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A-Z of Eyes

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CESP's A-Z of Eyes

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Anophthalmos (Loss of one eye)

It is very rare to be born with an eye missing, but an eye can be lost at any time in life due to trauma, infection or disease. When surgery is performed to remove a damaged eye the operation is called enucleation. Once the eye has been removed the surgeon inserts a prosthetic implant into the eye socket to create as normal an appearance as possible.

Eye implants

Eye implants can be made from several different materials. Common materials currently used include:

- Hydroxyapatite, a calcium phosphate hydroxide compound which is derived from marine coral. This material is also found in bone. It is porous and allows blood vessels to grow around it, so that the implant essentially becomes part of the eye socket.
- Silicone
- Glass
- Grafts of fat from elsewhere in the body

Astigmatism

Astigmatism means that the front of the eye is not entirely spherical like a soccer ball, but shaped more like a football, (i.e. it is not equally curved in all places). This means that the rays of light are bent unequally, therefore giving a distorted or blurred image at all distances.

Astigmatism can be found either alone, or in conjunction with myopia or hypermetropia. Laser surgery can treat astigmatism alone or when found in conjunction with myopia or hypermetropia.

Blepharitis

Blepharitis is a common and persistent inflammation of the eyelids. Symptoms include irritation, itching, and occasionally, a red eye.

This condition frequently occurs in people who have a tendency towards oily skin, dandruff, or dry eyes. Blepharitis can begin in early childhood, producing granulated eyelids, and continue throughout life as a chronic condition, or develop later in life.

Bacteria reside on the surface of everyone's skin, but in certain individuals they thrive in the skin at the base of the eyelashes. The resulting irritation, sometimes associated with over activity of the nearby oil glands, causes dandruff-like scales and particles to form along the lashes and eyelid margins.

Sometimes the scaling or bacteria produce only minor irritation and itching, but in some they may cause redness, stinging or burning. Some people may develop sensitivity to the scales or to the bacteria which surround them. This can lead to more serious complications - inflammation of the eye tissues, particularly the cornea (the clear front window of the eye).

How is blepharitis treated? Blepharitis is a condition that may not be cured, but can be controlled with a few simple daily measures:

- At least twice a day wet a washcloth with lukewarm water then wring it out and place over the closed eyelids for a minute. Re-wet it as it cools, two or three times. This will soften and loosen scales and debris. More importantly, it helps liquefy the oily secretions from the eyelids' oil glands and helps prevent the development of a chalazion, an inflamed lump in an eyelid oil gland.
- With a moist cotton bud, or commercial lint-free pad, gently scrub the base of the lashes about 15 seconds per lid.
- If an antibiotic ointment has been prescribed, apply a dab at the base of the lashes (usually at bedtime), using your fingertip.

The above simple, daily hygienic measures will minimise the symptoms but additional medications might be needed to control blepharitis and its symptoms:

- Artificial tears may be used to relieve symptoms of dry eye.
- Steroid eye drops may be used short-term to decrease inflammation.
- Antibiotic ointment may be used to decrease the bacterial content of the eyelids.
- Antibiotic tablets may be used to decrease the oil production from the meibomian glands.

Blocked Tear Ducts

The tear film protects the eye from infection and allows clear vision. It constantly replenishes itself, washing across the front of the eye, entering the inner corner of the eye, and passing downward into the tear sac and through a vertical passage (the tear duct) to the back of the nose.

Blocked tear ducts in babies

Up to twenty per cent of babies have blockages of one or both tear ducts when they are born, causing watery eyes and sometimes eye infections. The condition may be cured by daily massaging of the side of the nose, which increases the fluid pressure and forces the tear duct to open. In eighty per cent of babies the blockage resolves by six months of age.

Treating blocked tear ducts

If the tear duct does not open on its own or with the aid of massage, it may be necessary for your ophthalmologist to unblock it using a small probe. This is a minor procedure lasting no more than twenty minutes, with the child being given a mild anaesthetic. Probing of the tear duct is successful 90% of the time, however sometimes a second probing is needed.

Conjunctivitis

Conjunctivitis is the term used to describe inflammation of the conjunctiva. In ordinary terms, conjunctivitis is simply the most common cause of red or "pink" eye.

The white of the eye (sclera) is covered by a thin, filmy membrane called the conjunctiva which produces mucus to coat and lubricate the surface of the eye. It normally has fine blood vessels within it, which can be seen on close inspection. When the conjunctiva becomes irritated or inflamed, the blood vessels which supply it enlarge and become much more prominent, and the eye turns red.

What causes conjunctivitis?

Many different sources of eye irritation can cause conjunctivitis. The most common are:

- Infections
- Allergies
- Environmental irritants

Because the conjunctiva is a simple tissue, it responds to all these stimuli in one way; it turns red.

Infectious causes of conjunctivitis include bacteria and viruses. Bacterial infections, such as staphylococcus or streptococcus, cause a red eye which is associated with considerable amounts of pus. If the amount of discharge from the eye is great, an acute infection is likely, and prompt consultation with an ophthalmologist is advisable.

On the other hand, some bacterial infections are more chronic and may produce little or no discharge except for some mild crusting of the eyelashes in the morning.

Viruses are also common causes of conjunctivitis. Some viruses produce the familiar red eyes, sore throat, and runny nose of a common cold. Others may infect only one eye. Viral conjunctivitis usually produces a watery discharge and lasts from one to two weeks.

Infectious conjunctivitis, whether bacterial or viral, can be quite contagious, so contact with the patient's tears through used handkerchiefs and towels should be avoided. Hand washing after contact with the patient helps to prevent spread of the infection.

Allergies tend to cause a type of conjunctivitis which produces a discharge. Some kinds of allergies, like hay fever, make the eyes very itchy, while others may merely produce a chronic redness. Finally, environmental irritants such as smoke or fumes may cause conjunctivitis. Any type of conjunctivitis is aggravated by dryness of the eyes.

What are other causes of red eyes?

There are several eye diseases which also produce a red eye and which can lead to blindness unless recognised and treated. It is important to avoid confusing them with conjunctivitis, so a medical evaluation of a red eye, by an ophthalmologist, is always a good idea. This is especially important if there is pain or blurred vision. Severe symptoms are not typically found in simple conjunctivitis. Pain, blurred vision, or severe light sensitivity may signal the presence of glaucoma, an ulcer of the eye, or an inflammation of the inside of the eye.

Corneal Abrasions and Erosions

A corneal abrasion is an injury to the epithelium. Abrasions are painful. Common causes of corneal abrasions include problems from contact lenses, fingernails, paper cuts, tree or bush limbs or rubbing of the eye. There are some eye conditions, such as dry eye, that may make injury more likely.

The corneal surface usually heals within a day or two, but the eye may be very uncomfortable while it is healing. Tearing, light sensitivity and the feeling that something is in the eye-'foreign body sensation'-will accompany even a small abrasion.

How are abrasions treated?

A common treatment is to patch the scratched eye, thus preventing the blinking eyelid from moving over the healing area. Another common treatment is repeated application of ointment to the eye, which forms a soothing layer between the inner eye lid and the abrasion. Antibiotics are often used because of the small risk of infection. Sometimes a drop is used to dilate the pupil to help with pain associated with light sensitivity.

Even after the surface has healed, the cornea may still be sensitive to wind and dust. Often, additional lubrication is helpful, both during the day and at bedtime, until the sensitivity has disappeared. Some other diseases, such as dry eye or diabetes, may slow healing.

