

Glaucoma in Babies and Children



This free booklet is brought to you by **Glaucoma UK**
(formerly the International Glaucoma Association).
Contact Glaucoma UK for further information or advice:

Glaucoma helpline: 01233 64 81 70

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Glaucoma UK is a registered charity that is here for everyone living with glaucoma throughout the UK.

- We raise awareness of glaucoma so that it is detected and treated early.
- We campaign for effective services for everyone affected by glaucoma.
- We provide advice and support to help people live well with glaucoma.
- We fund vital glaucoma research.



**Campaigning
& Awareness**

Fewer
people
go blind



**Advice &
Support**

People with
glaucoma live well
and stay well



Research

Better
diagnosis,
care and
treatment

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01 Introduction

This booklet has been written to give you an introduction to glaucoma in babies and children. It is intended to help you understand the conditions and the reasons for treatment to help ensure that your child retains useful sight for life.

If eye drops have been prescribed (this is not always the case), it is important the treatment is adhered to. In either case, it is vital that follow-up appointments are attended. If there are any early signs of change, treatment can be prescribed accordingly.

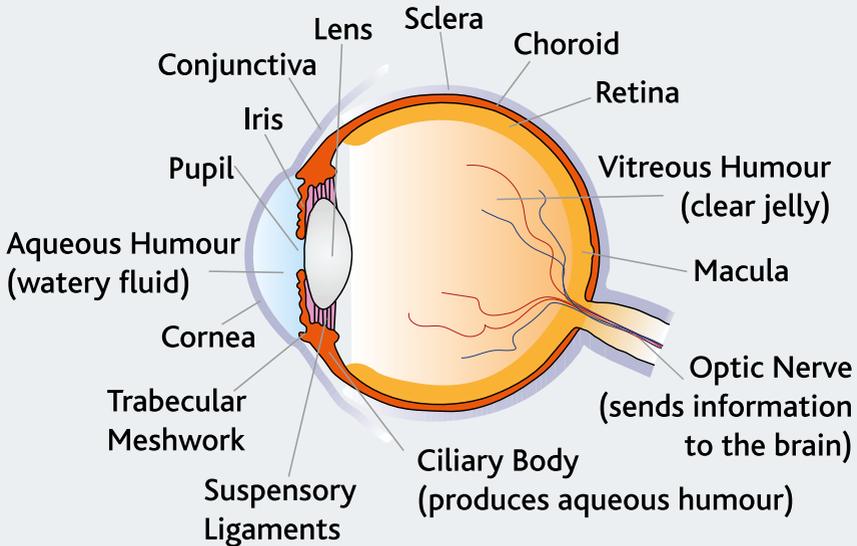
If you are told that your baby or child has glaucoma it can be a devastating piece of news. However, there is much that can be done to save their sight. In this booklet you will find answers to many of the questions that have been asked by parents over the years. We hope it will be helpful.

If you still have unanswered questions, please do not hesitate to telephone our glaucoma helpline on **01233 64 81 70** where you will find people who will be able to help.

02 Structure of the eye

Figure 1

Cross section through the eye showing the major structures, Health Press Unlimited (Oxford)



The eye is shaped like a ball. The tough white outer coat is called the sclera and its surface is covered by a thin layer called the conjunctiva. The clear outer layer at the front of the eye is called the cornea which is covered by the tear

film. Behind the cornea is the iris – the coloured part of the eye - with the pupil forming a hole in its centre.

The space between the cornea and the lens is filled with a clear fluid, called aqueous humour, which maintains the pressure in the eye (the intraocular pressure). The pressure is determined by the balance between the fluid production inside the eye and its drainage out of the eye.

On the inside of the back of the eye is the retina, which is the light sensitive layer onto which an image of what is being seen is focussed by the cornea and the lens working together. The central area of the retina where the most detailed vision is to be found, known as the macula, has a very high density of cells. Further away from this central detailed vision area is the area of the retina which is more sensitive to dim light and which also provides our peripheral vision.

Immediately below the retina is the choroid, which is the layer of the eye that provides the blood supply to the cells of the retina and onto which the retina is attached. Light that has passed through the front of the eye and is focussed onto the retina is finally converted into a series of complex electrical impulses by retinal photoreceptor cells known as rods and cones. These signals pass along the optic nerve to the back of the brain, where the final image is processed.

03 What is glaucoma?



Glaucoma is the name given to a number of conditions in which the optic nerve (the nerve which carries images to the brain) is damaged.

This type of damage has characteristic features and effects on vision. The cause of this damage in babies and children is virtually always raised pressure within the eye, (intraocular pressure, or IOP).

