

A PATIENT'S GUIDE TO CATARACTS AND MODERN SURGERY

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Introduction

Mr Anthony P Moriarty, MA FRCS FRCOphth qualified in medicine from Cambridge University and The Royal London Hospital. He trained in Ophthalmology at St Thomas's Hospital, London and subsequently performed a specialised fellowship training in Australia in all aspects of advanced microsurgical cataract, glaucoma and corneal surgery and now has a specific subspecialty interest in cataract surgery, glaucoma and age related macular degeneration.

He is a fully accredited Consultant by The Royal College of Ophthalmologists and a member of the European and American Societies of Cataract and Refractive Surgeons.

His other interests lie in lid surgery and macular degeneration.

He has produced this booklet to help you understand a little more about cataracts and their treatment. He has aimed to make it scientific but helpful, but please let him know if any further questions remain.

What is a cataract?

A cataract is a **clouding** of part of the eye called the lens, sufficient to reduce vision. Vision becomes blurred or dim because light cannot pass through the clouded lens to the back of the eye.

The lens

In a normal eye, the lens is clear, lying behind the iris (the coloured part of the eye) allowing the passage of light rays through it. The lens also contributes to the bending of light rays onto the retina (the light sensitive part at the back of the eye).

The lens can also change its shape to focus objects at different distances. If images are not focused onto the retina properly then vision is affected. Thus, if the lens is cloudy as in cataracts, light cannot pass through it.

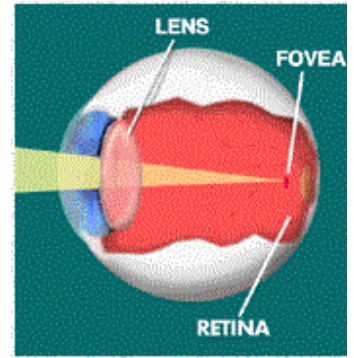
Consequently, light images do not reach the retina, thus impairing vision. The first image below illustrates light rays passing through the lens and onto the retina of a normal eye, the second shows a cloudy lens (cataract) which is blocking light from reaching the retina.

How can cataracts affect my vision?

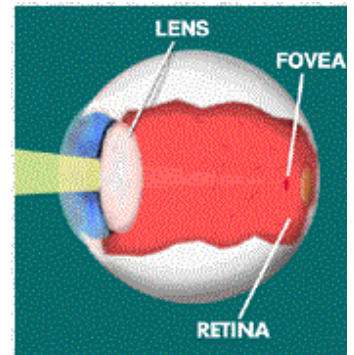
An opacity in the lens of the eye...

- **causes a gradual painless loss of vision.**
You may notice that some things seem blurred round the edges, or that your glasses seem dirty or scratched.
- **causes glare, particularly in bright light**
You may find that bright light or very sunny days make it more difficult to see.
- **may cause haloes to be seen.**
- **may alter the degree of long or short-sightedness.**
- **may cause double vision**
The cloudiness in the lens may occur in more than one place, so that the light rays reaching the retina are split, causing a double image.
- **may alter colour vision.**
As the cataract develops its centre becomes more and more yellow, giving everything you see a yellowish tinge.

Patients may have difficulty in recognising faces, reading or achieving the standard of vision required for driving. Both eyes can be affected simultaneously, but usually one eye worsens quicker than the other.



Normal eye.



Eye with cloudy lens (cataract).



Example of vision with a cataract

How does the doctor know that I have a cataract?

Using a special instrument to look at the eye called an ophthalmoscope, opacities, if present, can be seen. Similarly, the exact location of a cataract within the lens itself can be determined using another special piece of equipment known as a slit-lamp.

What causes cataracts?

Most cataracts develop slowly as a result of ageing. 65% of people aged 50 to 59 have lens opacities and all of those aged over 80 years.

The formation of a cataract occurs more rapidly in patients with a history of eye injury, inflammation of the eye, or diabetes - clinical studies strongly suggest that lens opacities are positively related to poorly controlled and unrecognised diabetes. Certain drugs, particularly steroid tablets and eye drops can increase the chance of cataract formation; however, there are still many individuals who do not develop cataracts following prolonged steroid administration. Similarly, certain occupations impose a greater risk for the development of cataracts including those who have worked with x-rays, microwaves, explosives, dyes and pesticides. Recent studies have also shown that smoking increases the chance of opacities developing in the lens.

Treatment of cataracts

As of yet, there is no way of preventing the development of cataracts due to old age - no diets or drugs have been shown to stop the development of cataracts. Similarly there is no medical drug treatment that can be given to benefit patients who have cataracts. Thus, the only successful means of dealing with a cataract is to remove the cloudy lens by surgery. You should be reassured that in the correct hands this is a safe and short procedure which I perform routinely

As far as modern cataract surgery is concerned, there is no specific level of lens opacity (cloudiness) or visual loss that indicates surgery. Surgery can be performed at any stage. Indications for cataract surgery are :-

1. Visual improvement - to improve the patient's quality of life (see below)
2. Medical indications - when the presence of a cataract can hamper the treatment of a co-existing eye disease as the cataract prevents the ophthalmologist's view of the other problem (eg diabetic retinal disease).

