

Squint Surgery for Children

Orthoptics

Introduction

This leaflet aims to answer some of the questions you may have about your child's squint surgery. Please note it will not cover everything, as every child and their squint are different. Your Consultant will discuss your child's individual case with you but if you are unclear about any aspects of this surgery or you have any further questions then please ask the Consultant or Orthoptist.

What is squint surgery?

There are six muscles that are attached to the surface of each eye. These muscles are responsible for moving the eye in different directions. They are attached quite closely to the front of the eye under the conjunctiva (the clear surface layer).

Squint surgery is a very common operation. It usually involves tightening or moving one or more of the eye muscles. It may be carried out on one or both eyes. On some occasions only muscles of the squinting eye are operated on. At other times it may be necessary to operate on muscles of the non-squinting eye as well, as this may give better results (by 'balancing' the eyes).

Your Consultant will explain what is to be done and why this approach has been chosen. Stitches (usually ones that dissolve) are used to attach the muscles in their new positions.

Overall, about 75% of patients are within the pre-operative target range of the correction of squint after surgery¹ and in general, about 90% of patients notice some improvement in their squint.

However the squint might not be completely corrected by the operation and this might not be the aim. This is because the amount of correction that is right for one child might be too much or too little for another, even if they have exactly the same size squint.

Although your child's eyes could be straight just after the surgery, some children require more than one operation in their lifetime. If the squint returns, it might 'drift' in either the same or opposite direction. It is not possible to predict if or when this may occur.

The operation is carried out under general anaesthetic, and usually takes around an hour, depending on the number of muscles that need surgery. However, your child will be in the operating theatre department for longer than this as they will need to spend some time in the recovery area until they have fully woken up. When your child has recovered fully from the anaesthetic and the Nurses are happy for him/her to leave you will be able to go home. This will usually be a few hours later.

The prevention of infection is a major priority in all healthcare and everyone has a part to play.

- Please decontaminate your hands frequently for 20 seconds using soap and water or alcohol gel if available
- If you have symptoms of diarrhoea and/or vomiting, cough or other respiratory symptoms, a temperature or any loss of taste or smell please do not visit the hospital or any other care facility and seek advice from 111
- Keep the environment clean and tidy
- Let's work together to keep infections out of our hospitals and care homes.

Consent

We must seek your consent for any procedure or treatment beforehand. Your Consultant will explain the risks, benefits and alternatives where relevant before they ask for your consent. If you are unsure about any aspect of the procedure or treatment proposed, please do not hesitate to ask for some more information.

Preparing your child

There are several things that you can do to prepare your child for coming into hospital.

Unless your child is very young, you should try and explain:

- that they are going into hospital
- that they will be having an operation
- some basic information about what will happen to them when they are in hospital.

The best time to provide this information will differ between children. Preschool children probably only need to know the day before. Older children may need more time.⁴

What are the benefits of my child having squint surgery?

The benefits of the surgery depend on the type of squint or eye movement disorder that your child has.

The aim of the surgery usually is:

- To improve appearance by making the squint less obvious. This can help if your child is being teased or is very conscious of the appearance of their squint
- In some patients it can improve how the eyes work together to achieve binocular (3D) vision. This generally applies when the squint is controlled for some of the time
- Improvement in the movement of the eyes, if this is abnormal when your child is looking in one or more direction
- To improve an unusual tilt or turn of the head (abnormal head posture)
- It can in some cases, improve your child's motor skills including reading and writing
- It is rare for children to get double vision but, occasionally it is done to help with this

What are the risks of my child having squint surgery? ^{2,3}

Squint surgery is generally a safe procedure. However, as with any operations, complications can and do occur. Generally, these are minor but on rare occasions they could be serious. We have listed all of the complications below that could occur however, please be aware that the vast majority of people have no significant problems after this operation.

Under and over-correction

As the results of squint surgery are not completely predictable, the original squint might still be present (under-correction). The squint might also change and occur in the opposite direction (over-correction). An example of this is when an eye turned inwards before the operation but is turning outwards following the surgery. Occasionally a different type of squint might occur. Therefore in some cases another operation will be needed.

Double vision

Your child may notice double vision after surgery as their brain adjusts to the new position of their eyes. This is normal and often settles in the following days or weeks. Some children might continue to be aware of some double vision when they look to the side. Rarely, the double vision can be permanent, in which case further treatment may be needed.