Glaucoma which forms during the early years of a child's life is called developmental or congenital glaucoma and it is these glaucomas that this booklet is all about. The glaucomas that affect babies and children are rare.

Figure 2

Flow of aqueous humour in the eye

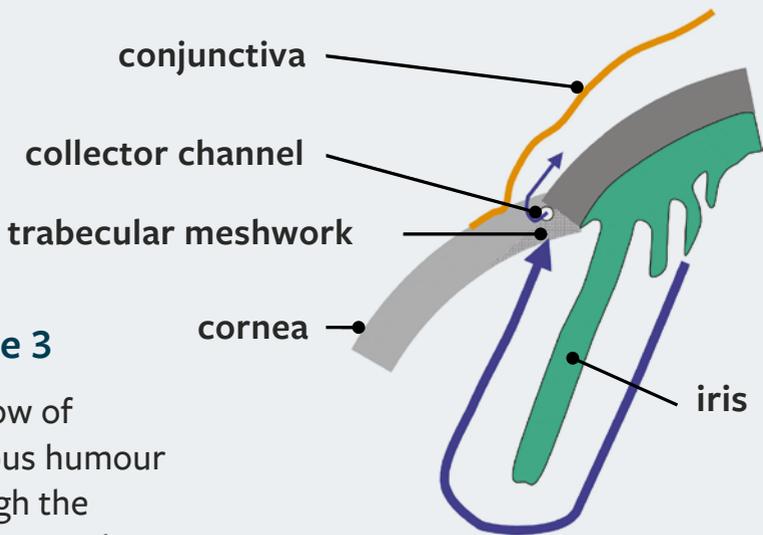
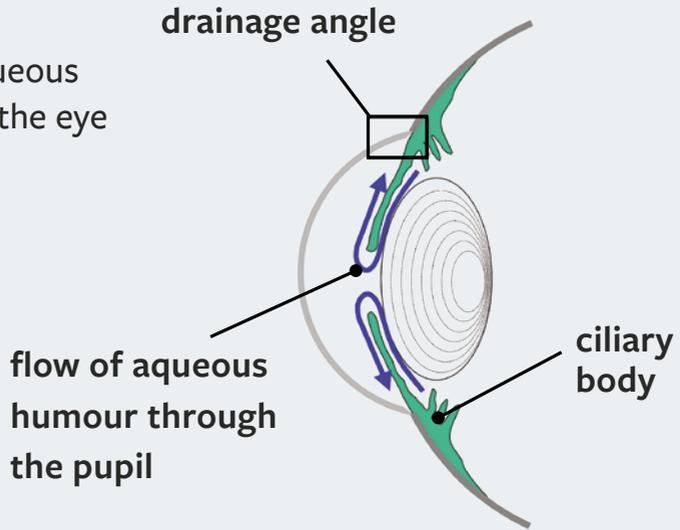


Figure 3

Outflow of aqueous humour through the drainage angle

What controls the pressure in the eye?

The eye is like a ball. It pumps itself up with a watery fluid (aqueous humour) made by a part of the eye called the ciliary body. This is a ring of tissue just behind the coloured part of the eye (iris). Aqueous humour flows from this ring of tissue through the gap in the iris (pupil) into the front portion of the eye. The clear window in the front portion of the eye is called the cornea, and is like a transparent dome. A filter system runs right around the base of the dome in the 'drainage angle'.

The aqueous humour flows out through this filter system into a collector channel called **Schlemm's canal** and then into the blood vessels around the outside of the eye.

It is the resistance of the filter system that determines the pressure in the eye. In the vast majority of children with glaucoma, the pressure goes up in the eye because this drainage system does not work properly. This blockage can happen in many ways, as will be explained later in this booklet.

04 What types of glaucoma can children have?



Many different types of glaucoma can be found in babies and children:

Primary congenital glaucoma

This is the most common type of glaucoma in babies and small children. The normal filter system in the eye does not develop as it should, and as a result the aqueous humour does not flow out of the eye properly and the pressure in the eye (IOP) rises.

Many cases of this type of glaucoma may run in families and specific advice on the chances of inheritance should be sought from an expert (genetic counsellor) with up to date knowledge (see page 35).

Secondary glaucomas

Axenfeld's or Reiger's Anomaly

These conditions are named after the doctors who first described them. In this type of glaucoma, apart from the problem with the development of the filter system, there are usually abnormalities in the development of the iris and sometimes in parts of the cornea. In addition there can be changes in the shape of the teeth, face, ears and other parts of the body, although these changes may not be present.

