NHS
Royal Cornwall Hospitals
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Nerve blocks for chest wall injury

Single injection or nerve catheters for pain management

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Who is this leaflet for?

This leaflet is for adults who have been admitted to hospital with a painful injury to their chest wall. This is often one or more rib fractures. A separate booklet will also be provided to you covering the overall care and management of chest wall injuries.

Why is pain relief important for chest wall injuries?

Chest wall injuries make it difficult for you to breathe and cough effectively. Breathing effectively and coughing is an everyday action that keeps your lungs working well and clear of naturally produced fluids. If you are unable to breathe and cough effectively because of pain, then those fluids can build up and cause infections. Pain from chest wall injuries can be worse on the first two days following injury so it is important that we control your pain early. Good early pain relief will allow you to take effective breaths and cough.

Why I am being offered a nerve block?

Sometimes managing your pain may be tricky due to pre-existing health problems or medications, or if the injury is too painful to be managed with simple tablets or pain relief.

When we can't control your pain well with simple pain relief, we offer a local anaesthetic injection. This can be either a:

- nerve block – a one-off injection of local anaesthetic
- nerve catheter – local anaesthetic through a flexible plastic tube.

This nerve block or catheter is to control your pain and you will usually still need other pain relief at certain points in the day.

What is a nerve block or nerve catheter?

- **Nerve block** – a single injection that is given for immediate 'short-term' pain relief. This one-off injection only lasts for 8-24 hours, but is quicker, safer and easier to do. We often use a single injection to get on top of severe pain, or until we can free up space and doctors to offer you a nerve catheter.

- **Nerve catheter** – similar to a nerve block, but where a catheter (small flexible tube) is placed instead. This tube is attached to a local anaesthetic infusion pump or local anaesthetic is given as a regular injection 3-4 times a day to provide continuous pain relief. A nerve catheter is usually kept in for 3-7 days, giving continuous pain relief during this time.

What are local anaesthetics?

Local anaesthetics are commonly used to reduce pain during or after surgery. They are also used when you have painful injuries such as rib fractures or chest wall injuries. They work by stopping the signals that pass along your nerves from the site of injury up to the brain. A more common example of this is when you go to the dentist and they numb an area around a tooth.

What nerve blocks may be offered?

The chest wall nerves come from the upper part of the spine (called the thoracic spine). As the nerves move away from the spine, they travel along planes of muscles to supply the bone muscle and skin of your chest wall.

We can target these nerves on their journey at different points from the spine to the chest wall:

1. **Epidural** – the epidural space is just outside a fluid filled sac (called the dura) protecting the spinal cord. Epidurals are most often used in pain relief for women in labour. A catheter is placed in this space close to the nerves in the spine and local anaesthetic is given regularly to offer good pain relief. It is quite rare for us to offer an epidural but if both sides of your chest wall are damaged it may be the best option.
2. **Paravertebral** – the paravertebral space is to one side of the epidural space next to the spine. It can be thought of as a one sided epidural. We usually only use this as a 'single shot' (one-off injection) to control your pain for 12-24 hours whilst we arrange for you to have a catheter technique. It gives very good pain relief but has a very rare chance of damaging the lining of your lung.

3. **Erector spine plane** – the erector spinae are a collection of muscles which run down your back. The nerves to your chest wall pass in a plane beneath this collection of muscles. Local anaesthetic put into this space travels up and down the spine, stopping the nerves sending pain signals to your brain. This is the most common catheter technique we use as it offers a balanced combination of safety but also good pain relief. A catheter can be placed in this area so you can have pain relief for 3-7 days.
4. **Serratus anterior plane** – similar to an erector spinae block but slightly further away from the spine. This block offers another option for a catheter with 3-7 day pain control. This is one of the safest places to put a catheter.

These pictures will help us explain to you where and why we put the different blocks and catheters. The numbers on the left image match the numbers next to the blocks.