Redness

The redness in your child's eye following surgery can take as long as three months to disappear. Occasionally the eye does not completely return to its normal colour. This can occur more frequently in children who have had more than one squint operation.

Scarring

Generally after three months any scarring of the conjunctiva (clear layer over the white of the eye) is not noticeable. Occasionally visible scars will remain, especially with repeat operations. It is very important to use the eye drops or eye ointment that you are given after the surgery. This will reduce the chance of scarring.

Allergy / Stitches

Some patients might have a mild allergic reaction to the eye drops or eye ointment they have been given. This can cause itching or irritation, some redness and puffiness of the eyelids. This usually settles very quickly when the medication is stopped.

Children may develop an infection or swelling around the stitches. This is more likely to happen if your child goes swimming within the first four weeks of surgery; therefore this activity is not recommended.

A cyst can develop over the site of the stitches, which could need further surgery to remove it.

Lost or slipped muscles

Rarely, one of the eye muscles might slip back from its new position during the operation or shortly afterwards. If this occurs, the eye is less able to move around and if severe, further surgery can be required. Sometimes it is not possible to correct this. The risk of a slipped muscle is 0.06%.

Perforation of the globe (eyeball)

If the stitches are too deep or the white of the eye is too thin a small hole can occur in the eye. If this happens then antibiotics and possibly some laser treatment to seal the hole may be needed. Depending on where the site of the hole is within the eye, the sight may be affected. The risk of the needle passing too deeply within the eye is about 0.08%.

Infection

Infection is a risk with any operation and although rare can result in loss of the eye or vision. The risk of a severe infection is 0.06%.

Endophthalmitis

Endophthalmitis is an inflammation of the internal eye tissues, most commonly caused by infection. This can lead to reduced vision and, if not treated, sight loss. This is extremely rare and occurs in approximately 1 in 24,000 cases.

Altered eyelid position

The eyelid position can be affected following squint surgery. This occurs in very few patients but is more common in those children who have had vertical muscle squint surgery.

Limitation of eye movements

Squint surgery can result in a slight limitation of your child's eye movements when they look on extreme positions of gaze. This is usually slight and causes no problems however, if a larger limitation occurs, this could occasionally result in your child experiencing some slight double vision in those positions.

Haemorrhage or bleeding

The risk of a significant bleed that could affect your child's vision is extremely low, however smaller bleeds may happen which are controlled at the time of surgery. This can give your child a red eye. It is extremely rare for any substantial blood loss.

Anaesthetic risks

Anaesthetics are usually safe, but there can be small and potentially serious risks.

Serious problems are uncommon with modern anaesthetics. Most children recover quickly and are soon back to normal after their operation and anaesthetic. Some children may suffer side effects like sickness or a sore throat. These usually only last a short time and there are medicines to treat them if necessary.

Looking at rarer complications, approximately 1 in 10,000 children develops a serious allergic reaction to the anaesthetic.

The risk of death from anaesthesia for healthy children having minor or moderate non-emergency surgery is probably less than 1 in 100,000. Most of the deaths that occur around the time of surgery are not directly caused by the anaesthetic but by other reasons connected with the health of an individual or the operation they are having.⁴

Pupil Dilation

Rarely after an operation for a vertical squint, you may notice that the pupil is slightly larger on the side that has been operated on.

Loss of vision

Although it is extremely rare, loss of vision in the operated eye may happen as a result of this surgery. The risks of loss of vision or double vision looking straight ahead which would be a poor outcome are 0.0004% or 1 in 2400 operations.

Remember: These complications are detailed for your information: the vast majority of patients have no significant problems.

Are there any alternatives to this procedure?

Squint surgery when advised by your Consultant, is the only surgical way to treat the eye misalignment.

What will happen if I decide my child will not have squint surgery?

Please discuss this with your Consultant/Orthoptist and clarify your reasons.

What is shared decision making?

The choice about which treatment is best for your child will be made together with your Consultant. This will be based on the risks and benefits of the treatment and your child's individual circumstances.

What happens before the day of surgery?

A pre-assessment is performed a few weeks before your child's surgery date. This is performed by an Orthoptist. They will take up to date measurements of the angle of the squint.

A general health pre-assessment will also take place. An appointment will be sent to you to attend the child pre-assessment clinic which is located within the paediatric outpatients department in A22. You will be seen by a nurse who will ask you questions about your child's general health. A play specialist will then show you a short video about what will happen on the day of surgery. Finally a health care assistant will take your child's measurements including height and weight.