There is a significant chance of developing glaucoma, and patients with Axenfeld's or Reiger's Anomalies need to have regular check-ups for life.

Peter's Anomaly

In this condition there are abnormalities in the lens and cornea of the eye. Sometimes the lens of the eye may be attached to the cornea. Glaucoma may develop and further treatment, such as surgery, may be required.

Other types of glaucoma

Glaucoma often follows cataract surgery in babies and children. If the lens of the eye becomes cloudy, this is called a cataract and may require surgery. The reason for

the development of glaucoma after cataract surgery is still not entirely clear.

Glaucoma can also occur if the eye becomes inflamed for any reason, such as in children who have the childhood form of arthritis, as the filter system may get blocked with inflammatory cells.

Glaucoma can sometimes occur in children with other conditions such as aniridia, in which there is no, or very little, development of the iris.

Glaucoma can also occur in Sturge Weber syndrome; these patients also have a blood vessel birth mark on the face, particularly the forehead, known as a port wine stain. Children with these physical signs need to be monitored for the development of glaucoma and treated if necessary.

05 What are the symptoms of glaucoma in babies and children?

Large eyes

The outer coat (sclera) of a child's eye is much softer and more flexible than that of an adult. As a result, if the pressure rises in the eye, the eye expands rather like a balloon being blown up. This enlarged eye size is one of the important indicators of raised eye pressure in a baby or young child.

Reducing the pressure does not usually bring the eye back to its normal size but may reduce the size of the eye very slightly.

Some parents of children with glaucoma report how people have tended to remark on what lovely large eyes their child has.

Sensitivity to light

Children with raised IOP often become very sensitive to light. There may be several causes for this. The clear window of the eye (cornea) may be slightly waterlogged and cloudy, which can be uncomfortable. When the

cornea is not absolutely clear, light bounces off the cornea irregularly and causes glare. It will not harm the child's vision in the short term to wear dark glasses, particularly in bright lighting conditions. Even after the pressure is lowered, some degree of sensitivity to light may persist in the long term.

Cloudy eyes

The cornea has a sheet of little cells on the inside which pump aqueous humour out of the cornea, keeping it clear. If the pressure rises sufficiently, aqueous humour is pushed into the cornea, making it waterlogged and cloudy. If the cornea expands, small cracks may occur on the inside of the cornea and this may also cause partial clouding. The clouding clears when the pressure is reduced but this may sometimes take several months.

Watering eyes

Watering is a natural response to any form of irritation of the eyes. If the eye pressure is high, and if there is glare from lights and also some swelling of the cornea, then the natural reflex will be watering of the eyes. This should improve when the pressure in the eye is controlled.

Poor vision and jerky eyes

Occasionally, if raised pressure in the eye has caused clouding of the cornea or pressure on the optic nerve head (the small hole where all the nerves leave at the back of the eye), vision may be poorer than usual and there may also be movements of the eye. After treatment, most of these symptoms improve.

Squint (strabismus)

In some children the eye with poorer vision may be seen to turn inwards, towards the nose, or outwards.

Glaucoma in families

The majority of glaucoma in children is not obviously inherited. Families with a history of childhood glaucoma should consult a genetic counsellor or specialist in children's glaucoma regarding the possibility of inheritance.



06 How is glaucoma in children treated?

Examination under anaesthetic (EUA)

Most babies and children have to be examined under anaesthetic. Initially if their eye pressure is found to be raised, then surgery will usually be carried out at the same time to save a further anaesthetic.

Every time a child is examined under anaesthetic, there is a chance that a further procedure may be required and parents should be aware of this.

Generally speaking, a child can be examined without anaesthetic after the age of five years, but this can vary. Some examples of surgery follow.

Goniotomy

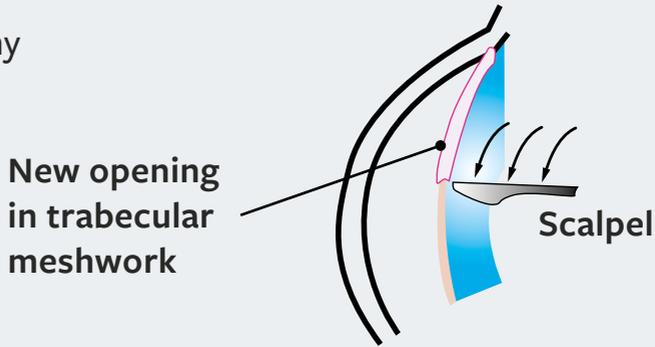
This is often the first operation to be performed. An incision is made into the filter system to open up the filter system that did not open properly as the eye developed.

