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Norfolk and Norwich University Hospitals
NHS Foundation Trust

Pain Management Centre
Spinal Cord Stimulator Pathway

Patient Information Leaflet for: Neuromodulation Pathway
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Pain Management Centre
Spinal Cord Stimulator (SCS) Pathway

Your Consultant has suggested that you might be suitable for a trial of spinal cord stimulation (SCS). National Institute for Health and Clinical Excellence (NICE) guidelines for SCS state that "spinal cord stimulation should be provided only after an assessment by a multidisciplinary team experienced in chronic pain assessment and management of people with spinal cord stimulation devices, including experience in the provision of ongoing monitoring and support of the person assessed." (NICE 2008).

The multi-disciplinary team comprises Consultants, Specialist Nurses, Clinical Psychologists, Occupational Therapist & Specialist Physiotherapists, all who have many years' experience of managing chronic pain with spinal cord stimulation.

We have developed a pathway to comply with this guidance, which will start when the consultant recommends you for assessment by the spinal cord stimulator multidisciplinary team.

The Pathway - what happens next?

The first appointment in the pathway is a Technical Session. This is a group appointment and you are welcome to bring a relative/ friend with you. During this session we will:

- Explain what spinal cord stimulation is
- Demonstrate the types of equipment used
- Discuss the risks associated with the device
- Discuss the potential benefit you may receive from SCS
- Discuss the trial and post op instructions if you proceed

You will also be given an appointment with two members of the multi-disciplinary team. This appointment lasts about an hour. The purpose of the appointment is to give you an opportunity to thoroughly explore what SCS may offer you on a more personal level. We will ask questions about your current activity levels, medication and allow you to start thinking about what benefit/ change you hope a spinal cord stimulator might bring. We use a variety of assessment tools which may include pain scoring, a sleep questionnaire, quality of life questionnaire and assessment of your mood and thoughts and feelings in relation to your pain. All of this helps us gain a clearer understanding of your current situation and then consider together whether SCS may be helpful.

After these each case is discussed at our multi-disciplinary team meeting. As a team we may feel that you need to access other aspects of our service before you will be ready for implantation with a SCS. We only make these suggestions if we feel they will optimise the outcome that you would have from trialling a spinal cord stimulator.

We may also decide that a spinal cord stimulator is not appropriate for you. If this is the case, we will agree on appropriate further management for your pain during the appointment.

Pain Management is often likened to a jigsaw made up of different pieces. These jigsaw pieces may include exercise, pacing, medication, interventions, and mood management, as well as spinal cord stimulation. Every person is unique and individual, even if they have the same underlying condition as someone else (e.g. low back pain). Therefore, a management plan must be as individual as the person. For some patients, spinal cord stimulation may feature as a part of this jigsaw.

In our experience, patients who do proceed with spinal cord stimulation, get more benefit if they also adopt other self-management strategies alongside spinal cord stimulation.

All patients who are being considered for a spinal cord stimulator will be expected to attend our Spinal Cord Stimulator Pain Management Seminars. These are two group sessions. The seminars are aimed at helping us to develop an individual management plan with you. Due to confidentiality, and limitations of space relatives/ friends are not able to join you for this appointment.

We will also encourage you to set some functional goals which you may be able to achieve using SCS e.g. increasing walking tolerance or how long you can stand.

