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# **A PATIENTS GUIDE TO:** **VERTEBROPLASTY**

## **Vertebroplasty**

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### **What is Vertebroplasty?**

Vertebroplasty is an image-guided, minimally invasive, nonsurgical therapy used to strengthen a broken vertebra (spinal bone) that has been weakened by osteoporosis or, less commonly, cancer. Vertebroplasty can increase the patient's functional abilities, reduce or eliminate pain, allow a return to the previous level of activity, and prevent further vertebral collapse. It is usually successful at alleviating the pain caused by a compression fracture. Often performed on an outpatient basis, vertebroplasty is accomplished by injecting an orthopedic cement mixture through a needle into the fractured bone.

### **What are some common uses of the procedure?**

Vertebroplasty is used to treat pain caused by osteoporotic compression fractures. After menopause, women are especially vulnerable to bone loss. More than one-fourth of women over age 65 will develop a vertebral fracture due to osteoporosis. Older people suffering from compression fractures tend to become less mobile, and decreased mobility accelerates bone loss. High doses of pain medication, especially narcotic drugs, further limit functional ability. Vertebroplasty is often performed on patients too elderly or frail to tolerate open spinal surgery, or with bones too weak for surgical spinal repair. Patients with vertebral damage due to a malignant tumor may sometimes benefit from vertebroplasty. In rare cases, it can be used in younger patients whose osteoporosis is caused by long-term steroid treatment or a metabolic disorder.

Typically, vertebroplasty is recommended after simpler treatments—such as a back brace or pain medication—have been ineffective, or once medications have begun to cause other problems, such as stomach ulcers. Vertebroplasty can be performed right away in patients who have severe pain requiring hospitalization.

### **How should I prepare for the procedure?**

First, you'll be clinically evaluated. The evaluation generally includes diagnostic imaging, blood tests and a physical exam. Diagnostic imaging such as spine x-rays, a radioisotope bone scan or magnetic resonance (MR) imaging will be done to confirm the presence of a compression fracture that is amenable to vertebroplasty. If an MR cannot be performed, because of a pacemaker or other medical factor, a CT scan can be substituted. In preparation for the clinical evaluation and physical exam, you should obtain and bring with you any previous diagnostic images, especially x-rays or MR films. Be sure to tell your doctor if you are allergic to x-ray contrast material, which contains iodine.

Most medical facilities provide patients with pre-procedure instructions. Instructions will typically tell you not to eat for at least six hours before the procedure. If you are diabetic, you should contact your doctor for instructions on regulating your blood sugar and medications. On the day of the procedure, if your doctor instructs you to take your usual medications, swallow your medication with sips of water or clear liquid up to three hours before the procedure. Avoid drinking orange juice, cream and milk.

If you take an anticoagulation medication (blood thinners such as Coumadin), you will have to stop the treatment until coagulation becomes normal, usually within three to five days. Contact your doctor before stopping any medication to determine if it is safe for you. On the day of the procedure, patients who use blood thinners should report to the hospital a little earlier for a blood test to verify that their anticoagulant has stopped working. If you are unable to interrupt your anticoagulant regimen, a short in-patient stay for intravenous treatment with heparin may be required. All patients should arrange for an adult to drive them home after the procedure.

### **What does the equipment look like?**

A hollow needle (trocar) is passed into the vertebral bone and a cement mixture including polymethylmethacrylate (PMMA), barium powder and a solvent is injected. The cement mixture resembles toothpaste or epoxy. The physician will monitor the entire procedure on a fluoroscopy imaging screen and make sure that the cement mixture does not back up into the spinal canal.

### **How does the procedure work?**

Vertebroplasty is highly effective because after osteoporosis has made bones very porous, the cement fills the spaces and strengthens the bone so it is less likely to fracture again. After vertebroplasty, the cement stabilizes the fracture, which is thought to provide the pain relief. Patients begin regaining mobility within 24 hours and are usually able to reduce, or even eliminate, their pain medication.

### **How is the procedure performed?**

Vertebroplasty is generally performed in the morning. You will be sedated and receive a local anesthetic to numb the skin and the muscles near the spinal fracture. Intravenous antibiotics may also be administered to prevent infection. Through a small incision and guided by a fluoroscope, a hollow needle is passed through the spinal muscles until its tip is precisely positioned within the fractured vertebra. Then the Physician may perform an examination called intraosseous venography to make sure the needle has reached a safe spot within the fractured bone. Once the needle is shown to be in the proper location, the orthopedic cement is injected. Medical-grade cement hardens quickly, over the next 10 to 20 minutes. A CT scan may be performed at the end of the procedure to check the distribution of the cement. The longest part of vertebroplasty involves setting up the equipment and making sure the needle is perfectly positioned in the collapsed vertebra.

Vertebroplasty usually takes less than two hours (longer if more than one site is being treated). Although you will not be allowed to drive after the procedure, you can go home with an adult, if the distance is short. Otherwise, an overnight stay at a nearby hotel is advised. Hospitalization is required only if the patient is unusually frail, has no one to help them at home, or requires further monitoring following the procedure.

### **What will I experience during the procedure?**

You'll be lying face down throughout the procedure. Sedation medications will help you stay calm and minimize any discomfort you might feel during the vertebroplasty. You'll be conscious, though drowsy, and able to hear anything that's said in the room. During the procedure you'll be asked questions such as, "Does this hurt?" It's important for you to be able to tell your doctor whether you are feeling any pain. Because of the position you'll be in, you won't be able to see the image on the fluoroscope.

For two or three days afterward, you may feel a bit sore at the point of the needle insertion. You can use an icepack to relieve any discomfort but be sure to protect your skin from the ice with a cloth; use the pack for only 15 minutes per hour. The tiny incision will be closed with a strip of tape and covered with a bandage that should remain on for several days. It's important that the injection site remain clean. You can shower while the bandage is still on.

Bed rest is recommended for the first 24 hours following vertebroplasty, though you can get up to use the bathroom. Increase your activity gradually and resume all your regular medications. If you take blood thinners, check with your doctor, but you may be able to restart them the day after the procedure

**Who interprets the results and how do I get them?**

Most patients are able to bear weight very soon after undergoing vertebroplasty. They can get up to walk after resting in bed for about an hour afterward and the Physician can often tell at that point if the procedure was successful. In some cases, it can take a few days for the doctor to be able to make this assessment.

Usually, patients will receive follow-up phone calls within the first week after vertebroplasty to check on their progress and answer any questions. The referring physician or primary care provider provides follow-up care.

**What are the benefits vs. risks?**

**Benefits**

- Because the pain of a compression fracture is alleviated by vertebroplasty, patients feel significant relief almost immediately. After just a few weeks, two-thirds of patients are able to lower their doses of pain medication significantly. Many patients become symptom-free.
- About 75 percent of patients regain lost mobility and become more active, which helps combat osteoporosis. After vertebroplasty, patients who had been immobile can get out of bed, reducing their risk of pneumonia. Increased activity builds more muscle strength, further encouraging mobility.

**Risks**

Usually, vertebroplasty is a safe and effective procedure.

- A small amount of orthopedic cement can leak out of the vertebral body. This does not usually cause a serious problem, unless the leakage moves into a potentially dangerous location such as the spinal canal.
- Other possible complications include infection, bleeding, increased back pain and neurological symptoms such as numbness or tingling. Paralysis is extremely rare.