To get a good view, sometimes the surface skin of the cornea needs to be removed. This regrows rapidly and heals within a day or two. However, during this period, the eyes will be uncomfortable and the child may not

sleep well because of the discomfort. Pain control syrup (paracetamol, Calpol™) may be prescribed.

Figure 2

Goniotomy



If a goniotomy is performed, both eyes will sometimes be operated on at the same time. In the majority of cases this operation lowers the IOP, but a second goniotomy may be required if the lowering of pressure is not sufficient.

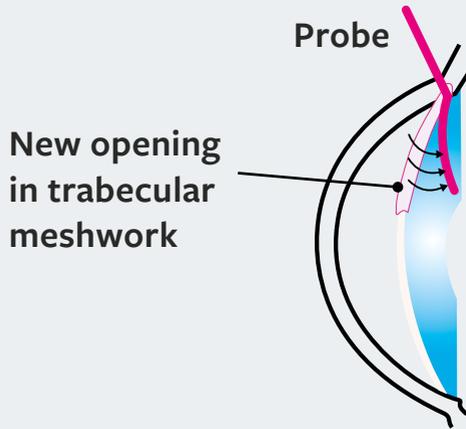
Another operation to create a new drainage channel (trabeculectomy) may be required if the eye does not respond to a reopening of the filter system.

Trabeculectomy

In this operation, a very fine probe is threaded into the main collector channel (Schlemm's canal). This delicate probe is pushed through into the front chamber of the eye, creating a new drainage channel. This operation is used in certain types of glaucoma or when the cornea is not clear enough to perform a goniotomy.

Figure 3

Trabeculotomy



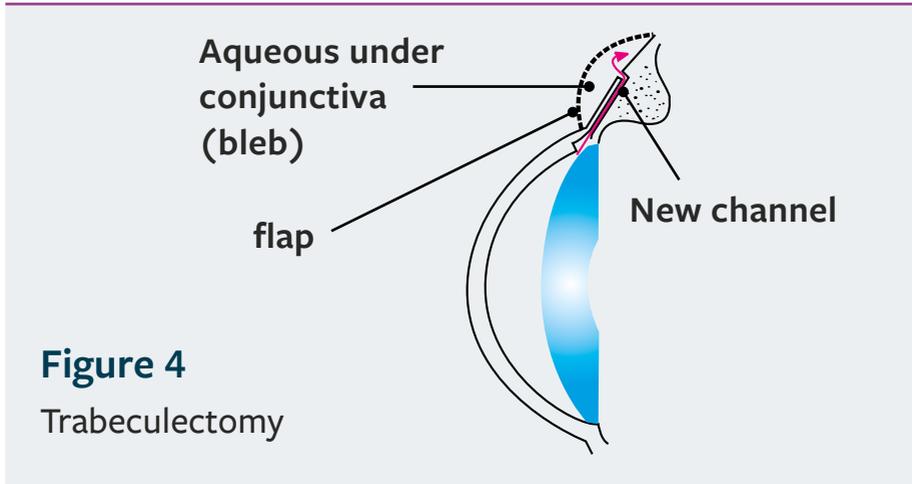
It can be combined with a trabeculectomy, where another new drainage channel is made in the eye.

Trabeculectomy

This is when an entirely new drainage channel is made in the eye. A small flap is created by the surgeon, usually in the part of the eye just underneath the upper lid. This flap is secured with extremely fine stitches and is covered with the white skin of the eye (conjunctiva). The fluid accumulating underneath the skin of the eye then flows out of the eye and gets absorbed into the blood vessels surrounding the eyeball.

Following the operation, a tiny bump (known as a bleb) can sometimes be seen under the upper lid. This is a small collection of fluid draining away under the skin of the eye. If your child has had this operation and ever gets a sticky

eye with yellow discharge you should seek expert help immediately, for example at the eye casualty department, as occasionally an infection of the outside of the eye might be able to enter the eye if not treated quickly.



Anti-scarring treatment

The main problem with these operations is scarring. Young eyes heal especially well and scar tissue can form, which may block the flow of fluid out of the eye. This results in a further rise in eye pressure.

However, through research, new methods continue to be devised to help prevent this happening and these have considerably improved the results of surgery. Some of these treatments may include the drugs 5-fluorouracil or mitomycin-c, or beta radiation.

Very tiny doses of these agents are given only to the treatment area (an area a quarter to a half the size of your little fingernail) and continue to improve long term results of the surgery.