What sort of anaesthetic will my child be given?

Your child will have a general anaesthetic. General anaesthesia is a drug-induced unconsciousness (your child will be put to sleep). It is always provided by an Anaesthetist who is a Doctor with specialist training.

Appropriate pain relief will be given whilst your child is under anaesthesia, and further pain relief provided as necessary for your child to be as comfortable as possible after their operation.

What happens on the day of surgery

You will be given a time to arrive at the children's ward which is situated at location A25. This is within the main building at New Cross Hospital. Your child will be welcomed to the ward and allocated a bed. You will have a Named Nurse who will look after your child during their admission. Please note only one parent is allowed to accompany your child onto the ward.

The Anaesthetist and Consultant will visit you on the ward and confirm that you are happy for the surgery to go ahead. They will also check that your child is well.

Your child should not drink or eat before the operation (the exact timings of this will be given to you prior to the surgery date). Please make sure that you follow the fasting (starving) instructions which should be included with your surgery appointment letter. Fasting is very important before an operation. If your child has anything in their stomach whilst they are under anaesthetic, it might come back up whilst they are unconscious and get into their lungs.

You are able to stay with your child whilst they are on the children's ward. You will also be able to go down to the operating theatre with your child and stay until they are asleep (under anaesthesia), but you will not be able to watch the surgery. We are aware and understand that this can often be quite a distressing situation for parents but please be reassured that we will take very good care of your child.

Your child will be away from you for approximately 1½ hours. The operation usually takes approximately 30-40 minutes depending upon the number of muscles that need surgery. The other time is spent putting your child to sleep and then waking them up.

Will the squint surgery hurt my child?

After your child's operation, their eye(s) will be red and sore and their vision may be blurry. Start the drops the following evening and use painkillers that are suitable for children, such as paracetamol and ibuprofen, as required. The pain usually wears off within a few days. The redness and mild discomfort can last for up to three months, particularly with repeat squint operations.

What should I expect to happen once my child has had their operation?

After the surgery your child will be taken back to the paediatric ward. The children's nurses on the ward will then monitor your child's pulse, temperature, and the eye that has been operated on. Once your child is awake from the anaesthetic they can start drinking and if they are not sick, can start eating their normal diet.

The minimum recovery time before discharge is two hours. This is usually enough time for us to check that your child is recovering well. It also gives us time to check that your child is passing urine (having a wee) after the operation. In some circumstances your child may be allowed to go home before they have passed urine. If your child has not passed urine within six hours of the operation, please contact the ward for advice.

Your child cannot go home on public transport after a general anaesthetic. You will need to take them home by car. This will be more comfortable for them and also quicker for you to return to the hospital if there are any complications on the journey home.

Occasionally the anaesthetic may leave your child feeling sick for the first 24 hours. The best treatment for this is rest and small frequent amounts of fluid, toast and biscuits. If they are sick and this continues for longer than 24 hours, please contact your GP.

The hospital experience is a strange and sometimes unsettling experience for some children so do not be concerned if your child is more clingy, easily upset or has disturbed sleep. Just be patient and understanding.

When your child has recovered from the anaesthetic and the Nurses are happy for him/her to be discharged, you are free to go home; usually a few hours later. Before being discharged you will receive some eye drops, with instructions. A follow-up appointment will be sent out to you in the post.

Your child may be sent home wearing a pad over the eye that has been operated on. This is simply to help prevent your child from rubbing that eye. The eye/surgery will not be damaged if the pad is removed; some children dislike having the pad on their eye and tear it off anyway.

Please do not worry if this happens, however you must ensure that your child does not rub their eye.

How long will my child be in hospital?

Squint surgery is nearly always a day-case procedure, which means that your child will be in and out of hospital on the same day.

Caring for your child's eye after surgery

Immediately after the surgery the white part of the operated eye(s) will be red and there may be some swelling of the eyelids. Start the prescribed eye drops the following evening. Please remember to wash your hands before and after putting the drops in, to reduce the risk of infection. Your child should continue to wear glasses if they had them before the surgery.

Your child may complain of the eye feeling a little sore and gritty for the first 2-3 days. Paracetamol (Calpol) is usually enough to relieve this discomfort. If this does not help or you are concerned, then please get in touch with us. The redness can take up to 12 weeks to settle and disappear, but eventually there will be little evidence that they have had eye muscle surgery.