What is corneal erosion?

Corneal erosion is a spontaneous breakdown of the epithelium, sometimes at the site of an earlier abrasion. The symptoms are similar to a corneal abrasion: foreign body sensation, tearing and light sensitivity. These symptoms may vary, are often unpredictable and may occur upon awakening. Erosion may occur when the eyes are dry or irritated.

How are corneal erosions treated?

Several treatments are used to alleviate the discomfort of erosions and to speed healing:

- Lubricating drops and ointments;
- A special contact lens used to bandage the cornea;
- Micro-puncture of the epithelium;
- Removal of the damaged epithelium;
- Therapeutic excimer laser to the damaged layer beneath the epithelium.

Cystoid Macula Oedema

Cystoid macula oedema, commonly called CME, is a painless disorder which affects the retina, the light-sensitive inner lining of the eye. When this condition is present, clear fluid fills multiple cyst-like (cystoid) formations in the macula, the portion of the retina responsible for central or "straight ahead" vision. This creates macula swelling, or oedema. Although the exact causes of cystoid macula oedema are not known, it may accompany a variety of diseases such as retinal vein occlusion, uveitis or diabetes. It most commonly occurs after cataract surgery. About two percent of those who have cataract extractions will experience decreased vision due to cystoid macula oedema in the first year, usually from two to four months after surgery.

If the disorder appears in one eye, there is an increased risk--as high as 50%--that it will also affect the second eye. Fortunately, however, most patients recover their vision after some time.

What are the symptoms of cystoid macula oedema?

The most common symptoms of cystoid macula oedema is blurred or decreased central vision (cystoid macula oedema does not affect peripheral or side vision).

There may also be painless retinal inflammation or swelling. However, the condition may be present even when no visual loss occurs.

How can cystoid macula oedema be treated?

Signs of retinal inflammation are usually treated with anti-inflammatory medications, including cortisone-like drugs (steroid drops, tablets or local injections) or anti-inflammatory drugs. Diuretics such as Diamox may help to reduce the swelling in some cases.

If the vitreous (the clear, gel-like substance that fills the centre of the eye) is believed to be the source of the problem, laser surgery might be recommended.

Another procedure called a vitrectomy can be used to suction the vitreous out of the eye and replace it with a clear solution.

A great deal of research is presently being conducted to determine the causes of cystoid macula oedema. Hopefully, this research will lead to more exact prevention and treatment measures in the near future.

Droopy Eyelids

Your eyes, framed by their lids and brows, may well be the first thing people notice about your face. Over time, the eyelids and even the eyebrows can become 'droopy' or 'baggy' as the skin stretches, muscles weaken and fat pockets bulge. This commonly occurs with age, but may also have a hereditary element.

Besides making you appear tired or older, drooping eyelids can obscure your vision and create difficulty in wearing glasses.

If you are concerned about drooping of your eyelids, you may be helped by an operation known as blepharoplasty. Blepharoplasty is cosmetic eyelid surgery.

Eyelid Skin Cancer

Skin cancer can occur on the skin of the eyelid or area surrounding the eye. Usually, the cancers appear as painless elevations or nodules. There may be ulceration of the involved area, along with bleeding, crusting and/or distortion of the normal skin structure.

What causes eyelid skin cancer?

As with all skin cancers excessive exposure to sunlight is the most important factor associated with eyelid skin cancers. They are also more common in fair skinned people. Skin cancers may be hereditary.

Types of eyelid skin cancer:

- Basal cell carcinoma (this type tend not to spread to distant parts of the body)
- Squamous cell carcinoma (this type tend not to spread to distant parts of the body)
- Sebaceous gland carcinoma (This is a more serious type of skin cancer because it may spread to other parts of the body)
- Malignant melanoma (This is a more serious type of skin cancer because it may spread to other parts of the body)

Treatment

Complete removal of the tumour is necessary to minimise the possibility that it may recur. A pathologist will examine the tumour to make sure it has been completely removed. Once the tumour has been removed, reconstructive surgery is often necessary.

Herpes Simplex of the eye

Herpes simplex is a virus that infects the skin, mucous membranes, and nerves. There are two major types of herpes simplex virus (HSV). Type I is the most common and is responsible for herpes simplex eye disease and the familiar "cold sore" or "fever blister". Type II is responsible for sexually transmitted herpes, and it rarely causes eye disease.

An original infection with HSV Type I occurs in 90 percent of the population, usually during childhood or adolescence. The infection, sometimes only a mild sore mouth or throat, comes from close personal contact with an infected person, and it usually passes without notice.

After the original infection, the virus goes into a quiet or dormant period, living in nerve cells that supply the skin or eye. Occasionally, the virus reactivates and causes a recurrent "cold sore" or "fever blister".

What is herpes simplex eye disease?

The most common herpes simplex eye disease caused by HSV Type I is a recurrent eye infection of the cornea, the clear front window of the eye, which can potentially threaten sight. The infection varies in duration, severity and response to treatment, depending in part on which of several different strains of HSV Type I caused the original infection.

The disease usually begins on the surface of the cornea. The eye turns red, and it is sensitive to light. For most people this will be the only episode. Unfortunately, one out of four people who have a corneal infection are likely to have a recurrence within two years.

The process may go deeper into the cornea and cause permanent scarring or inflammation inside the eye. Chronic ulcers, which are sometimes very difficult to heal, may also develop on the cornea.

Herpes simplex eye disease usually occurs in only one eye and rarely spreads to the other eye. Spreading the infection to another person is unlikely. In people with poor immunity, the herpes simplex virus may infect other parts of the eye or body, such as the retina or brain, but this occurs infrequently.

It is important to remember that herpes simplex eye disease is not usually caused by HSV Type II, the sexually transmitted herpes. While possible, sexual transmission of herpes eye disease is extremely rare.

How is herpes simplex eye disease treated?

Treatment depends on the extent of the disease. Anti-viral eye medications are commonly used and may need to be applied frequently. At times it may be necessary to scrape the surface of the cornea, to patch the eye, or to use a variety of medications. These may need to be continued for many months. Occasionally therapeutic excimer laser treatment is required and, in cases of severe scarring and vision loss, a corneal transplant may be required.

Hypermetropia (Long-sightedness)

Hypermetropia is caused by one or a combination of the following:

- Flat cornea
- Short eyeball

Consequently light rays are focused behind instead of on the retina.

Long sighted people are able to see images in the distance more clearly than they can see images at close. Though most hypermetropic people are unable to see at either distance clearly without their glasses.

Laser surgery corrects hypermetropia by making the cornea steeper so the rays of light are refocused on the back of the eye.

There is a limit on the degree of hypermetropia that can be fully corrected, approximately 6 dioptries. If you are above the level of treatment it is still worth while coming for a consultation. The Doctors may be able to give you less dependence on glasses and contact lenses, or outline other treatment options available to you.

Injuries (Orbital trauma)

Orbital trauma is a general term used to describe injuries to the bones surrounding the eye (orbit), the tissues surrounding the eye or the eye itself. The following injuries can be categorised as orbital trauma:

- [Orbital foreign body](#)
- [Orbital penetrating injury](#)
- [Blow-out fracture](#)
- [Traumatic neuropathy](#)

Orbital foreign body

Something in your eye?

Sometimes foreign objects such as metal, dust, wood and others can hit and become embedded in the eye or orbit. If your symptoms and the circumstances in which they arose are suggestive of a foreign body your ocular plastic surgeon will ask a number of questions to try to determine the type and size of the object, as well as its speed and angle at impact.