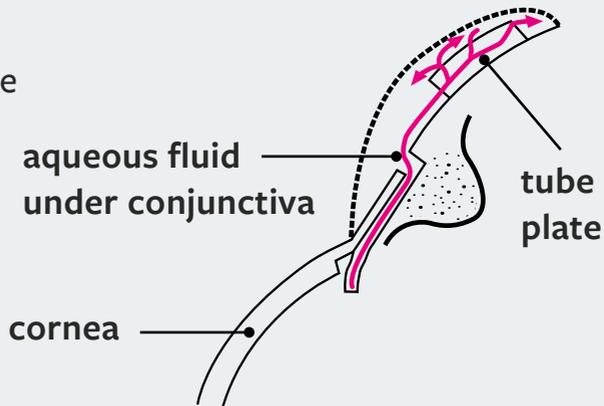
Drainage tubes

In some children a special drainage tube has to be inserted into the eye, to drain fluid out to a reservoir at the back of the eyeball.

The reason for using this tube is that, in certain circumstances, it works better than the flap valve that is created during a trabeculectomy, and it will stay in the eye for an indefinite time. Anti-scarring treatment maybe used and small stitches are sometimes left in and around the tube to control the amount of flow going through the tube. Some of these stitches dissolve by themselves and some may need to be removed if the eye pressure rises in the future.

Figure 5

Drainage tube



Sometimes, one or two weeks after surgery it may be necessary to put gas or jelly into the eye to adjust the pressure if it has got too low. The child will not 'outgrow' the tube and some children have had them implanted for over 30 years.

Needling

Occasionally a small amount of scar tissue forms around the operation site in trabeculectomy, or after a drainage tube is implanted. This can sometimes be released by loosening some of the scar tissue with a very fine needle (this procedure is called needling).

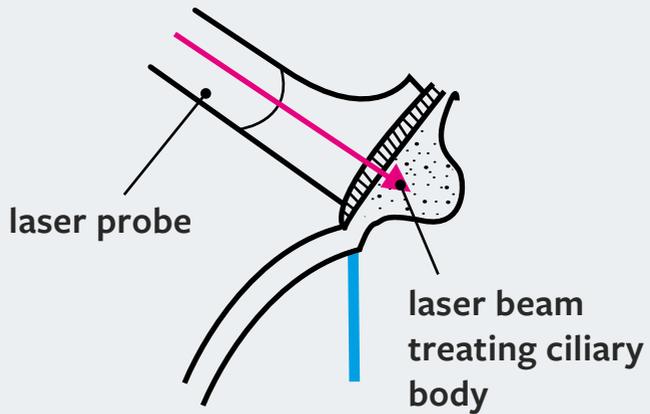
After this procedure is carried out, anti-scarring treatment can be given, and sometimes a jelly-like substance is used to increase the effect of the anti-scarring injection. This jelly may occasionally be visible as a transparent lump around the eye which disappears after a few days.

Diode laser

Sometimes laser treatment is recommended. In this special form of laser treatment, an invisible laser is shone through the white coat of the eye onto the ciliary body (the tissue which produces the aqueous humour within the eye). This produces very small burns in the ciliary body and reduces the amount of aqueous humour the eye makes, resulting in a fall in the IOP. This is a relatively gentle treatment, but it often needs to be repeated several times.

Figure 6

Diode laser



Sometimes the eye is a little red and inflamed after the procedure and steroid drops are required. Very occasionally, tablets or drops which act like aspirin may be needed to reduce the inflammation after the laser treatment. It is usually necessary to continue treatment with glaucoma eye drops and repeat laser treatment may be required.

Eye patching

If one eye is found to be lazy after examination, then patching treatment may be required. This involves putting a patch on the good eye to force the weaker eye to work harder.

A lazy eye occurs because the brain prefers to receive the signal from the better eye and switches off the connections to the weaker eye. If this is allowed to happen, normal connections between the weaker eye and the brain do not form and the vision in the eye is reduced,

even though the eyeball itself may be in perfectly good condition. The patching treatment forces the brain to develop connections to the weaker eye.

It is extremely important to persist with this patching treatment, as once the pressure is controlled, a good balance between the eyes may be the single most important factor in determining whether the eye sees well or not.

Glasses

During the anaesthetic, or later on in the clinic, the power of the eyes will be checked. This can be done while the child is asleep by using a series of special lenses and a light which reflects off the back of the eyeball (retinoscopy). In older children this can be done in the clinic. If it is found that glasses are needed, these will be prescribed.

