

## Removal of an Eye

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### **How is an eye surgically removed?**

An eye is most commonly removed by either enucleation or evisceration. Enucleation is the surgical removal of the eyeball. Evisceration is removal of the contents of the eyeball, leaving the white part of the eye and the eye muscles intact.

### **Why might someone need an enucleation or evisceration?**

Removal of an eye or its contents may be performed for a variety of reasons. The most common reasons are removal of a painful, blind eye, in the management of some severe eye injuries, to remove severe infection inside the eye, to treat eye tumours, or for the cosmetic improvement of a disfigured eye.

Regardless of the underlying disorder, and whether the eye sees or not, the decision to have an eye removed can be difficult and emotionally demanding. Nevertheless, skilled surgery combined with excellent artificial eye care can lead to a very acceptable aesthetic result, with good symmetry and colour matching between the artificial and the fellow eye.

### **Is there an alternative?**

These operations are only undertaken if all other treatments are ineffective or undesirable. Your ophthalmologist (eye doctor) would only suggest enucleation or evisceration after detailed discussion with you and, sometimes, other ophthalmologists.

It may be possible to first trial a painted contact lens or shell worn over a blind eye, often looking as good as a real eye. However, if a blind eye becomes painful despite the use of drops, if a contact lens or shell cannot be tolerated, or if the patient does not have the manual dexterity required to remove the lens or shell each evening, then surgery should be considered.

### **Which operation might I require?**

An enucleation could be the procedure of choice to treat a tumour. After trauma to the eyeball, there is a very small, theoretical risk of an inflammatory reaction to the other eye ('sympathetic ophthalmia') and enucleation could reduce this risk. In most other situations, either enucleation or evisceration could achieve the desired

objective. Your ophthalmologist will help you decide which surgery is most appropriate for you.

### **What happens during the operation?**

You would be given a general anaesthetic, which means that you would be asleep during the operation. Before you are given the general anaesthetic you would be assessed by an anaesthetist and your surgical team will ask you to sign a consent form. The team will also put an ink mark on your forehead to indicate which eye is to be removed.

**Enucleation:** involves the removal of the entire eyeball (this includes the white part of the eye referred to as the 'sclera'). In its place a permanent solid spherical orbital implant (or 'ball', typically made of silicone, rubber or plastic) is placed deep within the socket to compensate for the loss of volume, and the muscles which move the eye are reattached to this implant. The superficial membranes (including the conjunctiva) are stitched over the front surface of this implant.

**Evisceration:** in this operation the white part of the eye (the sclera) is not removed, but used as a natural wrapping material to cover the ball implant.

In each case the orbital implant typically remains in place for life and usually requires no further attention. For some patients who are not suitable for such an implant, a 'dermis fat graft' is used instead. This is usually taken from the lower part of the abdomen or the upper outer quadrant of the buttock area. Your ophthalmologist will discuss this further if it is relevant to you.

Each type of operation takes around an hour or two. Sometimes a clear plastic shell (called a 'conformer') is temporarily put in place behind the eyelids, to give some shape while the socket heals and to help prevent the socket from contracting in the weeks after surgery.

### **How long do I stay in hospital after the operation?**

During surgery, the orbital implant that is placed tends to result in a gentle stretching of the socket tissues. Because this can result in pain and nausea during the first hours after surgery, patients may be offered a night's stay in hospital, and regular painkillers and anti-sickness medications may be given. Only when the patient feels ready to be discharged do they go home.

### **Will my eye be covered after my operation?**

The eye is usually covered with a pad for around a week after your operation. This will typically be removed at your first follow-up appointment after surgery. Following this you may clean the lids with cooled, boiled water to remove any mucus or discharge. You can wash the rest of your face normally.

## **What are the risks/complications of eye removal surgery?**

Short-term risks, as with any surgery, include bleeding, swelling and infection. Longer-term complications include socket irritation and discharge or exposure of the ball implant.

The removal of an eye can result in the loss of some of the volume of a socket, giving the eyelids a 'hollowed' appearance, in spite of the use of an orbital implant. This is due to atrophy (shrinkage) of the fatty cushions deep within the socket. This 'hollowed' appearance (often referred to as 'post enucleation socket syndrome') can be addressed by increasing the volume deep in the socket, thus allowing a thinner (and therefore lighter) artificial eye to be worn. This can be done in a number of different ways e.g. by placing additional implants into a different surgical space in the socket.

## **I have heard that removal of an eye can cause inflammation in the other eye. What is this called and why does it occur?**

An exceptionally rare form of inflammation, called 'sympathetic ophthalmia' can occur in the healthy eye any time after an open eye injury or an operation on the other eye that exposes the uvea, the pigmented layer of the eye. This occurs because the exposed contents of an injured eye can activate the body's immune system against the same tissues in the healthy eye. Although treatable in the vast majority of patients, such an inflammatory problem can, rarely, lead to loss of sight in the good eye.

The removal of an eye using the evisceration method (but not enucleation) carries this theoretical risk of such an inflammation. It should be noted however that such eyes have usually had previous injury or surgery, and the other normal eye is therefore already at risk, even before the eye is removed. The true risk of developing sympathetic ophthalmia in the good eye after an evisceration is very difficult to determine, but is considered to be in the order of 1: 50,000. However, sympathetic ophthalmia is treatable, and overall many more eviscerations are now performed than enucleations.

## **What happens when the eye socket has healed?**

Once the socket has healed (around 6-8 weeks) you will be seen by an ocular prosthetist. They will fit you with a temporary artificial eye (prosthesis) that you will use until your custom prosthesis is produced. It is important that the artificial eye is not fitted too soon as this can disrupt the wound and lead to exposure of the orbital implant.

The prosthetist takes an impression of the socket in order to create a bespoke artificial eye (which matches the colour of the other eye), and this is fitted 3-4 months after the surgery when the wound is secure and all the swelling has subsided. This is worn like a shell within the eye socket and is held in place by the eyelids. The front surface of the artificial eye is custom painted to match the other eye. The back surface is moulded to fit the socket for maximum comfort and movement.

### **How do I look after the prosthesis?**

The prosthesis is easily removable and can be taken out as necessary for cleaning. Most patients sleep with the prosthesis in place. A prosthesis lasts decades in many patients. The back surface of the prosthesis needs to be checked and polished on an annual basis. Some patients use artificial tears 3-4 times a day and at bedtime to keep the surface more comfortable.

### **Will the artificial eye have movement?**

There is usually an adequate range of eye movements.

### **Will I need to be followed-up?**

Continued follow-up may be required as the tissues in the socket may atrophy (shrink) with time. The loss of volume may lead to eyelid laxity or socket changes that could affect the fit of the prosthesis. Careful monitoring of the socket and prosthesis will help keep the socket healthy and will allow for early detection of any changes that might require further treatment.

### **After this surgery, are any further operations ever needed?**

With the simple measures mentioned above, most artificial eyes give many years of good service. However, there are certain conditions which may require drops or further surgery to enable an artificial eye to be worn successfully.

### **Can I carry on my activities as normal?**

Yes. For example, you can go back to work when you feel ready. For private car or motorcycle drivers, if vision is normal in the other eye and there are no other medical conditions, the DVLA does not need to be informed. Your specific situation should be discussed with your ophthalmologist.

### **Contact Details:**

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