

Medical Information Document

Cataract

(Including Persistent Foetal Vasculature / Persistent Hyperplastic Primary Vitreous)

What is the normal structure of the eye?

The eye is made of three parts:

- A light focussing bit at the front (cornea and lens).
- A light sensitive film at the back of the eye (retina).
- A large collection of communication wires to the brain (optic nerve).

A curved clear window called the **cornea** first focuses the light.

The light then passes through a hole called the **pupil**.

A circle of muscle called the **iris** surrounds the pupil. The iris is the coloured part of the eye.

The light is then focused onto the back of the eye by a **lens**.

Tiny light sensitive patches (photoreceptors) cover the back of the eye. These photoreceptors collect information about the visual world. The covering of photoreceptors at the back of the eye forms a thin film known as the **retina**.

Each photoreceptor sends its signals down very fine wires to the brain. The wires joining each eye to the brain are called the **optic nerves**.

The information then travels to many different special 'vision' parts of the **brain**. All parts of the brain and eye need to be present and working for us to see normally.

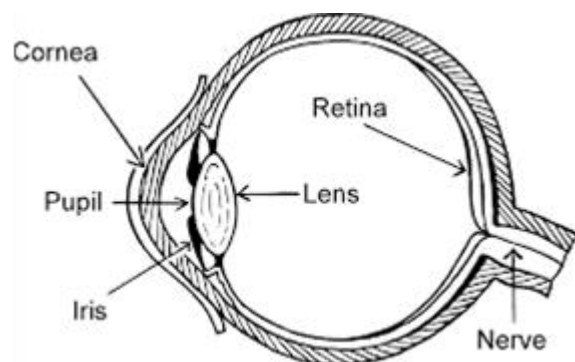


Figure 1: The Structure of the Eye

How We See: Beyond the Eyes

There are many different parts of the eye and the brain that need to work together in order for us to see well. The brain gets signals from the eye and sends them to the vision parts of the brain. In order for us to see it is the brain that does most of the work.

What is Cataract?

Cataract is when the lens of the eye is cloudy or white, instead of being see-through. Cataract can involve one eye (unilateral cataract) or both eyes (bilateral cataracts). Babies can be born with cataracts (congenital) or children can develop them during childhood (acquired).

What is the cause of Cataracts?

There are many different causes of cataract in children. Sometimes nobody can say for sure why it has developed.

There are four main groups of conditions that cause cataract in both eyes in children:

- Inherited cataract conditions which are passed down in genes ([see VINCYP glossary](#)) through families
- Infection of the unborn baby. For example from Mum having rubella or chicken pox and the virus then infecting the baby, causing damage to the lens
- Conditions that affect the normal metabolism of the child. Metabolism is the way the baby turns food into energy
- There are some specific eye conditions in which cataract is one of several abnormalities of the eye

Cataract in only one eye is sometimes caused by a small blood vessel, which runs through the baby's eye during pregnancy, failing to shrink away as it should. This is called Persistent Foetal Vasculature (PFV) or Persistent Hyperplastic Primary Vitreous (PHPV). Most other cataracts in only one eye have no known cause.

Most babies born with cataracts are healthy in all other ways. A baby born with cataracts is likely to have some blood tests done to rule out some of the different causes of cataracts. The baby's family may be examined and referred to see a genetics doctor to work out whether the cataracts are inherited.

How does Cataract affect a child's vision?

In young babies cataract is often picked up at birth before the baby has started to use its vision. All babies born in the UK should be examined by a doctor or a specialist nurse within two days of birth, looking for signs of cataract. They are examined again at a 6-week check at their GP surgery. Not all cataracts are diagnosed when a baby is very young, and sometimes other signs may be noticed by family members or health professionals in older babies and children. They may develop fast 'to and fro' movements of the eyes called nystagmus or they may develop a squint (when their eyes are not in line with each other).

Rarely a cataract is diagnosed when a child is noticed to have a white pupil in a photo and sometimes families notice that a child is struggling with his or her vision.

How blurred the vision might be depends on how cloudy the lens is, what part of the lens is involved, whether the child has developed a 'lazy' eye (amblyopia) or whether the eye has other conditions that might reduce vision.

