Spinal Deformity Service

Early Onset Scoliosis – Information about Magnetically Controlled Growing Rod Surgery (MAGEC)

This information leaflet is to help you understand as fully as possible about the operation for early onset scoliosis (EOS). Please read this information carefully and if you have any further questions do not hesitate to ask.

Scoliosis is a curvature and rotation of the spine and is quite rare. Significant Scoliosis affects about one in 2000 children, usually in girls but can occur in boys as well. It can happen at any time from birth until the end of growth.

EOS is identified or diagnosed by a doctor in patients under the age of 10. Surgery is considered in cases where there is risk of the curve progressing over 50 degrees. The aim of the treatment is to control progression of the curvature whilst the child is growing.

Occasionally the condition becomes so severe that they do cause serious problems such as interference with lung functioning and movement of the spine. The surgery which is required to correct a scoliosis deformity of the spine is a major procedure. It is important to be aware of the risks of possible complications involved and that although the outcome should be an improved appearance, the spine will still be far from normal and there may be further problems in the future.

The operation normally involves attaching the curved part of the spine to two magnetically controlled growing rods (MAGEC rods) which are inserted under the skin and fixed to the spine at both ends, through two small incisions on the back. These rods can then be lengthened magnetically in a clinical setting using an external set of strong magnets.

Planned lengthening clinics are about every three monthly. When it is felt that sufficient spinal growth has occurred, it is likely that a further operation will be required, to remove the MAGEC implants and insert rods and screws to fuse the spine.

The patient will be in theatre for most of the day. The operation itself normally takes about four hours but additional time is needed to prepare the patient for surgery.

Risks

The main risk, of which you should be aware, is the possibility of damage to the spinal cord. If this happens, it can result in paralysis of the legs and loss of control of the bowels and bladder. Fortunately this complication is rare occurring in about 1 in 500 of cases.
Special precautions are taken to protect the spinal cord. In particular, spinal cord monitoring is used so that any problems can be detected as early as possible, to minimise the risk of paralysis.

The overall rate of complication from growing rods can be as high as 40% which includes failure of the implants. This may require further additional procedures. Patients with the MAGEC implant may as a result also develop problems with overlying skin due to a slight prominence over the upper end of the implant.

The scoliosis team

- Consultant Orthopaedic Spinal Surgeons – Mr J Crawford and Mr D Hay
- Specialist registrar
- Consultant anaesthetist
- Specialist spinal deformity physiotherapists
- Inpatient physiotherapists covering wards
- Scoliosis nurse specialist – 01223 256658
- Scoliosis co-ordinator – 01223 216854
- Secretary to Mr J Crawford – 01223 257299
- Secretary to Mr D Hay – 01223 274152
- Play specialist

Decision-making process

This involves:

- Counselling about Scoliosis surgery
- MRI and CT scan
- Lung function testing
- Medical risk assessment

Following these assessments, the case will be discussed at the scoliosis multidisciplinary team meeting. Following which, you will be given an appointment with the consultant or nurse specialist, to discuss the outcome of your assessments at the multidisciplinary team meeting.

Occasionally, further investigations may be required prior to surgery and these will be discussed with you and planned as necessary. If the decision is made to proceed with surgery and you are in agreement with this, your child’s name will then be placed on the waiting list for surgery.

Before the operation

When we have a potential date for your child’s surgery, you will be asked to attend the clinic for a few hours for a pre-operative assessment.
During this visit, the following tests are likely to be carried out to help plan the operation and make sure that your child is fit for surgery:

- X-rays of your child’s spine to help plan the operation.
- ECG (electrocardiograph) to assess their heart.
- Blood tests also form part of the assessment of fitness for surgery. Blood will be cross-matched in case they should need a blood transfusion during surgery.
- Spinal cord monitoring which will be used during surgery – this will be assessed in the neurophysiology department.
- Consent forms - discuss and sign with consultant
- Prior to your child’s admission, you are welcome to visit the ward to familiarise yourself with the organisation and procedures.

There is on-site hospital accommodation for the night before surgery which is allocated on an individual needs basis.

**Day of the operation**

On the morning of surgery, you will attend ward F3 (01223 348 313) for pre-operative checks to be carried out. Your child will be taken to the operating theatre and anaesthetised.

**Surgery will only proceed if the appropriate post op care bed is available.**

Unfortunately, if there are unforeseen emergencies, there is a chance that your operation may be cancelled.

**Treatment after the operation**

After the operation, your child will be closely monitored on either the intensive care, or, high dependency unit, usually for 24 to 48 hours until they are ready for discharge to the paediatric ward D2. On the ward, each patient’s bed has a pull out bed beside it that a parent/carer/friend can use.

Whilst your child is on ITU or HDU, relatives can stay on site at: Pemberton House (01223 868 300) or Acorn House (01223 586 806). See the following link for more information: [www.sickchildrenstrust.org](http://www.sickchildrenstrust.org)

There will be a variety of wires and tubes for monitoring purposes and to give fluids and medication and there will also be a tube in the bladder called a catheter. The various tubes and wires will be removed over the course of the next few days, following surgery.

There are no restrictions with mobilising, following the operation and patients are encouraged to reposition themselves regularly. It should be possible them to get out of bed to stand on day one and then gradually get more mobile on the ward.
Patients are normally ready to leave hospital about five to seven days after their surgery. Before discharge home, patients are fitted with a soft cast spinal brace to provide support for their muscles and posture whilst they recover from surgery. The brace is normally worn during the day for the first three months as patients recover from surgery. Once safety and comfort allow, you will be discharged home.

At home

After discharge from hospital, your child should be able to do everyday activities at home and should be able to return to school in six to eight weeks. They should not participate in contact sports for the first year. This includes activities where their feet leave the ground. If you are unsure, then please consult a member of the scoliosis team.

The rod lengthening outpatient clinics are held every three months and the appointment usually takes between 15 to 30 minutes. At these visits, the child will need to lie on their tummy and the consultant/specialist nurse will use an external remote controller (ERC) to lengthen the rods. The lengthening of the rods will be checked either with the use of an ultrasound scan in clinic or you may be asked to have a check x-ray after your clinic appointment before you then go home.

As your child grows, the MAGEC rods will be lengthened to slowly correct the curve in the spine. When either the maximum distraction has been reached by the implants or sufficient spinal growth has occurred, the MAGEC rods can be removed and a definitive fusion may be the recommended procedure to correct any remaining deformity.

It is most important that you fully understand the nature of the operation which your child is about to have. If you have any further questions after reading this leaflet, the team will be only too happy to discuss them with you.
Useful organisations
Scoliosis Association UK (SAUK) – www.sauk.org.uk
Scoliosis Research Society – www.srs.org
The British Scoliosis Society – www.britscoliosissoc.org.uk

Privacy & Dignity
Same sex bays and bathrooms are offered in all wards except critical care and theatre recovery areas where the use of high-tech equipment and/or specialist, one to one, care is required.

We are a smoke-free site: smoking will not be allowed anywhere on the hospital site. For advice and support in quitting, contact your GP or the free NHS stop smoking helpline on 0800 169 0 169.

Other formats:
If you would like this information in another language or audio, please contact Interpreting services on telephone: 01223 348043, or email: interpreting@addenbrookes.nhs.uk For Large Print information please contact the patient information team: patient.information@addenbrookes.nhs.uk

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Authors
Pharmacist
Department
Cambridge University Hospitals NHS Foundation Trust, Hills Road, Cambridge, CB2 0QQ www.cuh.org.uk

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