to be used skilfully in such situations.

Intraocular Lens (IOL) Implants

The artificial lens implanted during surgery is made of an inert plastic material (PMMA) with an optical centre and two flexible supporting loops. These foldable lenses pass through the small 2.2–2.8 mm incision and unfold to their full size of about 6 mm inside the eye. Several lens types are available:

Lens Type	What It Offers	Points to Consider
Monofocal	One clear focal distance (usually distance vision)	Reading glasses will still be needed
Trifocal	Distance, intermediate and near vision together	Slightly reduced contrast; haloes possible with night driving
EDOF / EMV	Extended range, strong intermediate vision (mobile, computer)	Near/reading vision may be less sharp than trifocal
Toric	Corrects pre-existing corneal astigmatism	Chosen based on corneal measurements, can be combined with other lens types

As of today, no artificial lens can fully replicate the natural, effortless focusing ability of a young human eye. Several reputable Indian and international companies manufacture good-quality IOLs, and your surgeon will recommend the lens best suited to your eye.

As a routine precaution, most eye surgeons do not operate on both eyes on the same day, to minimise the rare risk of infection affecting both eyes simultaneously.

Anaesthesia During Surgery

Cataract surgery is usually performed under topical (drop) anaesthesia. Patients who are particularly anxious may be given a mild sedative, and in some cases a peribulbar (injection) anaesthetic is administered around the eye before surgery.

Post-Operative Care

If no injectable anaesthetic was used, the eye is generally left open with antibiotic-steroid drops started from day one. If the eye is padded after surgery, the pad is removed the following day and drops are then started, continuing for one to two months as advised by your surgeon. You will be scheduled for follow-up visits according to your surgeon's protocol.

When to Contact Your Doctor

- Any new or worsening pain in the operated eye
- Redness that increases rather than settles
- A sudden drop in vision

Final visual correction (glasses, if needed) is typically assessed three to four weeks after surgery in most cases.