What is it? Where is it?

The surgeon will thoroughly examine the eye looking for any damage to the eye or surrounding tissues. If there is a possibility that the foreign object is deep within the eye, X-rays or a CT scan may be needed to determine its location. A CT scan will also show whether there are associated fractures and if the object has penetrated into any deeper structures, such as the brain. If the foreign body is wooden it may not be seen on X-ray or CT, and an MRI scan may be necessary.

Treatment

These tests are all necessary to determine whether the foreign body should be surgically removed. Following removal of the foreign body, antibiotics will be prescribed to avoid any infection.

Orbital penetrating injuries

What is an orbital penetrating injury?

A penetrating eye injury means an object has pierced the tissues surrounding the eye or the eye itself.

How can you tell if the eye has been penetrated?

When a facial injury involves the eye area and causes significant skin trauma, penetrating injuries to the eyelid, eye, eye muscle, bone or even the brain may not be immediately obvious. A complete eye examination is necessary to exclude injury to these structures. If the object has penetrated into the area of the brain, a neurological examination may also be necessary.

What treatment will be necessary?

Once the extent of the damage has been determined, the ocular plastic surgeon will concentrate on surgically repairing the damaged tissues.

Orbital blow-out fractures

What is a "blow-out" fracture?

The bony, pear-shaped socket that surrounds and protects the eye is called the orbit. When an object larger than the size of the orbital entrance hits the eye but doesn't penetrate, the force can literally cause a "blow out" of part of the orbit. The bone that forms the floor of the orbit is particularly prone to this type of fracture, known as a blow-out fracture. Blow-out fractures often occur when a fist or ball, or the dashboard of a car during a motor vehicle accident, strikes the eye.

A possible complication of orbital floor fracture is that the eye may partially drop down into the maxillary sinus, which is directly beneath the orbital floor, trapping some of the muscles that move the eye.

Diagnosing orbital blow-out fracture

Warning signs of orbital blow-out fracture include bruising around the eye, double vision, protrusion of the eye and/or numbness in the cheek and upper teeth areas. The ocular plastic surgeon will examine the eye carefully whether it has been damaged. A CT scan will also be performed to assess the extent of the fracture.

Treatment of orbital blow-out fracture

Based on the complete evaluation, your ocular plastic surgeon may recommend surgery. Factors influencing the timing of surgery include persistence of double vision, enophthalmos (the eye appears shrunken in the orbit as the swelling subsides), any limitation of eye movements and the size of the fracture.

Traumatic optic neuropathy

What is traumatic optic neuropathy?

The optic nerve runs from the back of the eye to the brain, where images from the eye are processed and interpreted. Some people who sustain a head injury damage their optic nerve. This can be due to fractures of the bony canal that the nerve runs through, or from swelling or damage to the blood vessels supplying the optic nerve. Traumatic optic neuropathy causes loss of vision in the affected eye.

How is it diagnosed?

Loss of vision is usually instantaneous. A full eye examination is performed to assure no damage has occurred to the eye itself, as well as a CT scan or MRI scan to assess the optic nerve and nerve canal.

Can traumatic optic neuropathy be treated?

Treatment may consist of:

- Intravenous steroids (cortisone drugs) to decrease the inflammation of the nerve
- Surgery to correct any fractures

All people with this condition will be closely monitored in hospital.

Keratoconus

Keratoconus is an uncommon condition in which the cornea (the clear front window of the eye) becomes thin and protrudes. Keratoconus literally means a cone-shaped cornea. This abnormal shape can cause serious distortion of vision.

What causes keratoconus?

Research indicates that keratoconus may be caused by an excess of enzymes that break down the proteins within the corneal surface, causing the cornea to thin and protrude

The genetic inheritance of keratoconus has not clearly been determined. It appears that it may involve a number of different genes. Blood relatives of someone affected with keratoconus may have minor changes in their corneas that indicate that keratoconus probably varies both in the specific genetic cause, as well as in its expression within a family.

Vigorous eye rubbing may contribute to the disease process. People with keratoconus should avoid rubbing their eyes. This is sometimes very difficult because some allergies, which cause itchy, irritated eyes, are more commonly associated in patients with keratoconus.

What are the symptoms of keratoconus?

Blurring and distortion of vision are the earliest symptoms of keratoconus. Symptoms usually appear in the late teens or early twenties. The disease will often progress slowly for 10 to 20 years, and then stop.

In the early stages, vision may be only slightly affected, causing glare, light sensitivity and irritation. Each eye may be affected differently. As the disease progresses and the cornea steepens and scars, vision may become distorted.

A sudden decrease in vision can occur if the cornea swells. The cornea swells when the elastic part of the cornea develops a tiny crack, created by the strain of the cornea's protruded cone-like shape. The swelling may persist for weeks or months as the crack heals and is gradually replaced by scar tissue.

How is keratoconus treated?

If eyeglasses cannot fully correct vision, rigid contact lenses can make a remarkable difference in the clarity of vision. Newer materials and designs enable many people with keratoconus to enjoy wearing contact lenses longer.

Other ocular conditions are often seen in association with keratoconus, such as atopic or allergic red eye (conjunctivitis). These conditions can be treated with the appropriate drops and cleansing routine to enable comfortable contact lens wear.

When contact lenses cannot improve your vision adequately, a corneal transplant may be necessary. Less than 5% of people with keratoconus will require corneal transplant surgery. Keratoconus is one of the most common reasons for corneal transplant, and one of the most successful.

Lagophthalmos

Lagophthalmos is inability to fully close the upper eyelid with diminished ability to blink and impairment of the tear duct pumping system. Normally each blink spreads the tear film over the eye's surface, allowing a continuous layer of moisture. If the eye is not closing properly, its surface can dry out, damaging the cornea.

What causes Lagophthalmos?

Various conditions can cause partial or complete paralysis the muscle controlling upper eyelid movement. Rarely, lagophthalmos is present at birth. More commonly it is associated with paralyzing conditions such as Bell's Palsy or stroke. It can also occur after head trauma, head surgery, infections and tumours.

What treatments are available?

Treatment depends on how long the lagophthalmos is expected to last. In some cases it will be long-standing or permanent but often the goal is to keep the eye healthy while the condition resolves on its own.

Medical (short-term) treatment is aimed at keeping the eye moist to protect the cornea. This is done via frequent instillation of ointments or drops. Ointments tend to be more effective; however, they may cause blurry vision for a while after they are applied.

Surgical (longer term) treatment is aimed at closing the eyelids to prevent corneal dryness. Several surgical procedures can be used:

- Lateral tarsorrhaphy is the usual method. It involves stitching the outer edges of the upper and lower eyelids together. It can limit side vision.
- Medial tarsorrhaphy is generally used as a last resort, as it is more disfiguring than lateral tarsorrhaphy. The eyelids are joined at the inner corners.
- Tarsorrhaphy can be temporary or permanent.
- The lower eyelid can be elevated using a face lift or an implant.
- A light weight can be inserted into the upper eyelid, allowing it to close more easily.

Macular Hole

What is a macular hole?

A macular hole is a small hole in the middle of the most sensitive part of the retina – known as the macula. The retina is the light sensitive layer lining the back of the eye. The condition usually arises spontaneously but may be associated with trauma in some patients. The current expert opinion as to the cause of macular hole is that there is a shrinkage in the vitreous gel which acts to stretch the retina. The retina may give way at its thinnest point (the fovea – the middle of the macula) and a small hole forms. There will be a tiny pocket of fluid under the edges of the hole which cause distortion of the vision.