Summary of SCS pathway

What is spinal cord stimulation

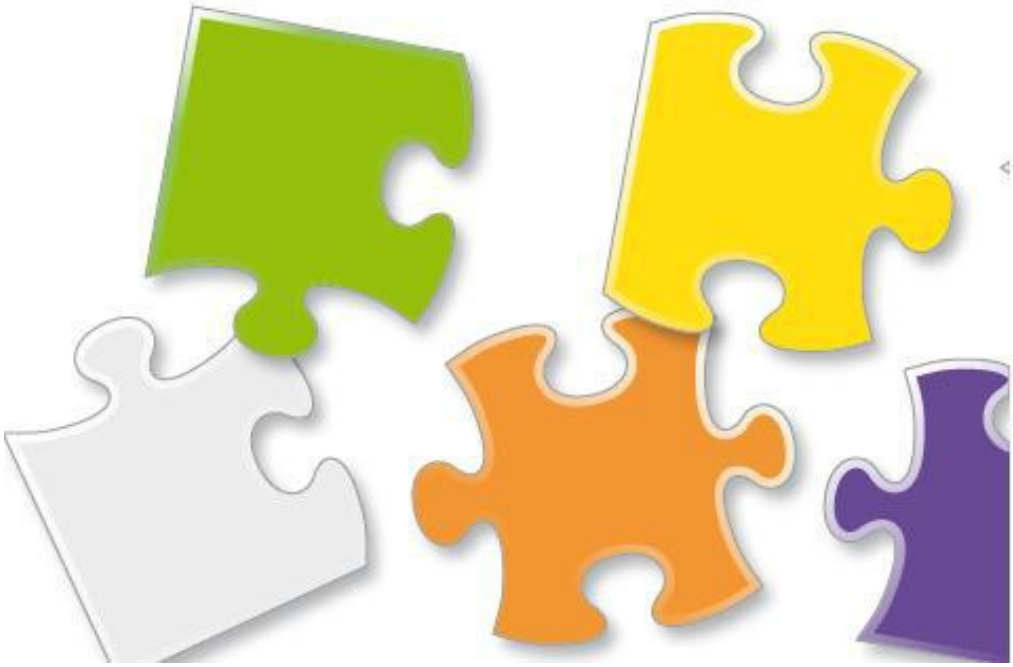
Spinal cord stimulation delivers small amounts of electricity to specific parts of the spinal cord. The electricity changes the way pain messages are sent, and processed by the brain. This can significantly reduce pain for conditions such as failed back surgery syndrome, complex regional pain syndrome (CRPS) and neuropathic (nerve) pain. The SCS system consists of an implanted battery which delivers electricity to the spinal cord via an epidural lead containing electrodes that is placed close to the linings of your spinal cord. The system is operated by the patient and controlled by a hand held remote control.

Currently, there are two types of spinal cord stimulation:

Conventional – when turned on, the stimulator provides a sensation that you can feel (known as paraesthesia) in your area of pain. These implanted devices use lower frequency stimulation and may be non-rechargeable or rechargeable implanted batteries.

High Frequency – when turned on, you usually do not feel any sensation from the stimulator. The implanted batteries used for high frequency stimulation are rechargeable only.

There are advantages and disadvantages to both types of SCS. We will discuss with you which type of stimulation is most appropriate for your pain.



Who may not be suitable for a spinal cord stimulator?

A spinal cord stimulator may not be suitable for you if:

- Your pain is not neuropathic in origin e.g. due to osteoarthritis
- Your pain is widespread and cannot be targeted specifically by SCS
- Previous surgery has left scarring, you have extensive metalwork in place, or any other anatomical problem that means we will not be able to place the electric lead in your epidural space
- You are taking blood thinning drugs – the potential risks of SCS in these circumstances need to be carefully balanced against the potential benefits
- Have an active infective illness
- Have diabetes, which is poorly controlled as this increases your risk of infection
- You do not feel confident in managing the technological aspects of the SCS system e.g. managing the patient remote control
- You have some other medical conditions e.g. severe respiratory disease
- There are significant, untreated, psychological and /or mental health problems
- You are taking high doses of opiate medication
- Have current problems with use of alcohol, prescription drugs or recreational drugs
- Have an allergy to any of the components of the SCS system
- There is ongoing litigation related to your pain condition

Proceeding to the trial of the SCS

NICE guidance states that you will only be suitable for a full implant of a spinal cord stimulator after a successful trial of stimulation as part of the assessment process (NICE 2008). A representative from the company chosen to provide the equipment for your stimulator will be present in the operating theatre in order to program the stimulator.

Implantation is a two stage process: Both stages take place in the Day Procedure Unit.