Sometimes glasses need only be worn during the patching treatment, and sometimes they will be dispensed for continuous wear. If necessary, a pair of tinted glasses will also be dispensed for use in bright light because of the sensitivity to light found in many children with congenital glaucoma.

07 How good will my child's eyesight be after treatment?

It is extremely difficult to give a definite prediction of how good a child's eyesight will be after treatment, especially when the child is very young. Many children with glaucoma who have been treated have excellent vision in adult life.

However, the most important thing is control of the IOP and then, following that, further treatment if necessary with glasses and patches to ensure that the vision develops normally. As the child grows older the specialist will have a better idea of how good their longterm vision will be.

Following successful treatment, the child will need to return to the clinic at regular intervals for check-ups.

Children with glaucoma need to have their condition monitored for life, as a further rise in eye pressure later on in life may have no symptoms.

08 How can I help my child to live with glaucoma?

Is my child in pain?

When a baby or young child develops glaucoma they are often miserable, and this is one of the concerns that first alerts the family and doctors to the problem. The baby may be crying a lot and feeding poorly, and the eye is red and watery. The baby is particularly upset by bright lights and may try to bury its head in the pillow. The colour of the eye may seem.

Will crying hurt the eye more?

For the front of the eye to stay healthy, it needs the moisture of tears. Tears contain natural antibiotics. Forming a lot of tears when a baby cries does no damage.

Should I worry if my child bangs their head?

Obviously a severe blow to the head could cause injury to any child and if there is any concern, seek a doctor's advice immediately.

Minor knocks and bumps are a normal course of events in any toddler's life, but an enlarged eye is more fragile than a normal eye. If there is sudden marked change in the vision or the eye looks cloudy, has blood inside or if

the eye is causing the child pain, then seek medical advice immediately. If a child with glaucoma receives a hard knock directly on the eye (rather than on the head or face) then they should be examined by an eye specialist without delay.

Can my child play sport, go swimming and so on?

If the eye has become greatly enlarged then it may easily be damaged by a direct blow. If this is the case, rough sports such as rugby are inadvisable.

Protective glasses are available for ball sports, and are especially recommended for playing squash.

In some cases, for example if your child has recently had eye surgery (especially if it is a trabeculectomy), you may be advised not to allow them to swim for some time in order to avoid infection. It is recommended that you seek the advice of your own surgeon regarding your child's individual needs.

Any sports or activities which require the head in a downward position, should be avoided.

09

How do I deal with my child's medications and treatment?



Eye drops and sometimes tablets or syrup are an important part of glaucoma treatment. It is a good idea to keep a written record of the treatment and show it to your doctor at each visit so that there are no misunderstandings about the type and frequency of medications.

What is the best way to put eye drops in my child's eye?

When drops are first prescribed, you will be shown how to put them in. Often it is easier to wait until a baby is asleep before putting drops in the eye. It can be helpful with a small baby to wrap him/her tightly in a blanket so that you can concentrate on opening their eyelids rather than keeping little arms and legs from knocking the bottle from your grasp. Older children could stand, sit or lie whilst you pull down the bottom lid, making a pocket for the fluid to drop into.

How important is the timing of eye drops?

Drops only work for a number of hours. The precise amount of time varies depending on the type of eye drop. Putting in two drops of one drug will not work twice as well. If you have two or more different drops to use, try to wait 5-10 minutes, if possible, between drops. This prevents the first drop from being washed out by the second. It is always best to ask the advice of your own specialist in order to make a daily timetable for inserting eye drops.

Do the drops hurt or sting?

Some eye drops sting a little. This usually lasts for less than a minute and feels rather like the smarting you feel when you accidentally get soap in your eyes. Some drops may cause an ache over the eye for a few minutes after putting them in.

How do eye drops work?

There are many types of eye drops. Those that are given

for eye pressure work in two main ways: by reducing the amount of aqueous humour formed in the eye or by opening up the filter system.

Why do some eye drop leaflets advise that they are ‘not to be used in children’?

This warning is given by the pharmaceutical companies on virtually all drop leaflets, but in fact the drops may be used at the discretion of the eye specialist treating the child.

Do eye drops affect my child’s vision?

Most of the eye drops used in children’s glaucoma do not cause any blurring of vision.

Can my child take tablets instead?

A medicine taken by mouth is more likely to cause side effects than one applied directly to the eye. For these reasons, tablets are less often prescribed to children with glaucoma. If tablets are used they can be crushed up in juice or jam. Sometimes a liquid form of the tablets may be available.

How long will eye drops be needed?