Macular holes often arise in patients between 55-75 years of age and will gradually progress to a point where eye sight remains poor.

What are the symptoms?

Initial blurring of vision together with marked distortion of straight lines are the most common symptoms. When the hole is quite large central objects may disappear from the vision and reading is quite badly affected.

Floaters and flashing lights are not common symptoms in macular hole.

In some patients the other eye may be affected – the overall risk of the condition occurring again in the other eye is about 1 in 5 patients over a 5 year period.

What can be done?

You will require a consultation with an eye surgeon who specialises in problems at the back of the eye - a vitreo-retinal surgeon - who is experienced in treating macular holes. It is important not to delay your appointment as it is clear that patients benefit from treatment if they present early to their specialist.

The surgery

Depending on the examination findings your consultant is likely to offer you surgery (Vitreotomy). This involves removal of the vitreous gel at the back of the eye, together with any membranes on the retina. A bubble of special gas (SF₆) is placed inside the eye at the end of surgery and you may be asked to lie in a face down position for the first few days after the operation. If you have a cataract your surgeon may remove this at the same time.

What happens after surgery?

You are likely to have poor vision in the eye for up to four weeks after surgery and it can be as long as eight weeks before the gas bubble disappears. During this time you are not likely to feel safe to drive even if your vision is normal in your other eye.

The macular hole usually closes in the first week after the operation and many patients report an improvement in vision after the first 1-2 weeks. The gas bubble makes you extremely short sighted but you might be able to make out a watch face at a distance of 3-4 inches which is an encouraging sign.

Well over 90% of macular holes can be closed by surgery. Occasionally the hole does not close, or in a few cases it can re-open after a few years. Further surgery may be advised for this and there is still a good chance of success.

What will my vision be like?

Patients who have had macular hole surgery are usually very pleased with their eye sight. The major benefit is the improvement in distortion which will allow them to read and drive without the annoyance of poor vision. Many patients will recover eye sight which meets the DVLA standard for driving. On very close analysis most patients will still find a tiny 'dot' of missing vision after surgery or a tiny area of distortion and this probably represents the site of healing of the macular hole. This rarely causes significant problems and is often not noticed in daily life.

What are the risks?

There is a small chance that surgery may not close the macular hole. In addition the surgery and the gas bubble make it very likely that a cataract will form after surgery (if not previously removed) within two years of the operation and further treatment may be needed for this.

Occasionally during surgery a retinal tear will form. This is usually treated at the time and there should be no consequences from it. Very rarely this might occur after surgery and there is then a risk of retinal detachment requiring further urgent surgery.

Monovision

Reading glasses are a fact of life for most people over 40, but many people find them extremely inconvenient. The hassle of having to bring your reading glasses with you wherever you go (to the restaurant, or to read a price tag in a shop, etc) can cause significant disturbance to your lifestyle. If this sounds like you, you may be suitable for a form of vision correction called monovision.

Why do we need reading glasses?

As we age, the natural lens inside our eye becomes less flexible and is no longer able to focus the eye on close work. This normal condition is called presbyopia and occurs in most people between the mid-forties and about 60 years of age.

What is monovision?

Monovision is the use of one eye for distance vision and the other eye for near vision reading. Usually your dominant eye is clear for distance, and the non-dominant eye is purposely left a little short-sighted so that you can read most things without glasses. This provides freedom from your reading glasses, although occasionally they may still be required for long periods of detailed close work.

Is monovision right for you?

If you are over 40 years of age and are starting to notice some problems with your reading vision, or if you already have reading glasses and find them less than satisfactory for your lifestyle, you could benefit from monovision. A good way to determine if monovision is right for you is to "test drive" the effect by wearing a pair of very thin and comfortable contact lenses for a few hours. We provide this service as part of our assessment for Laser Surgery or Conductive Keratoplasty, and have contact lenses to suit most eyes in stock here for this purpose.

What are the benefits of monovision?

The main advantage is freedom from your reading glasses. This can be particularly useful for people who need to see at a wide range of distances in their daily activities. People who are always on the move, with a combination of activities such as meetings, presentations, etc. find monovision particularly useful.

Are there any disadvantages?

Like all other good things, there is the occasional drawback. Some people are not ideally suited to monovision. This is often difficult to predict, so we usually simulate or "test-drive" the vision with a contact lens or spectacle lens so that you can experience it before you decide to have surgery. Some people notice slightly decreased depth perception, and this may make some activities more difficult, for example, when driving at night. Wearing a small prescription of glasses for driving can be helpful in these cases.

How is monovision achieved?

This type of vision is achieved by correcting the dominant eye for distance, and the non-dominant eye for close work. This can be achieved with contact lenses or, for the ultimate convenience, surgery. Often, only one eye will require surgery. Monovision can be achieved by a number of surgical options including Laser Surgery and Conductive Keratoplasty.

Which surgical procedure should you have?

Monovision can be achieved surgically by a number of procedures. Conductive Keratoplasty is a relatively inexpensive and non-invasive procedure, which generally suits people who have very good distance vision in each eye and have been wearing reading glasses for a few years, or are just starting to need reading glasses. For some people, Laser Surgery is more appropriate. These options will be fully discussed with you at your assessment, and the surgeon will recommend the procedure that will give you the best visual outcome.

Myopia (Short-sightedness)

Myopia is caused by one or a combination of the following:

- Steep cornea
- Long eyeball
- Powerful lens

Consequently, light rays focus in front of the retina, instead of directly on it.

Short-sighted people are able to see close up objects clearly, but objects in the distance are blurry and indistinct. People with moderate to high levels of myopia are unable to recognise things beyond arm's length without their glasses on.

Laser surgery corrects myopia by making the central cornea flatter, thereby refocusing light rays onto the retina.

There are different degrees of myopia. They are classified as:

- Low = 0 to -4
- Moderate = -4 to -8
- High = -8 and above

All of the above can be improved, but those in the higher range of myopia, may still need to wear a small prescription for certain activities. The laser is used to treat up to about 10 dioptres of myopia.

Nystagmus

Nystagmus appears as an involuntary constant movement of the eyes. The eyes appear to 'dance', 'shake' or 'jump' around. Nystagmus usually means that there is a problem with the eyes or the brain. It may be present at birth or shortly after (congenital) or it may occur later in life (acquired).

Congenital nystagmus

There are two types of congenital nystagmus:

Nystagmus due to poor vision is noticed typically between two and four months of age. Generally, the worse the vision, the more movement of the eyes. Possible reasons why a baby may have poor vision are cataract, albinism, optic nerve abnormalities and disorders of the retina. It is important that children with nystagmus be examined by an ophthalmologist to see if the underlying cause can be treated.

Nystagmus due to eye muscle problems is present at birth or soon after. It occurs when the normal balance of eye movements is disrupted. People with this kind of nystagmus may turn their heads or cross their eyes to slow the nystagmus, thus improving their vision.

Acquired Nystagmus

Older children or adults may develop nystagmus for various reasons including neurological disease, head injury, inner ear disease and stroke.

Treatment of nystagmus

Nystagmus due to poor vision does not usually improve even if the vision can be corrected. Treatment options for other types of nystagmus depend on the cause of the problem.

Posterior Vitreous Detachment (PVD)

What is Posterior Vitreous Detachment?