Stage one- The Trial

Insertion of the epidural lead takes place in an operating theatre under x-ray guidance; you will then go home to try the system for up to 5-10 days with an external battery attached to the lead. You will be asked to attend clinic during this time so that we can check your progress and any problems may be resolved. Your pain coverage may not be optimum at this stage *

Stage two- Permanent Implantation

This takes place approximately a week after stage one. You will attend the Day Procedure Unit where you will either proceed to full implant or you will have decided that you do not want to have a full spinal cord stimulation system implanted. If you do not proceed with the full implant, alternative management will be discussed with you in clinic.

Both stages are normally undertaken as day cases – you should be able to go home the same day. Occasionally, you may need to stay overnight in the hospital (for example, if you live on your own and have no one to care for you overnight)*.

After the Implant

The epidural lead(s) remain vulnerable to movement after the implant for 6-12 weeks. It is very important that you maintain the precautions we advise around bending, lifting, twisting and stretching.

Patients are asked to avoid driving for 12 weeks post implant and you may need some additional support from friends/ family at home during this time. This will minimise the risk of your lead(s) moving as much as possible.

You will be asked to attend clinic for regular follow up appointments for the first year. At these appointments, you will be asked to repeat the assessment questionnaires that you completed at your first joint appointment so that we can monitor your progress towards your goals. This process also helps us to comply with NICE guidance.

We realise that having a stimulator is a big change to your life style; it may take several months before you are able to fully assess the benefits of stimulation. We will teach you how to use the stimulator.

You may be able to reduce some of your pain medication but this is also a gradual process after full implant.

You may need to have several sessions of programming the stimulator to achieve optimum pain coverage during this first year. These normally take place in clinic with one of the equipment company representatives in attendance.

*Separate detailed information leaflets are available with for the trial week and for post-operative advice and will be sent to you once a decision has been made to proceed with spinal cord stimulation

Risks and complications of SCS:

- Lead movement (migration). This may mean that another operation will be needed. The rate of lead migration is 15-20%.
- End of battery life. All batteries have an expected lifespan, after which they will need to be replaced. This will mean another operation will be needed.
- Mechanical failure – battery faults, lead fracture, lead disconnection, lead failure due to electrical contacts scarring over
- Infection (around 1-2% of people). If this occurs, we may need to remove part, or all, of the system.
- Pain at the site of the implanted battery or leads
- Headache
- Bleeding – if you are on anticoagulant medication this may be more of a risk
- Nerve damage – around 1:1000 people.
- Failure to capture the pain
- Extraneous stimulation i.e. stimulation in an area where you do not need it
- Dislike of the sensations of stimulation

You will be able to feel the implanted battery. You will have surgical scars in your back where the leads are inserted and at the site of the implanted battery. Unless you are very slender, other people will not be able to tell that you have an implanted battery.

Other precautions:

- If you need surgery in the future, tell your surgeon and anaesthetist that you have an implanted device. This is important as it will affect the diathermy that can be used during surgery. Bipolar diathermy should be used. We will also contact your surgeon if we are aware that you have surgery planned.

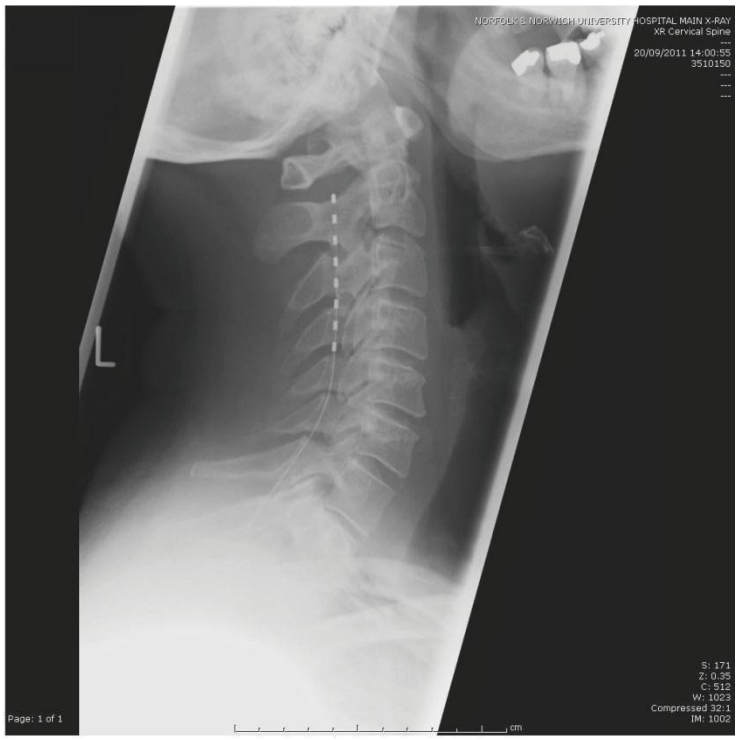
- You should not have an MRI scan unless you have a compatible SCS system implanted. You may have a CT scan or X-ray.