This depends upon the reason why the drops are being used, e.g. for inflammation of the eye after an operation, for infection, or for glaucoma itself. The only person who can answer this question is your child’s eye surgeon.

How should the eye drops be stored?

Storage instructions will be printed on the leaflet enclosed

with the drops – always read this as they vary. Generally speaking, a cool place below 25 degrees Celsius or in the door of the refrigerator if the instructions say so. The pharmacist will advise you. Some drops need to be stored in the fridge before use but can be left out afterwards so always read the leaflet carefully.

Always keep them out of the reach of children. Eye drops are drugs and if swallowed can cause illness. Once opened, drops should be thrown away after 28 days (even if the bottle is not finished). Make sure that you always have a new bottle ready to use if the doctor wants your child to use the drops continually.

Is it necessary to tell the specialist about other medical problems?

Always give the doctor as much information as possible about your child's state of health. In particular, it is vital that they know about asthma, allergies and any heart or kidney problems. Likewise, the child's G.P. or doctors who are treating the child during a hospital stay should be reminded that the child takes glaucoma eye drops, particularly when they prescribe other medications.

10 What drops and tablets can be used to treat glaucoma?

Eye drops

1. Beta-blockers

This type of drop includes Timoptol, Timoptol preservative free, Timoptol LA, Nyogel (timolol maleate), Tiopex maleate (timolol 0.1% preservative free), Betagan (levobunolol hydrochloride), Beoptic (betaxolol hydrochloride).

These drops reduce the amount of aqueous humour produced by the eye. They are usually used twice a day, although they can sometimes be prescribed for use once a day.

Occasionally these eye drops may cause problems with breathing or slow the heartbeat. If your child has asthma, any other breathing trouble or heart problems, you must advise the doctor.

If your child develops symptoms such as wheezing or coughing at night, contact the doctor as their eye drops may have to be changed.

2. Pilocarpine (licensed) (pilocarpine hydrochloride)

These eye drops are used to increase the amount of aqueous humour that flows out of the eye by opening up the filter system. They usually have to be used three to four times a day, unless combined with other drops. Pilocarpine can sometimes be given in an ointment form (Pilogel) once at night. These drops may give rise to a little stinging and a slight aching around the eye for some minutes after they are used.

Older children may say that their vision becomes blurred for a little while, as the drops make the eye focus for close vision. If your child notices flashing lights or floaters (specks moving across their vision) after these drops, you must let your specialist know straight away.

3. Topical carbonic anhydrase inhibitors

This type of drop includes Trusopt, Trusopt preservative free (dorzolamide hydrochloride), Azopt (brinzolamide) Timolol and dorzolamide, generic and branded. This type of drop can also be combined with Timolol (Cosopt, Cosopt preservative free) and Azopt (Timolol and brinzolamide) and also Brimonidine (with brinzolamide simbrinza).

These eye drops reduce the pressure in the eye by reducing the amount of aqueous humour produced by the eye. These drops usually have to be used three times a day, although they can be prescribed for use twice a day in combination with other drops.

4. Alpha adrenergic stimulants

This type of drop includes lolidine (apracionidine hydrochloride), Apraclonidine preservative free, Alphagan (brimonidine tartrate).

These drops reduce the amount of fluid produced by the eye. They have to be used twice a day. Young children may occasionally feel dizzy, tired or develop nightmares on these drops, especially with Alphagan and if so you must contact the specialist immediately.

Alphagan is not normally used in very young children as it causes sleepiness.

5. Prostaglandin stimulants

This type of drop includes Xalatan (latanoprost), Monopost (latanoprost preservative free), Lumigan (bimatoprost), Lumigan preservative free, Travatan (travaprost), Saflutan (tafluprost).

These drops increase the flow of fluid out of the eye. After prolonged use, they may make the coloured part of the eye (iris) darken in a few patients who have light-coloured eyes. This iris darkening occurs slowly, and will not progress when the drop is stopped, but is permanent. The eyelashes may also grow long and thick.

There may occasionally be a slight darkening of the skin around the eye in a few patients which is usually reversible.

6. Antibiotic eye drops

This type of drop includes Chloramphenicol, Gentamicin, Ofloxacin (exocin), Levofloxacin (oftaquix).

These antibiotic eye drops are generally used after surgery to prevent infection. They are normally stopped after a few weeks, but may occasionally be continued for longer periods.

7. Steroid eye drops

This type of drop includes Maxidex (dexamethasone), Predsol 1% Forte (prednisolone), Predsol 0.3% (prednisolone), Vexol (rimexolone), Lotemax (loteprednol), FML (fluoromethalone).