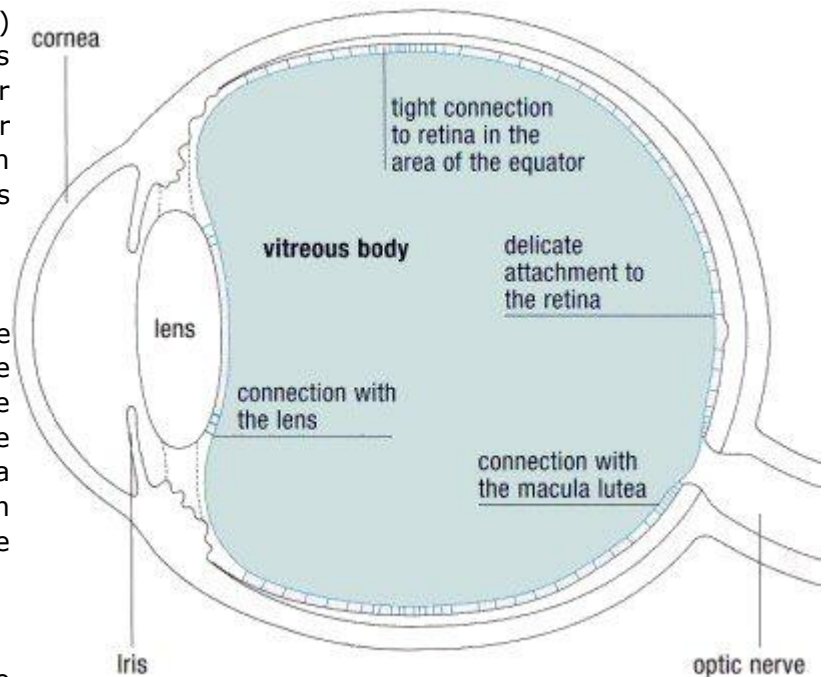
Posterior Vitreous Detachment (PVD) is a common condition which occurs in about 75 per cent of people over the age of 65. As people get older the vitreous jelly inside the eye can shrink – causing Posterior Vitreous Detachment.

What is the Vitreous?

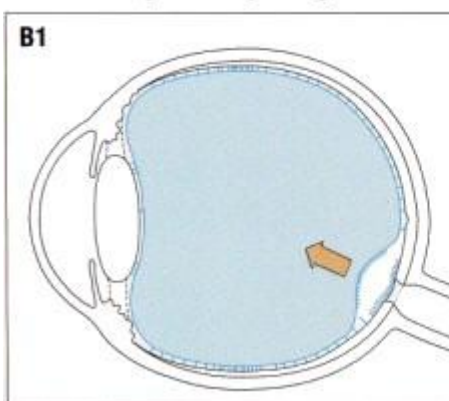
The vitreous is a clear jelly-like substance which takes up the space behind the lens and in front of the retina. It is 99 per cent water. The vitreous is attached to the retina more strongly in some places than others. When a PVD starts the vitreous separates from the retina.

Why does the vitreous detach?

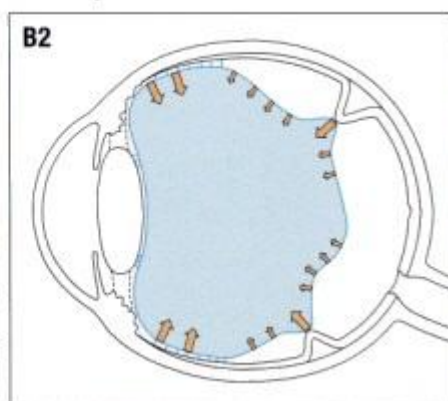
The vitreous shrinks with age. The central part of the vitreous becomes more liquid and the outer part (cortex) peels away from the retina. As it comes away from the retina it can cause the symptoms of posterior vitreous detachment.



Affected eye: Early stage



Incomplete detachment



What are the symptoms of PVD?

Many patients with PVD have no symptoms at all. Others may notice floaters or flashing lights. Floaters can take many forms from little dots, circles, lines, clouds or cobwebs. Sometimes people experience one large floater which can be distracting and make reading difficult.

The flashing lights that occur are also caused by the PVD. As the vitreous detaches from the retina it can pull on this light sensitive membrane. The pull of the vitreous in these areas stimulates the retina. This stimulation causes the sensation of flashing lights since the brain interprets all stimulation signals from the retina as light.

Can anything be done to help with the PVD?

Usually nothing has to be done medically for this condition. Fortunately many people find the symptoms fade after about six months. The brain tends to adapt to the floaters and eventually is able to ignore them.

In rare cases floaters can become persistent and annoying. Up until recently surgery was discouraged for this condition but new advances in vitrectomy surgery have made it possible to consider this option. Fine instruments are introduced into the eye to gently remove the vitreous gel and replace it with saline solution. Stitches are usually not necessary. Complications are rare but include cataract formation and retinal detachment.

Will I lose any sight?

Posterior vitreous detachment does not cause any permanent loss of vision. The only threat is the small chance of a retinal tear leading to a retinal detachment. Fortunately, very few people with PVD go on to develop either of these problems.

However it is not possible to tell whether a patient with symptoms of PVD might have a retinal tear. For this reason it is important that you seek urgent attention if you have new floaters or flashes. Your GP or optician should arrange for referral to an ophthalmologist to have a detailed retinal examination.

Are retinal tears serious?

Sometimes the vitreous is so firmly attached to the surface of the retina that as the jelly collapses it pulls firmly on the retina. In a few people this may lead to the retina tearing which in turn may lead to a retinal detachment.

Retinal tears are more common in people who are short sighted or have had previous eye surgery e.g. cataract extraction. There are a few families who have a genetic cause of retinal detachment.

Warning signs of a retinal tear or detachment include an increase in size and number of floaters, an increase in flashing lights or blurred vision. If you experience any of these symptoms you should seek medical advice within 24 hours. This is particularly important if you notice a dark "curtain" falling across your vision, as this may mean that the retina has already partially detached. Early intervention may allow treatment of a tear before it becomes a detachment and increase the chances of a good recovery.

Is there anything I can do to cope with these annoying symptoms?

Floaters can be particularly annoying. They get in the way of seeing things and can make reading difficult. There is a way of trying to cope with this that some people find useful. If you move your eyes around quickly you can create currents in the jelly within your eyes this can sometimes move the floater out of your direct field of vision.

This works best if you have one large floater rather than lots of small ones. Magnification can also help so that you are able to see around the floaters. Fortunately, most people find that floaters become less of a problem with time.

Presbyopia

Presbyopia occurs in all adults approximately 45 years or older. Presbyopia is a natural aging process of the lens inside the eye. This means that distance vision will be unchanged, but near vision will become blurry.

People who are mildly short-sighted will be unaffected by the symptoms of presbyopia, but people who have no prescription, or who are long-sighted or strongly short-sighted, will suffer from the symptoms of presbyopia.

Presbyopia is able to be treated by using an optical correction technique called Monovision.

Pterygium

A pterygium is a form of scar tissue with blood vessels, which grows towards the cornea, then into the cornea. It can be a source of irritation and redness, which can flare up from time to time, it can be a cosmetic problem, and occasionally it can lead to visual distortion by altering corneal shape. In doing this it can cause irregular corneal astigmatism. For a pterygium to become bad enough to cause visual distortion is unusual, as they mostly never proceed to this level. Sometimes a pterygium can be confused with a type of low grade skin cancer, which can occur and look a little like a pterygium.

How is a pterygium treated?

