British Society of Interventional Radiology
The Royal College of Radiologists
63 Lincoln's Inn Fields
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Vertebroplasty

This information gives a brief outline of a vertebroplasty procedure. It describes the purpose of the procedure as well as how it is conducted and what you should expect if you are preparing for it.

Please note that this leaflet is not meant to replace discussion between you and your doctor. You should raise any questions you may have with the doctor who has referred you for, or is performing, the procedure.

What is a Vertebroplasty procedure?

Vertebroplasty is a minimally-invasive medical procedure used to treat vertebral compression fractures, which are often caused by osteoporosis or trauma. This procedure is done under the guidance of specialised imaging techniques like X-rays or CT scans, which help the specialist Radiology team to see exactly where the fractures are allowing them to accurately inject cement to restore the vertebra.

Vertebroplasty seeks to reduce discomfort, increase range of motion, and improve the patient's general quality of life. Those with severe and incapacitating pain from spinal fractures who have not improved with conventional therapy like painkillers and rest are typically candidates.

Why do I need this procedure?

Due to its minimally-invasive nature, vertebroplasty may be preferred by a patient over traditional surgery for the treatment of vertebral fractures. This outpatient surgery typically requires less time to recover from and doesn't need for general anaesthesia. It also carries a lesser risk of problems. The appropriateness of a patient for vertebroplasty is, however, determined on a case-by-case basis. Before deciding if a vertebroplasty is likely to offer the patient an overall benefit, the doctor will consider a number of variables.

How do I prepare for it?

Before a vertebroplasty procedure, patients should follow these steps to prepare:

- Medical Assessment: Your doctor will review your medical history, medications, and conduct necessary tests to ensure you're a suitable candidate for vertebroplasty.
- Fasting: Typically, you'll be asked not to eat or drink for several hours before the procedure, usually from midnight the night before.
- Medications: Inform your doctor about all medications you take. You might need to adjust or temporarily stop blood-thinning medications to reduce bleeding risks during the procedure.
- Arrangements: Plan for a friend or family member to drive you home after the procedure, as you might feel groggy due to sedation.
- Clothing: Wear comfortable clothing and leave valuables at home.
- Consent: Review and sign consent forms after understanding the procedure, risks, and benefits.
- Relaxation Techniques: Practice relaxation methods like deep breathing to help ease anxiety on the day of the procedure.
- Questions: Prepare any questions you have about the procedure or recovery.

Remember, your doctor will provide specific instructions tailored to your situation.

How is a vertebroplasty performed and by who?

The vertebroplasty procedure is often performed by a specialist musculoskeletal Interventional Radiologist doctor who works with a team of health care professionals to ensure the best possible outcome. The specialist and his team will have discussed and prepared

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for your case in detail prior to commencing, with each member knowing their role during the actual procedure.

During the procedure, a specialized cement mixture is injected directly into the fractured vertebral body under imaging guidance. The cement hardens, stabilizing the fractured vertebra and providing pain relief by reducing pressure on surrounding nerves and restoring vertebral height.

Although slight variations exist from centre to centre, broadly the following key stages take place:

You will be asked to lie face down on an X-ray table, and the skin over the treatment area (usually your back) will be cleaned and numbed with a local anaesthetic.

Using real-time X-ray guidance (fluoroscopy), a thin hollow needle is inserted through the skin and into the fractured vertebral body. This step ensures precise placement of the needle.

Special medical-grade cement, often polymethylmethacrylate (PMMA), is slowly injected into the fractured bone. The cement is a thick liquid that fills the spaces within the bone, stabilizing it.

X-ray images help guide the injection, allowing the doctor to watch the cement filling the bone and ensuring it goes where needed. The cement hardens quickly, usually within about 10-20 minutes.

Once the cement is in place and hardened, the needle is carefully removed. The small puncture in the skin is typically covered with a bandage. You'll be moved to a recovery area to rest.

The entire procedure usually takes around 1 to 2 hours, depending on the number and complexity of vertebral fractures being treated.

What are the potential risks and complications of a vertebroplasty procedure.

While vertebroplasty is generally considered safe and effective, like any medical procedure, it carries potential risks and complications. Patient selection, careful imaging guidance, and experienced medical professionals are crucial factors in ensuring successful outcomes.

- Cement Leakage: The cement used in vertebroplasty can sometimes leak out of the fractured bone and enter nearby areas, such as blood vessels or the spinal canal. The risk of cement leakage is estimated to be around 5-10% of cases and may result in nerve irritation or other complications.
- Infection: While rare, there is a risk of infection at the injection site or within the vertebral body, with a reported incidence of less than 1%.
- Allergic Reaction: In some cases, individuals may have an allergic reaction to the materials used during the procedure.
- Pain: A temporary increase in pain at the injection site can occur immediately after the procedure, affecting about 10-15% of patients.
- Fracture Risk: Although vertebroplasty aims to stabilize fractures, there's a small chance of developing new fractures in adjacent vertebrae due to altered stress distribution, affecting about 8-10% of cases.
- Nerve Injury: Rarely, nerve irritation or damage can occur during needle placement, affecting less than 1% of patients.
- Blood Clot: There is a minimal risk of blood clot formation (less than 1%) in the veins near the treated area.
- Pulmonary Embolism: Extremely rare, a blood clot could travel to the lungs, causing a pulmonary embolism (less than 0.1% incidence).
- Death: While extremely rare, any medical procedure carries a minimal risk of complications leading to death (estimated to be less than 0.1% for vertebroplasty).

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It is important to note that the risks and probabilities can vary depending on individual health factors and the expertise of the medical team. Your doctor will discuss these risks with you and ensure that the benefits of the procedure outweigh potential complications.

What happens afterwards?

Immediately after a vertebroplasty, you will rest under observation. For around 24 hours, refrain from bending, twisting, or hard lifting to give the cement time to properly cure. It is normal to experience some soreness or discomfort. Observe whatever directions your doctor gives you regarding pain medication. To assist flush out the contrast dye that was injected during the operation, stay hydrated by drinking water.

Inform the medical professionals if you feel extreme discomfort, a fever, or any other unusual symptoms. Make plans for someone to drive you home because the effects of the treatment may leave you sleepy and unable to operate a vehicle that day.

Ensure you attend any scheduled follow-up appointments with your healthcare provider. These visits are crucial for monitoring your progress and ensuring that the procedure is successful. Your doctor might recommend physical therapy to help you regain strength, flexibility, and mobility. Physical therapists can guide you through exercises that are safe for your recovery.

Remember, these instructions are essential for a successful recovery. Follow them closely and reach out to your healthcare provider if you have any concerns.

Notes