However, the main criterion for removing an adult cataract is as follows:-

In an adult, the removal of a cataract is indicated if the reduction in vision interferes with the patient's quality of life

For example, if visual impairment interferes with your ability to read, work, drive, or do the things you enjoy then you will probably want to consider surgery.

What to expect

You and I must first agree that surgery is necessary to remove the cataract.

The operation itself can be performed as a day case or as an in-patient.

A. Pre-operative assessment

Sometime before surgery is scheduled, you will attend for an assessment. This consists of measuring the length and curvature of your eye to be operated on. **A quick and painless process**, these measurements are essential for successful surgery to take place and enables me to assess the correct power of intraocular lens to replace the patient's own lens.

B. Eating and Drinking

You can have a light meal up to four hours prior to surgery if under local or six hours if general anaesthesia. Drinks are permissible prior to surgery under local but none closer than four hours before surgery under general. **No alcohol** on the day of surgery.

C. Tablets and Medications

These are taken as normal. However, patients on warfarin and diabetics should discuss medication with me specifically.

D. What happens during the operation?

You will usually be admitted to the hospital several hours before surgery. You will need to sign a consent form before the operation can be done.

Just before the operation you will be given eye drops to dilate the pupil. Local anaesthesia applied to the eye means that you must remain awake and lie relatively still during the operation. A general anaesthetic, which puts patients to sleep during the operation, is offered to those who have difficulty remaining still or are anxious about local anaesthesia. The local anaesthetic numbs the eye so that you will not feel any pain whilst I am operating on you and you will be wide awake. You will need to lie still during the operation which lasts 20 minutes but often less. During the operation your face will be covered by a light cloth but a nurse will hold your hand and make sure that you are all right.

If your operation is under local anaesthetic you may hear some strange noises from machines and voices but do not be alarmed. I will talk to you during surgery to keep you reassured.

The operation is performed with the help of a microscope. A small incision is made in the top of the eye through which the cloudy lens is removed using a probe (a process known as phacoemulsification) and a lens implant is inserted. The incision in the eye is usually so small that stitches may not be required at the end of the procedure. A pad is then put over the eye for protection against rubbing and bumps after the operation.

Please be reassured that the eye is NOT removed from its socket at any point.



Mr Moriarty operating

What is a lens implant?

After the cloudy lens has been surgically removed it is usually replaced by a synthetic lens implant, so that the eye can focus properly.

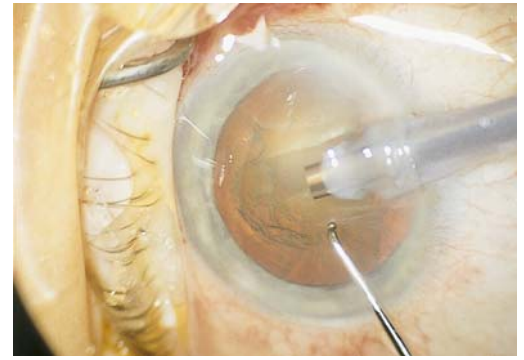
Rarely I may decide that someone's eye is not suitable for a lens implant. In these cases contact lenses or special glasses will be provided instead.

Phacoemulsification microincision cataract surgery

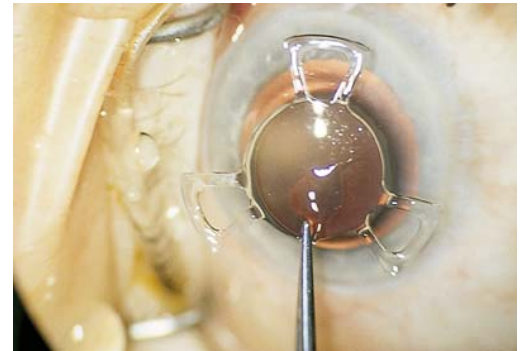
Using a very small ultrasonic probe the cataract is removed by ultrasound waves inside the eye and dissolved and sucked out of the eye. (THIS IS NOT A LASER, though once safe and reliable lasers are available for cataract surgery, I will be adopting this technique).

The incision remains small, thus only a very small incision is made and this is preserved by folding an implant lens of the correct power to sit in the old bag in which the cataract was contained. By using a lens of the correct power, short or long sightedness can be treated at the same time.

This means return to activities - reading, driving, work etc. is accelerated compared with more conventional surgery with larger incisions.



Removing the cloudy lens (cataract).



New synthetic lens implant.

E. After the operation

You will usually be allowed to go home soon after the operation is complete. On the following day, I will probably want to see you for a quick check-up, just to look at the eye.

Your sight will usually improve after a few days, although complete healing can often take several weeks. You will be given eye drops to use.