In most cases, a pterygium is better off without surgery. Decongestant eye drops can be used to make the eye less red, and artificial tear drops can make the eye more comfortable when it flares up from time to time. If these remedies allow the eye to remain comfortable and cosmetically acceptable, then surgery is not necessary. Reducing exposure to sunlight (ultraviolet light), wind, and dust by wearing protective sunglasses can also help to reduce irritation to a pterygium.

Surgery for pterygium

If the pterygium needs to be removed, this can be done surgically. See the section on [Pterygium Surgery](#).

Refractive Errors

For the eye to present a clear image, the light rays entering the eye need to come to focus on the back of the eye. In 35% of people the rays of light do not focus on the back of the eye, giving a blurred image at the brain. This is correctable by glasses or contact lenses and is known as a refractive error. Refractive errors can be the result of a number of factors, which include:

- The curvature of your cornea
- The optical strength of your lens
- The length of your eye

The three categories of refractive errors are: myopia (short sightedness), hypermetropia (long sightedness), and astigmatism. All of these are usually able to be corrected by laser surgery.

How do I tell which refractive error I have?

There are two ways to tell which form of refractive error that you have. The first is to ask your eye specialist or look at your prescription.

There are three main numbers on a prescription. There is a sphere, a cylinder and an axis. The cylinder and the axis are indicating the presence of astigmatism. NOT everybody has a cylinder correction, as not everybody has astigmatism. The cylinder is the amount of astigmatism that you have, and the axis is the orientation of the astigmatism.

The sphere, the first number on the prescription tells you if you are long-sighted or short-sighted. If the sphere is a positive (+) number then you are Hypermetropic (or long-sighted). If the sphere is a negative (-) number then you are Myopic or short-sighted.

The cylinder is the second number on the prescription, this can sometimes look like the bottom number of a fraction.

If your prescription has an Add, written below the main numbers, then this is the correction for your presbyopic or reading correction.

Retinal Detachment

The retina lines the inside of the eye. It is the important light-sensitive membrane which converts light into nerve signals which are then sent to the brain along the optic nerve. It is an extra-ordinarily delicate tissue which can easily be damaged leading to permanent loss of vision.

Retinal detachment is a serious eye condition which must be treated in a timely fashion to prevent loss of eye sight. Most patients with retinal detachment have had a posterior vitreous detachment (see [PVD](#) section) shortly before the onset of retinal detachment. Patients with symptoms of PVD need urgent assessment to rule out the presence of retinal tears or detachment.

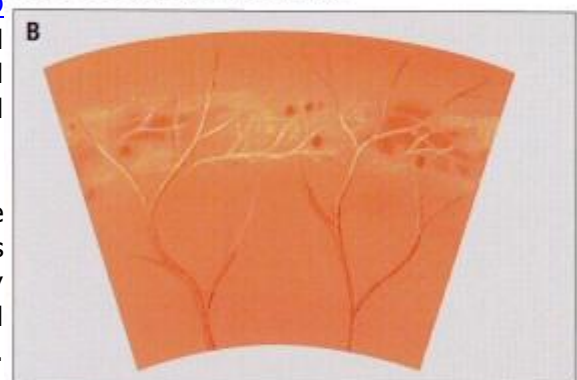
Retinal detachment is relatively rare but there are circumstances where the risk of retinal detachment is increased. This is the case in patients who are very short sighted (myopic) and in patients who have had recent cataract surgery or YAG laser capsulotomy. Some patients have abnormal areas in the retina which can make retinal tears more likely such as 'lattice' or 'snail-track' degeneration (see image below).

Currently there is no effective treatment to prevent retinal tear formation or retinal detachment. Recognition of symptoms and prompt referral to an eye surgeon who specializes in diseases of the retina is the only effective way to minimise potential damage from retinal detachment.

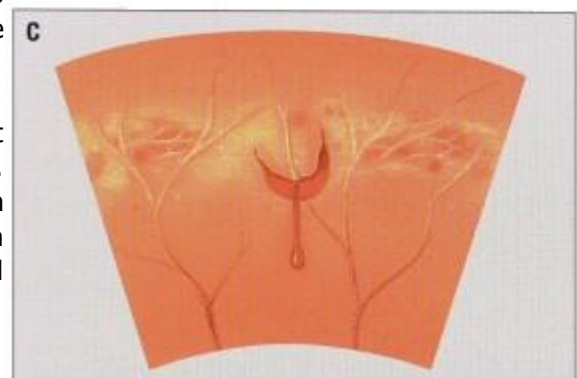
Healthy eye



Affected eye (early stage)



Possible consequence



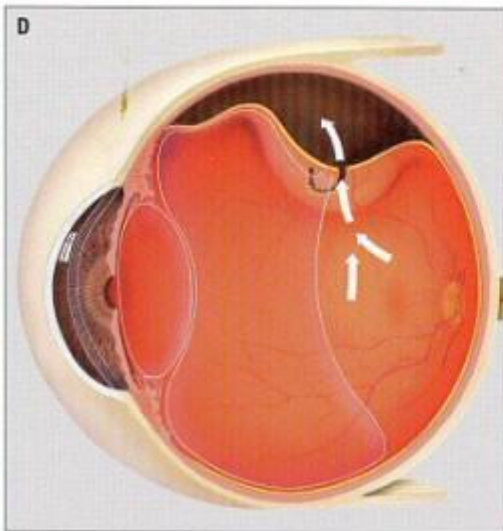
Symptoms

Some patients have warning symptoms of flashes and floaters in their vision before the onset of retinal detachment. These should not be ignored and require urgent assessment by an ophthalmologist.

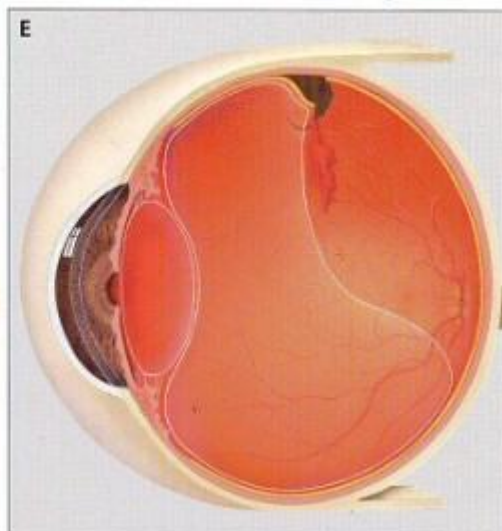
When retinal detachment occurs fluid passes from the vitreous cavity through a break in the retina to cause it to peel away from the inner wall of the eye. This causes a shadow in your vision (often seen as a 'veil') that can progress rapidly in many cases. When the macula is involved the central vision drops immediately and the eye has a higher risk of losing vision permanently.

Some cases of retinal detachment are accompanied by bleeding from the vessels at the torn edge of the retina. This explains the sudden appearance of floaters which patients often report.

Retinal hole and detachment



Retinal detachment with bleeding



There are some patients who have different causes of retinal detachment that have no obvious warning symptoms such as floaters. Development of a shadow in the peripheral vision of one eye needs urgent assessment.

Trauma is an uncommon cause of retinal detachment and most cases happen spontaneously with no obvious cause.

