

Percutaneous Vertebroplasty

What are vertebroplasty and kyphoplasty?

These are two new types of operation on the bones of the spine that can help relieve pain caused by myeloma bone disease.

Bone disease is the most common complication of myeloma. In myeloma, the myeloma cells within the bone marrow cause bone to be broken down faster than it can be replaced. As a result the bone becomes weaker and can sometimes break after trivial injury or stress (pathological fractures).

One of the most common sites for such fractures is the bones of the spine (vertebrae). These vertebrae tend to collapse when they fracture.

The resulting loss of height and altered spinal alignment (kyphosis) can lead to symptoms such as:

- Chronic pain
- Reduced mobility
- Loss of independence in daily activities
- Decreased lung capacity and function (difficulty in taking a deep breath)
- Difficulty sleeping

The first line treatment for fractures of the spine caused by myeloma bone disease includes pain killing drugs (analgesics), radiotherapy and in some cases spinal support. Drugs called bisphosphonates have been found to be very effective in preventing and controlling myeloma bone disease, but are unable to repair the fractured bones.

Percutaneous vertebroplasty (literally shaping of a vertebra) is a new technique used to treat a compression fracture of a vertebra, by injecting the vertebra with bone cement (acrylic material) to stabilise it. It can relieve pain and help prevent further collapse. Balloon kyphoplasty is a similar, but newer procedure than vertebroplasty, which aims to restore the height of the damaged vertebra by inflating a balloon inside it and then filling the balloon with the bone cement.

How is percutaneous vertebroplasty used to treat myeloma?

The aim of vertebroplasty is to relieve pain and improve function and mobility. It is reported that up to 80% of patients can experience pain relief within a few days of the procedure. Relief from pain can mean that mobility is increased and overall function improved. Careful selection of those patients who may benefit from percutaneous vertebroplasty is important.

Selection criteria may include:

- Conventional treatment for relieving bone pain (e.g. radiotherapy) must have already been tried
- Pain must have persisted for more than two months after conventional treatment, as pain may take some weeks to respond and settle
- Other causes of pain have been excluded
- Vertebrae that are severely compressed cannot be treated with this technique
- The procedure must usually take place within 12 months of the collapse occurring
- Some patients may not be suitable for treatment because of other conditions, e.g. if the collapsed vertebra is causing nerve (neurological) problems, or if they have a bleeding disorder

For further information about this procedure see Myeloma UK's Infoguide on *Balloon Kyphoplasty*.

How is percutaneous vertebroplasty performed?

It is important that a trained and experienced expert performs this procedure. This might be a specialist spinal surgeon or an interventional radiologist. The procedure can be done under either local or general anaesthetic.

Percutaneous vertebroplasty is performed with the patient lying face down and involves injection of a small amount of acrylic material (bone cement) through a hollow tube (cannula) into the vertebra, in order to restore its strength. The cannula needs only a small keyhole incision in the skin, and is inserted into the bone very precisely by guided X-rays.

On average, the technique takes about one hour for each vertebra injected. Up to two or three vertebrae can be treated at one time. A CT scan may be performed at the end of the procedure to check the distribution of the cement. Antibiotics may be given either prior to or during the procedure to prevent infection.

Because the cement hardens almost immediately most patients can go home on the same day. Some patients report improvement in pain symptoms within 24 hours, while others may feel a more gradual benefit over a few months.

The surgeon or radiologist will follow the patient up within the first week to check progress and to answer any questions. Normal activities may be resumed within a few days but strenuous activity should be avoided for six weeks.

What are the potential risks and complications?

Some general surgical risks apply to percutaneous vertebroplasty, including reaction to anaesthesia or post-operative infections.

Other risks that are specific to this procedure include:

- Nerve damage or a spinal cord injury from positioning of instruments placed in the back
- Nerve injury or spinal cord compression from leaking of the acrylic material into veins or epidural space. If leakage occurs into the vertebral veins, small amounts of cement may travel up to the lungs, and block small blood vessels (pulmonary embolism)
- Allergic reaction to the bone cement

The future

The use of cement to repair collapsed bones is a relatively new development, which means that doctors are still learning about how this technique can best be used. At present the knowledge of how to use these procedures in myeloma is limited. Guidelines have been developed by NICE (National Institute of Clinical Excellence) on the use of percutaneous vertebroplasty in a variety of diseases/conditions. The guidelines are available on the NICE website at www.nice.org.uk

As percutaneous vertebroplasty is a relatively new procedure it is unfortunately not yet widely available. If you think you could benefit from this procedure the best person to discuss this with initially is your myeloma specialist.

About this Infosheet

The information in this Infosheet is not meant to replace the advice of your medical team. They are the people to ask if you have questions about your individual situation. All Myeloma UK's publications are extensively reviewed by patients and healthcare professionals prior to publication.

Other information available from Myeloma UK

Myeloma UK has a range of Essential Guides, Infoguides and Infosheets available, covering many areas of myeloma, its treatment and management. To order your free copies, contact the **Myeloma Infoline** on **0800 980 3332**. This information is also available 24/7 on our website at www.myeloma.org.uk.

If you would like to talk to someone about any aspect of myeloma, its treatment and management, call the **Myeloma Infoline** on **0800 980 3332**. Your call will be answered by Myeloma Nurse Specialists who are supported by medical and scientific advisors. The Myeloma Infoline is open from Monday to Friday, 9am to 5pm, and is free to phone from anywhere in the UK. From outside the UK, call +44 131 557 3332 (charged at normal rate).

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