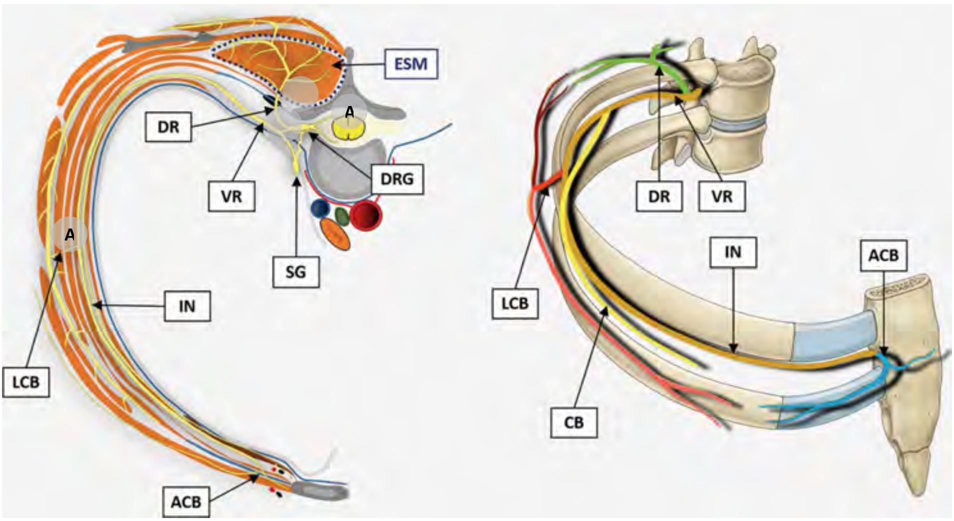

Figure 1 Cross section of spine

Who performs the procedure?

Nerve blocks and nerve catheters are usually performed by anaesthetists or emergency doctors. To make the technique as safe, quick and painless as possible, after local anaesthetic is put in place in the skin using special needles, an ultrasound machine is used to find exactly the right area for injecting or placing a catheter.

The block or catheter is usually placed with you sat up or lying on your side at the edge of the bed. We understand that this may be uncomfortable or feel not possible due to your pain, but we will do everything we can to assist and support you.

Are there any risks or complications?

Nerve blocks are generally very safe, however as with all procedures there are some risks. The risks of a nerve catheter or block are outweighed by the benefit that they provide. The person performing the block will discuss this with you.

The most common risks are:

- partial or no effect from the block
- infection at the injection or nerve catheter site
- bruising or bleeding.

The person performing the block will discuss any specific risks to the block you choose together. We support shared decision making so please do ask as many questions as needed – we want you to feel safe and in control.

How long will a nerve catheter stay in place?

Catheters are used for the initial, most painful part of your injury and so normally stay in place for 3-7 days. Nursing staff will then usually remove them.

The site of the catheter is regularly inspected for signs of infection or swelling as part of ongoing nerve catheter management.

Once the nerve catheter is removed, your ward team will make sure that alternative pain relief is available to you, if you need it.

Can I have other pain medications if I have a nerve catheter?

Yes. A nerve block or catheter should control much of your pain, but you may need extra help from other pain relief. You are encouraged to continue simple pain relief like paracetamol. The nurses on the ward will help you with this. These can be given in different ways – for example tablets or injections.

Your pain relief is very important to us and will be monitored by both your ward staff and specialist teams. This may include pain specialist nurses, anaesthetists and the major trauma team.

Does this mean that I will receive this block or nerve catheter?

Not always. There are a few reasons that may exclude you from having this procedure. These may include:

- you don't want to have it done
- if the person performing the block does not feel that it is in your best interests or delay is necessary, such as being on strong blood thinners
- contraindications to you receiving this such as allergy or sensitivity. (A contraindication is a reason not to have a treatment or procedure as it may be harmful.)

Further information

If you need any further information, please do ask your clinical team and they will liaise with the Pain team and anaesthetists.

If you would like this leaflet in large print, braille, audio version or in another language, please contact the General Office on 01872 252690

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