If cataract has been present from an early age then a child may develop 'lazy' eye(s) which is also known as amblyopia ([see VINCYP glossary](#)).

A child with a cataract in one eye will often show no signs of difficulties with their vision because the other eye is usually completely healthy. They do often however develop a squint in the eye with the cataract.

What can be done to help in Cataract?

The eye doctor will judge whether the cataracts are bad enough to be likely to severely affect the vision. If the eye doctor thinks the cataracts are mild, he or she may decide to keep a check on the cataracts and watch how well the child's vision develops.

If they are more severe, an operation to remove the cataracts may be needed. If the cataracts are diagnosed soon after birth, the surgery is likely to take place when the baby is around 2 months of age. If there are cataracts in both eyes, the two cataracts are likely to be removed soon after each other. The surgery requires a full general anaesthetic and a night in hospital.

Once the cataract has been removed it needs to be replaced by another type of lens to allow focusing. This can be a contact lens, a small plastic lens inside the eye (intra-ocular lens) or with glasses. This decision depends on lots of different factors, and will be made following discussion with the eye doctor. Sometimes an intra-ocular lens is placed in the eye when the child is a bit older, having used contact lenses or glasses in the beginning.

There can be complications of cataract surgery and your eye doctor would discuss these with you.

After the cataract has been removed there is still a lot of work to do.

Contact lenses – If a lens is not put into the eye at the time of surgery, a contact lens will be fitted after the surgery. You will be taught how to put the contact lens in and out and how to clean the contact lens. Do not worry as this can take time to learn. The strength shape and size of the contact lens will be adjusted as the child grows.

Glasses – For children who are going to nursery or school we often give reading glasses to wear over the contact lenses. When children have a lens implanted inside the eye they also need to wear glasses over the top. Glasses can also be used on their own without contact lenses or lens implants.

Patching - one eye may not see so well as the other. This may be because it is lazy (amblyopic). Patching of the good eye may need to be done to encourage the weaker eye to see. Patching of the good eye is always needed after a unilateral cataract is removed.

Pressure measurements - the pressures in the eyes will need to be checked regularly to check that the pressure is not higher than it should be and glaucoma is not developing.

The future

The child will need to attend the hospital regularly for checks and there is a very good chance that more operations or examinations under anaesthetic may be required.

It can be hard to predict how well a child will see after cataract surgery. Vision can range from near normal levels to severe visual impairment.

What can be done to help children with visual impairment?

We use our vision to get around, learn new things and to meet other people and make friends. Children who have visual impairment may need some extra help to do these things.

It is important to know and understand what your child sees so that you can give them the help they need. Young people themselves need to understand how and why they may see differently from others.

If glasses, contact lenses or Low Visual Aids (LVA) have been prescribed, it is important that these are used. These will help your child see more clearly and make sure the vision parts of the brain grow and develop correctly. Even if your child's vision is very low, try to get them to wear their glasses if prescribed. This will help to give as clear a picture as possible to help get them interested in looking.

Even if a child has very poor vision many useful and practical things can be done to help. All children with a visual impairment should have an assessment of their needs by a qualified visual impairment teacher and a qualified habilitation specialist. These are the professionals who can give advice and support your child in learning, education and in practical and play activities.

Where Can I Find More Information?

Information can be found at: www.rnib.org.uk/eye-health-eye-conditions-z-eye-conditions/congenital-cataracts

Other general information on low vision is available from national organisations such as Guide Dogs and RNIB, and from your local visual impairment society (these are listed on the [VINCYP website contacts](#))

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NOTE

This guideline is not intended to be construed or to serve as a standard of care. Standards of care are determined on the basis of all clinical data available for an individual case and are subject to change as scientific knowledge and technology advance and patterns of care evolve. Adherence to guideline recommendations will not ensure a successful outcome in every case, nor should they be construed as including all proper methods of care or excluding other acceptable methods of care aimed at the same results. The ultimate judgement must be made by the appropriate healthcare professional(s) responsible for clinical decisions regarding a particular clinical procedure or treatment plan. This judgement should only be arrived at following discussion of the options with the patient, covering the diagnostic and treatment choices available. It is advised, however, that significant departures from the national guideline or any local guidelines derived from it should be fully documented in the patient's case notes at the time the relevant decision is taken.