At the Eye Clinic

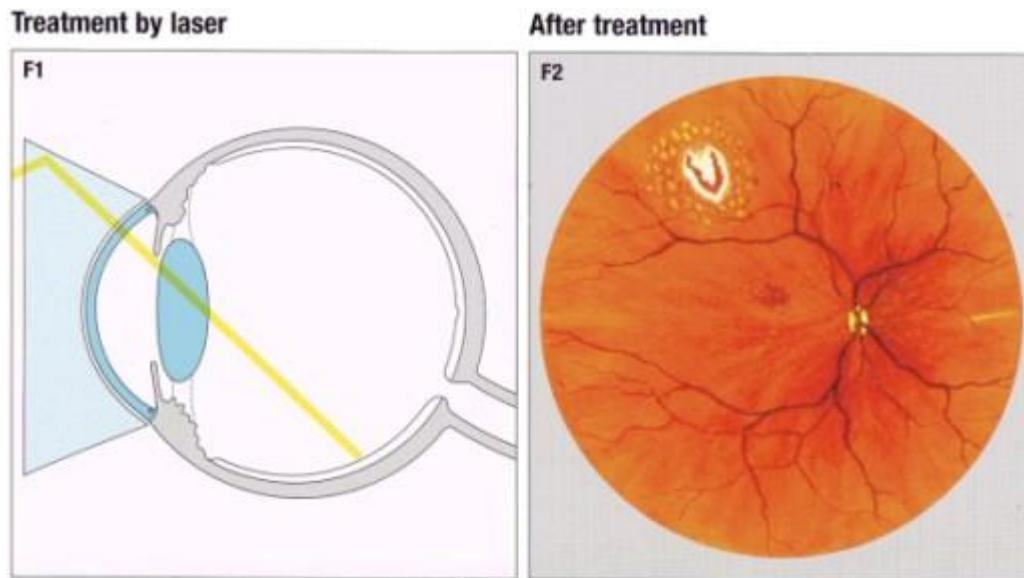
You should be assessed by staff at the eye clinic without delay. Eye drops are used to dilate the pupils of both eyes and careful examination of the retina is carried out. If there are retinal tears or detachment you will need to see a specialist retinal surgeon who can advise you of the best treatment for your problem.

The urgency of treatment depends on the degree of retinal detachment. No patient should wait more than a few days for surgery but there are some urgent cases that should undergo surgery within 24 hours, if possible. This is especially true if the macula has not detached and all efforts will be made to offer treatment before this occurs.

Surgery for retinal Detachment

There are a number of options for surgery but your treatment will be discussed with you in detail with your retinal surgeon.

1. Laser photocoagulation. If you have a retinal tear without detachment you will probably require laser treatment to create a "spot-weld" on the retina and prevent detachment. Depending on the location of the tear this may be carried out in the outpatient clinic or in the operating theatre. Laser treatment is usually undertaken using local anaesthetic drops.



2. Cryotherapy. This is a freezing treatment that has similar effects as laser photocoagulation but will require formal anaesthesia (local or general).
3. Vitrectomy with laser and gas injection. This operation is increasingly recommended by retinal specialists for retinal detachment. It allows very precise microsurgery to remove vitreous jelly from the eye, suck fluid out from underneath the retina through the retinal tear before applying laser to seal the retinal tears and stick the retina back in place. Most patients will have a gas injection at the end of surgery to prevent recurrent detachment while the laser treatment takes effect. While there is gas in the eye vision will be poor and patients should not be alarmed about this. Different gases are used which can remain in the eye for from 2 weeks to 2 months. The gas acts to push the retina into position while the laser 'glue' sets. Complications of surgery include failure to reattach the retina requiring re-operation (about 10% of cases) and cataract formation. Other problems are very rare.
4. Scleral Buckle. This operation has been the more traditional type of procedure for retinal detachment. It is effective in many cases and remains the treatment of choice for some types of retinal detachment. The operation involves stitching a piece of silicone plastic (the Buckle) to the wall of the eye, using cryotherapy to make the retina sticky. There may be a gas injection for some cases. The procedure has a high success rate (80 to 90 %) and is usually reasonably comfortable. Complications of surgery include failure to reattach the retina, eye lid swelling and double vision (usually temporary).
5. Pneumatic retinopexy. This is a smaller operation often carried out in the USA. It is minimally invasive and involves application of cryotherapy to the eye together with a gas injection. Special positioning is required after surgery for a few days but side effects are not common. The operation is associated with a much lower success rate than full surgery (about 60%) and is not popular in the UK. Occasionally it is used after a scleral buckle if the retina does not settle quickly.

There are many options for the treatment of retinal detachment and your retinal surgeon will advise you on the best course of action. Some patients require more than one operation but it is unusual to have a complete failure of surgery (about 1-2 % of cases).

Treatment of retinal detachment is extremely important in all cases. Success might mean a return to normal vision but in other cases only peripheral vision is restored. This often depends on the speed with which a patient comes to their specialist but also is related to the complexity of the retinal detachment itself. It should be remembered that retinal detachment can happen to the other eye in about 15% of patients and it is for this reason that all patients with retinal symptoms in their second eye should have urgent reassessment.

Retinal Vein Occlusion

What is a retinal vein occlusion?

Retinal veins are blood vessels in the retina which carry blood away from the eye. The retinal veins and arteries enter and leave the eye with the optic nerve at the back of the eye.

When a retinal vein becomes blocked the circulation of the eye is affected and this leads to a characteristic pattern of retinal bruising (haemorrhage) and some loss of vision.

It is possible to block a single branch of the retinal vein (branch retinal vein occlusion – BRVO) or to block the central retinal vein (central retinal vein occlusion – CRVO). Depending on the size of the blocked vessel, the vision may be affected in one part of the visual field or the entire visual field. Some retinal vein occlusions are partial - meaning that there is still some flow of blood in the vessel, while others are total. A total blockage is known as an “ischaemic” retinal vein occlusion and may cause more complications later (see below).

Symptoms

Most patients with retinal vein occlusion experience a sudden blurring vision. It is possible to have a small retinal vein occlusion that goes unnoticed until the patient has a routine eye test. If the retinal vein occlusion affects the central area of the retina (the macula) then there will be a dramatic loss of vision.

What is an ‘ischaemic’ retinal vein occlusion?

When a vein is completely blocked the blood supply to the retina is reduced severely. The term ‘ischaemic’ refers to the subsequent lack of oxygen suffered by the retina. If a large area of the retina is ischaemic, chemicals may be released by the retina to encourage new blood vessels to grow within the eye. This can be considered as the body’s attempt to heal or bypass the oxygen shortage. Unfortunately, these new blood vessels can cause complications. (see below)

Complications of ischaemia

New blood vessel growth: at first the new blood vessels do not cause problems. However they are often very fragile and may rupture causing bleeding into the inside of the eye. This can affect the vision still further. The new vessels may also shrink and lead to pulling forces on the retina that can result in a retinal detachment.

Glaucoma: new blood vessels can also appear on the iris in the front of the eye. These vessels can block the normal channels used to drain fluid from the eye causing the pressure in the eye to rise. This is called neovascular or secondary glaucoma. Rising pressure may be the source of considerable discomfort and further loss of vision.

What are the causes of vein occlusion?

Many retinal vein occlusions occur in otherwise healthy patients and an underlying cause might not be found. However, there are some associations with other medical problems and your doctor will check for these:

- High blood pressure
- High cholesterol
- Diabetes
- Rare blood disorders
- Glaucoma
- Smoking

What tests might I have?

Many patients undergo a retinal fluorescein angiogram - to assess the severity of the blockage and see if treatment is needed. Your consultant will decide if this test is needed.

What treatment is available?