The alignment (position) of your child's eyes may vary for the first few weeks immediately after surgery and will take some time to settle. They may also have some awareness of double vision (seeing two of things). This will usually disappear, however if it persists or you are concerned please speak to your Orthoptist.

Try to discourage your child from rubbing their eyes, as this could cause irritation and can increase the risks of infection. Avoid irritants, such as soap and shampoo, getting into their eyes. Your child should not play in sand or use face paint for 2 weeks.

Getting back to normal

Normal activity, including sports (apart from swimming) can be resumed as soon as your child feels comfortable to take part. Swimming should be avoided within the first four weeks after surgery.

Returning to school

Your child might need a few days or one week off school or nursery.

Follow up care

An appointment will be made for your child to see the Orthoptist for a follow-up appointment in the Orthoptic department two weeks after their surgery.

Will the surgery cure a lazy eye or the need for glasses?

No, the operation will not change your child's vision or their need for glasses or patching. Sometimes more patching is needed after the operation.

Contacts and useful numbers and links

If you have any worries or queries about your child once you get home, or you notice any signs of infection or bleeding, please telephone the Orthoptic department (Mon-Fri 08.30-17.00) or the Eye Referral Unit (Every day 08.30-17.00). Outside of these hours you can contact NHS Direct on 111 or your GP.

Orthoptic department New Cross hospital
01902 695830

Orthoptic department Cannock Eye Centre
01543 576702

Further information regarding squints can be found on
www.nhs.uk/conditions/squint

Useful videos and further patient information leaflets about anaesthetics can be found at www.rcoa.ac.uk/patient-information/patient-information-resources/information-children-parents-carers

References

1. Astudillo PP, Cotesta M et al, The effect of achieving immediate target angle on success of strabismus surgery in children. *Am J Ophthalmol*. 2015 Nov; 160(5): 913-8
2. Bradbury J. What information can we give to the patient about the risks of strabismus surgery. *Eye (Lond)*. 2015 Feb; 29(2): 252-7
3. Bradbury JA. Taylor RH. Severe complications of strabismus surgery. *J AAPOS* 2013; 17(1): 59-63
4. Your child's general anaesthetic – Sixth edition Feb 2020. Patient information leaflet from The Royal College of Anaesthetists. www.rcoa.ac.uk/sites/default/files/documents/2020-05-07-ChildsAnaesthetic2020web.pdf

English

If you need information in another way like easy read or a different language please let us know.

If you need an interpreter or assistance please let us know.

Lithuanian

Jeigu norėtumėte, kad informacija jums būtų pateikta kitu būdu, pavyzdžiui, supaprastinta forma ar kita kalba, prašome mums apie tai pranešti.

Jeigu jums reikia vertėjo ar kitos pagalbos, prašome mums apie tai pranešti.

Polish

Jeżeli chcieliby Państwo otrzymać te informacje w innej postaci, na przykład w wersji łatwej do czytania lub w innym języku, prosimy powiedzieć nam o tym.

Prosimy poinformować nas również, jeżeli potrzebowaliby Państwo usługi tłumaczenia ustnego lub innej pomocy.

Punjabi

ਜੇ ਤੁਹਾਨੂੰ ਇਹ ਜਾਣਕਾਰੀ ਕਿਸੇ ਹੋਰ ਰੂਪ ਵਿਚ, ਜਿਵੇਂ ਪੜ੍ਹਨ ਵਿਚ ਆਸਾਨ ਰੂਪ ਜਾਂ ਕਿਸੇ ਦੂਜੀ ਭਾਸ਼ਾ ਵਿਚ, ਚਾਹੀਦੀ ਹੈ ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਸਾਨੂੰ ਦੱਸੋ।

ਜੇ ਤੁਹਾਨੂੰ ਦੁਭਾਸ਼ੀਏ ਦੀ ਜਾਂ ਸਹਾਇਤਾ ਦੀ ਲੋੜ ਹੈ ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਸਾਨੂੰ ਦੱਸੋ।

Romanian

Dacă aveți nevoie de informații în alt format, ca de exemplu caractere ușor de citit sau altă limbă, vă rugăm să ne informați.

Dacă aveți nevoie de un interpret sau de asistență, vă rugăm să ne informați.

Traditional Chinese

如果您需要以其他方式了解信息，如易读或其他语种，请告诉我们。

如果您需要口译人员或帮助，请告诉我们。