- If you have a conventional SCS system, you should not drive with your stimulator switched on; surges in stimulation can interfere with your driving.

- Security scanners in shops or airports may affect, or be affected by your stimulation and/or your implanted battery. Strong magnets may also do this (e.g. at tills in shops which deactivate the security tags on goods).

Image gallery

Single lead in epidural space (cervical)



Single lead in epidural space (thoracic)

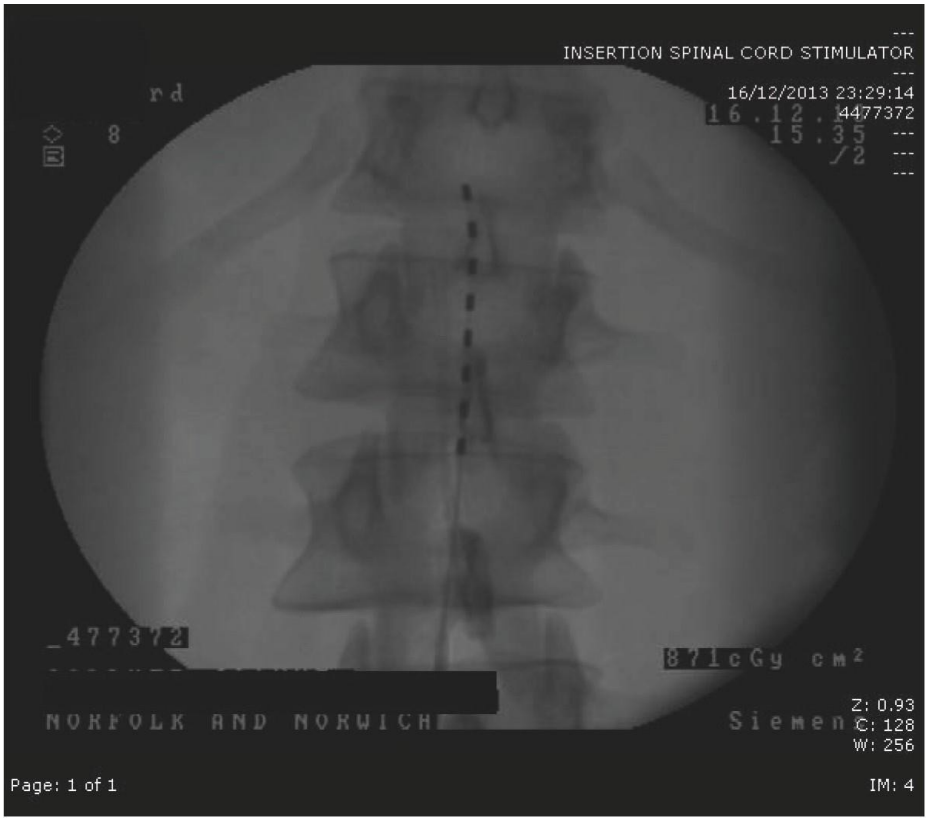
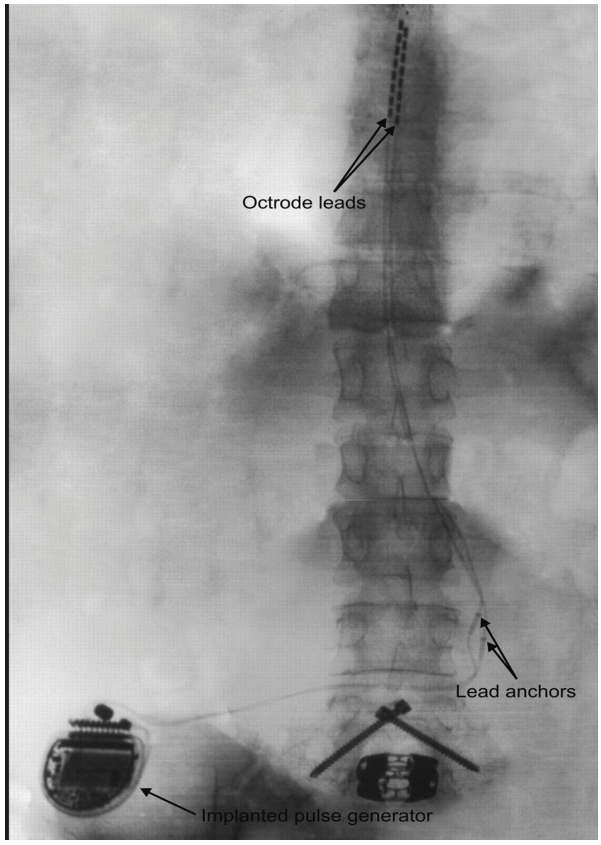
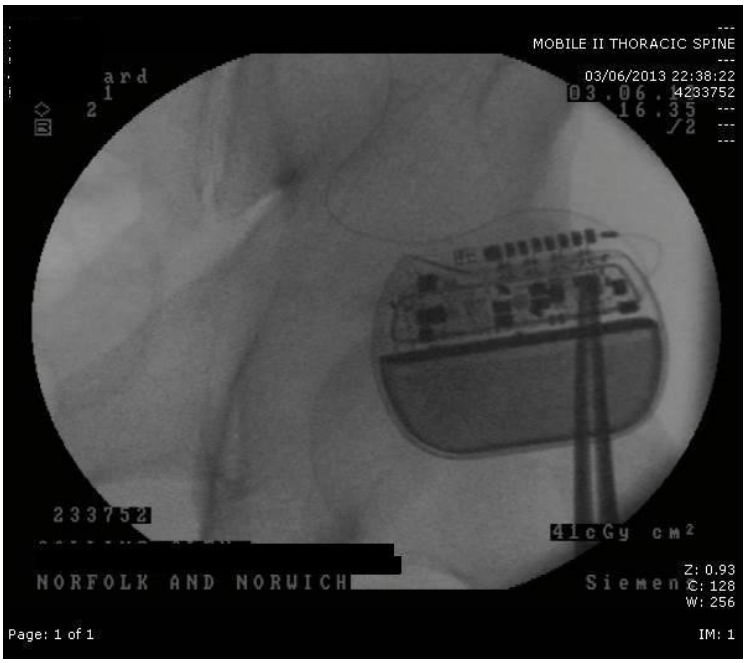


Image gallery

Dual lead in epidural space (thoracic) with implanted battery



Dual lead in epidural space (thoracic) with implanted battery



References

- National Institute for Health and Clinical Excellence (NICE) 2008. Spinal cord stimulation for chronic pain of neuropathic or ischaemic origin, NICE technology Appraisal Guidance 159. NICE: London http://guidance.nice.org.uk/TA159/QuickRefGuide/pdf/English

- British Pain Society 2009, Stimulating the spinal cord to help with pain - information for patients, British Pain Society, London https://www.britishpainsociety.org/static/uploads/resources/files/book_scs_patient.pdf

Useful websites:

- The British Pain Society:

  https://www.britishpainsociety.org/static/uploads/resources/files/book_scs_patient.pdf

- Boston Scientific website: http://www.controlyourpain.com

- Abbott Medical website: http://www.poweroveryourpain.com

- Medtronic website: http://www.tamethepain.co.uk

- Nevro (high frequency SCS) website: http://www.nevro.com

Please note that the Boston scientific, Abbott, Medtronic and Nevro websites are commercial websites.

If you have any questions relating to this leaflet then please contact us at:

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Bowthorpe Road
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Telephone: 01603 288453 (Monday to Friday, 8.15 to 17.30)