Treatment of retinal vein occlusion is complex. Many patients will be monitored for up to two years after the onset to allow detection and treatment of problems that might be associated with the blockage. Fortunately, many retinal vein occlusions get better on their own – perhaps one in five patients will return to normal.

Your doctor will treat any underlying medical condition e.g. high blood pressure or high cholesterol.

Treatments exist to limit the long term damage from retinal vein occlusion. Argon laser treatment can help to reduce blood vessel leakage in the central retina (macular oedema) and can also be used to eliminate new vessels on the retinal surface or on the iris. In a few cases, a vitrectomy operation is required to treat a vitreous haemorrhage or retinal detachment.

Over the last few years there have been a number of new treatments using lasers or surgery, to try to encourage recovery of vision – either by bypassing the blockage (generating a 'shunt' vessel), or to unblock the original retinal vein. While there have been reports of improvement in vision, these techniques have often not been subjected to clinical trials and they are not widely used. You may wish to discuss these treatments with your consultant.

Injection of steroid drugs (triamcinolone) into the eye (intravitreal injection) may be used to improve vision where there is macular oedema unresponsive to laser treatment. This can improve vision in many cases but the effect usually wears off after 6 months. Occasionally this injection technique might lead to high pressure (another type of glaucoma) or cataract formation and you should discuss the merits of steroid injection with your consultant.

Glaucoma can be an urgent complication in patients who have an ischaemic central retinal vein occlusion. Argon laser treatment to the retina is often successful in reducing this but other glaucoma treatments may be required such as the use of eye drops, surgery or cyclodiode laser treatment. Control of glaucoma is important not only to avoid a painful eye condition but also to prevent further long term vision loss from optic nerve damage.

The future prognosis?

The outlook often depends on the severity and extent of the original vessel blockage as well as the age and general health of the patient. For patients with central retinal vein occlusion there is a risk that the circulation deteriorates to the point of ischaemia in about 1/3 cases and these patients have the greatest risk of severe vision loss. Approximately 20-30% of patients show improvement and some patients may return to normal vision.

What can I do?

Often venous occlusion is associated with high blood pressure and generalised vascular disease (atherosclerosis). Lifestyle changes aimed at reducing the risk may include stopping smoking, a healthy diet, and regular exercise. The benefit of these activities extends beyond that of the venous occlusion and will also reduce death rates from heart attack and stroke. Your GP will help reduce your cardiovascular risk by prescribing medications for high blood pressure, raised cholesterol and diabetes if indicated. Aspirin may also be prescribed to help reduce the risk of vessel blockage and stopping the oestrogen pill in women may be advisable.

Strabismus (Squint, or Turned Eye)

Normally, both eyes work together to look at the same object. The brain then fuses the two pictures into a single three-dimensional image, giving us depth perception. Strabismus is a condition in which the eyes are misaligned and point in different directions. Whilst one eye may look straight ahead, the other eye may turn inwards (esotropia), outwards (exotropia), upwards (hypertropia), or downwards (hypotropia). Strabismus is present in about 2% of children and occurs equally between the sexes. Some people use the term "lazy eye" to refer to a turned eye, but this is not an accurate description.

Why is strabismus a problem?

When the eyes are misaligned, two different pictures are sent to the brain. In an adult this causes double vision. In a young child the brain learns to ignore the image of the misaligned eye and sees only the image from the good eye. The child then loses depth perception. Babies who have a strabismus after the age of six months should be seen by a paediatric ophthalmologist as there is a risk of developing amblyopia (decreased vision in one or both eyes).

What causes Strabismus?

Strabismus can be caused by a refractive error, unequal pulling of the muscles controlling eye movement or paralysis of these muscles. Children with a family history of strabismus are at increased risk of having strabismus themselves. A paediatric ophthalmologist can determine the nature of the strabismus and can treat the cause appropriately.

How is strabismus recognised?

An obvious sign of strabismus is an eye that is not straight or does not appear to be looking in the same direction as the other eye. Sometimes children will squint one eye in bright sunlight or tilt their head to use their eyes together. Children who have had strabismus since birth or soon afterwards do not often complain of double vision. However, any child who does complain of double vision should be seen by a doctor promptly. All children should have their vision checked by a paediatric ophthalmologist at an early age, especially if there is a family history of strabismus or amblyopia.

Infants and young children often look cross-eyed. This is because they tend to have wide, flat noses with folds of skin in the inner corners of their eyes that can make the eyes appear uneven. This appearance of strabismus goes away as the child grows. However, a child will not outgrow a real strabismus. An ophthalmologist can tell the difference between true and false strabismus.

Treatment for strabismus

Treatment for strabismus works to preserve vision, straighten the eyes, and restore binocular vision. These treatments are only to be prescribed by a paediatric ophthalmologist who, after examining the child, can recommend appropriate treatment and monitor progress.

- **Glasses**
When the strabismus is caused by a refractive error wearing glasses to normalise vision may completely straighten the eyes, or at least make an improvement to eye position.
- **Occlusion/patching**
If the child has a strabismus with amblyopia he or she can be forced to use (and thus strengthen) the weaker eye by covering the good eye with a patch. Patching should be started as early as possible and continued for as long as your doctor recommends. After about the age of 8 it is generally too late to use patching treatment as vision is fully developed. Patching does not cosmetically straighten the eyes.
- **Surgery**
An operation on the muscles that control eye movement is often necessary to make the eye appear straight. Before considering an operation the child is treated with glasses (if necessary) and patching to give the best possible vision. The child will need further visits to the ophthalmologist after the operation to check progress and continue treatment.

Tumours of the eye

Orbital tumours can occur in the bones of the eye socket, the eye ball, eye muscles, optic nerve and fat filling the spaces in between. Tumours from the surrounding sinuses, brain and nasal cavity may also invade the orbit. Orbital tumours affect people of all ages, and are usually benign.

How are orbital tumours diagnosed?

Bulging or prominence of one or both eyes should arouse suspicion of an orbital tumour. Other possible symptoms are pain, loss of vision, double vision, redness, and a noticeable swelling or mass. In addition to conducting a thorough examination, the treating ophthalmologist will organise a CT or MRI scan to assist in the definition of the condition.

Are there any other causes of a bulging eye?

Painful, prominent eyes are not always caused by tumours. A full examination will reveal whether the problem is due to other conditions such as an overactive thyroid gland, orbital cellulitis (which occurs when a severe sinus infection spreads to the orbit) or a non-infectious inflammatory process.

Tumours in Children Tumours in children are usually the result of developmental abnormalities. The most common types of benign tumours in children are:

- Dermoids: cysts in the lining of the bone
- Haemangiomas: tumours of the blood vessels
-

Malignant tumours are unusual in children but any rapidly growing mass is a cause for concern.

Tumours in adults

Benign tumours in adults are:

- Haemangioma: blood vessel tumour
- Lymphangioma: lymphatic vessel tumour
- Arteriovenous malformation: a tangled mass of arteries and veins
- Schwannoma: nerve cell tumour
- Lipoma: fatty tumour
- Mucocele: tumour in the sinuses

Of these tumours, the most common are the blood vessel tumours.

The most common malignant orbital tumours in adults are lymphomas (lymph gland cancers). These are often confined to the orbit and do not spread to other parts of the body. Cancers from other organs, such as the breast and prostate gland, can also spread to the orbit. Other malignancies arising from the tissues surrounding the orbit are less common.

Treatment of orbital tumours

Surgery, radiotherapy or other treatment may be undertaken, depending on the type of tumour.