These eye drops are usually used to prevent inflammation and redness of the eye after surgery. They also help to prevent scarring and are used for several months after surgery, or for a week or two after laser treatment.

Tablets

Occasionally tablets are used to reduce the IOP. These tablets, Diamox (acetazolamide), are very strong and reduce the pressure considerably. However, they can have many side effects and these include tingling fingers, poor appetite, skin rashes, bed wetting at night, occasional behavioural disturbance and in a few patients in the long-term, kidney stones.

11

What happens at follow up visits to the clinic?

What is the doctor looking for?

The child's vision will be assessed. The doctor will look for a squint (strabismus). They will also see if the eye has enlarged and whether there is any redness or clouding of the eye. If possible the IOP will be measured and the appearance of the optic nerve head recorded by looking through to the back of the eye.

Why are drops put into the eye when it is being examined?

Sometimes drops are needed to enlarge the pupil in order to see the retina and the head of the nerve of the eye (optic disc). These drops also make it possible for the doctor to test for spectacles. Drops which contain local anaesthetic and a yellow dye (fluorescein) may be used to enable the specialist to measure the IOP in the eye including using a special instrument with a blue light (Goldmann tonometer).

How often should my child be checked?

The frequency of check-ups varies for each child and depends upon many factors. The specialist will decide.

At what age can my child be examined without anaesthetic?

This varies considerably. Many children by the age of five years will allow the specialist to check the eye pressure using the Goldmann tonometer (with a blue light). At younger ages, air puff methods of checking eye pressure may be helpful but are not always accurate for high pressures in large eyes. Sometimes a variety of other hand held instruments (for example Tonopen, iCare Tonometer) are used.

Should parents and siblings of a child with glaucoma have their eyes checked too?

As some forms of glaucoma occur in families, the doctor will usually examine both parents and siblings when a child is diagnosed. It is very rare for the type of glaucoma found in children to be found for the first time in adults.

Why should we see a genetic counsellor?

Not all types of developmental glaucoma are hereditary. However, your family may find it helpful to speak to a genetic counsellor who will advise you on the possibility of a further child being affected by glaucoma and the risk to subsequent generations. This knowledge will also be helpful for your child in the future.

12

Further help and information from Glaucoma UK

Glaucoma UK is here for anyone affected by glaucoma. For help and advice:

Call our free glaucoma helpline

01233 64 81 70

Monday - Friday 9.30am - 5.00pm

Other useful contacts:

Benefits line: 0300 20 03 100

Blind children UK: 0800 78 11 444

Visit our website:

glaucoma.uk

for information and advice. You can also order a range of free booklets online and use the user forum to ask questions and share experiences with other people living with glaucoma.

Email us

helpline@glaucoma.uk

A full list of references and information sources used in the compilation of this leaflet is available on request by phone: **01233 64 81 70** or by email: **helpline@glaucoma.uk**

Glaucoma support groups

We have many support groups around the country run by hospital staff for the benefit of people with glaucoma. A list of these, along with contact details, can be found in our newsletter or on our website at **glaucoma.uk**

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Other free advice booklets that may be helpful

- Aqueous Shunt Implantation
- Eye Drops and Dispensing Aids
- Glaucoma: A Guide
- Ocular Hypertension: A Guide
- Secondary Glaucomas
- Trabeculectomy

All our information booklets are free and can be downloaded or ordered at www.glaucoma.uk

About Glaucoma UK

- We fund sight-saving research into the early detection and treatment of glaucoma
- We campaign to raise awareness of glaucoma so that no one loses their sight needlessly
- We provide support that helps people to live well with glaucoma

Each year in the UK over 11,000 people are diagnosed with glaucoma. We are passionate about supporting them and are committed to providing our services free of charge to anyone who needs them. It is only through the generosity of our supporters that we can do this.

Help us save sight and fund research

- make a donation by calling **01233 64 81 64**
- donate online at **www.glaucoma.uk**
- become a member for £17.50 a year. Join online or call **01233 64 81 71**

Your support will make a difference to people with glaucoma today and will protect future generations from unnecessary glaucoma sight loss.



The information in this leaflet was correct at the time of printing (printed 06/2020).

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Whilst every step has been taken to compile accurate information and to keep it up to date, we cannot guarantee its correctness and completeness.

Glaucoma UK and the author cannot take responsibility if you rely solely on the information in this booklet. The information provided is designed as an addition to, and not a substitute for, professional advice from a qualified doctor or other healthcare professional, which will be tailored to a patient's individual circumstances.

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