Using your eye drops

When you are given the eye drops, you will be instructed on how to use them. There will also be a leaflet with each type of eye drop. Follow these instructions carefully each time you use the eye drops. Remember to only use the drops in the eye that has been operated on and only ever use the eye drops prescribed to you. Here are some simple points to remember:-

- Wash your hands.
- Tilt your head back.
- Pull the lower eyelid down with one hand.
- Using the other hand, put one drop (or the amount you have been instructed) into the eye without letting the dropper touch your eye.
- Close your eye gently.
- Mop up any fluid around your eye with a clean tissue.
- Put the cap back on the dropper.

Will the operation ever need to be redone?

Once the cataract is removed it will NEVER recur. Occasionally, however, a part of the eye called the lens membrane (posterior capsule) may become cloudy after cataract surgery. This can be corrected immediately and successfully using a special type of laser treatment, called a YAG laser (shown on right). It clears the vision which may become cloudy after months or years. The treatment takes a few seconds and is painless.



YAG laser

Take it easy!

It can often be frustrating for an otherwise active person to be restricted from doing the full range of activities they normally perform and enjoy. I appreciate this, but you must accept the fact that your eye needs time to heal properly without any complications. To minimise the risk of any such problems, please adhere to the following for two weeks following the operation :-

- Avoid rubbing your eye; wear an eyeshield if you are a restless sleeper.
- Don't do any heavy lifting.
- Avoid strenuous exercise and swimming.
- Avoid strenuous housework
- Cover the eye when going outdoors in windy conditions, in case anything blows in your eye.
- You can bathe or shower as normal, but avoid splashing water on your face.
- Wash your hair leaning backwards rather than forwards.
- Avoid using eye make-up for four weeks.
- Resumption of your sex life can take place two weeks after surgery.
- Avoid driving until I recommend you can do so.
- Time off work depends on your job.

What next?

You will be required to attend follow-up clinics as per appointment. **It is important that you attend these appointments** in order to check that the eye is healing well, and also to assess the state of your vision. An eye test, probably 2–4 weeks after the operation.

If at any point dirt gets into the eye or it becomes sticky, gently clean the eye using a cotton bud soaked in sterile saline or **cooled** boiled water. **If the vision in your eye suddenly worsens or it becomes red and/or painful, or if you notice a yellowish/green discharge, contact the hospital or myself immediately via Highfield House or the hospital.**

Finally, it is important that you use your eye drops and any other medicines given to you by the doctor **as instructed**. Remember that it may take some time for the vision in your eye to improve fully.

Hopefully this guide has answered any queries you have had, and reassured you that cataract surgery is something which should not be feared. If you have any questions unanswered by this guide then do not hesitate to ask me. Remember, we are here to help you and to make the whole process as comfortable for you as possible.

Are there ever any complications?

As with all surgery there is always a chance of complications occurring. However, these are rare, and if they do occur, can usually be dealt with. The greatest risk with any type of eye surgery is post-operative infection of the eye. If this occurs the vision in the affected eye can actually **become worse permanently**. Therefore you should be aware of this. However, by and large, **cataract surgery is safe with very effective outcomes**.

The other main complications are haemorrhage into the eye or damage to the capsule supporting the implant lens. Rarely, swelling of the centre of the retina (macula) or a detached retina may occur. Very rarely, the cataract may dislocate into the back of the eye, requiring re-operation and, rarely, it is felt advisable not to implant a lens at the original time of surgery. These are rare and, fortunately, when recognised can be managed correctly.

GLOSSARY

I may use the following terms from time to time. Hopefully, this glossary provides a simple explanation for them.

- **BLIND SPOT**
The point on the retina where the optic nerve enters. There are no visual receptors here and consequently this spot is blind.
- **CAPSULE**
The transparent membrane enclosing the natural lens of the eye.
- **CATARACT**
A clouding of the lens.
- **CORNEA**
The transparent covering over the iris and pupil, often referred to as the 'window of the eye'.
- **FOVEA**
The small area of the retina of most acute vision.
- **IMPLANT**
The intraocular lens inserted into the eye to replace the cloudy lens (cataract).
- **IRIS**
The coloured part of the eye.
- **LENS MEMBRANE (POSTERIOR CAPSULE)**
This part of the eye can become cloudy after cataract surgery but can be dealt with using laser treatment.
- **MACULA**
This is a yellow spot on the retina which marks the location of the fovea
- **OPHTHALMOLOGIST**
A doctor who specialises in eyes and eye surgery.
- **OPHTHALMOSCOPE**
A hand-held device used by doctors to look at eyes.
- **OPTIC NERVE**
This carries visual images from the retina to the brain.
- **PHACOEMULSIFICATION**
A method of cataract extraction in which the lens is fragmented by ultrasound vibrations, being simultaneously irrigated and removed.
- **PUPIL**
The black part of the eye through which light passes.
- **RETINA**
The light sensitive, interior surface of the back of the eye on to which the lens focuses light.
- **SALINE**
Sterile water.
- **SLIT-LAMP**
A lamp which gives out intense illumination in the form of a slit for microscopic examination of the eye.
- **YAG LASER**
A laser used to 'polish' away the posterior capsule some time after cataract surgery.