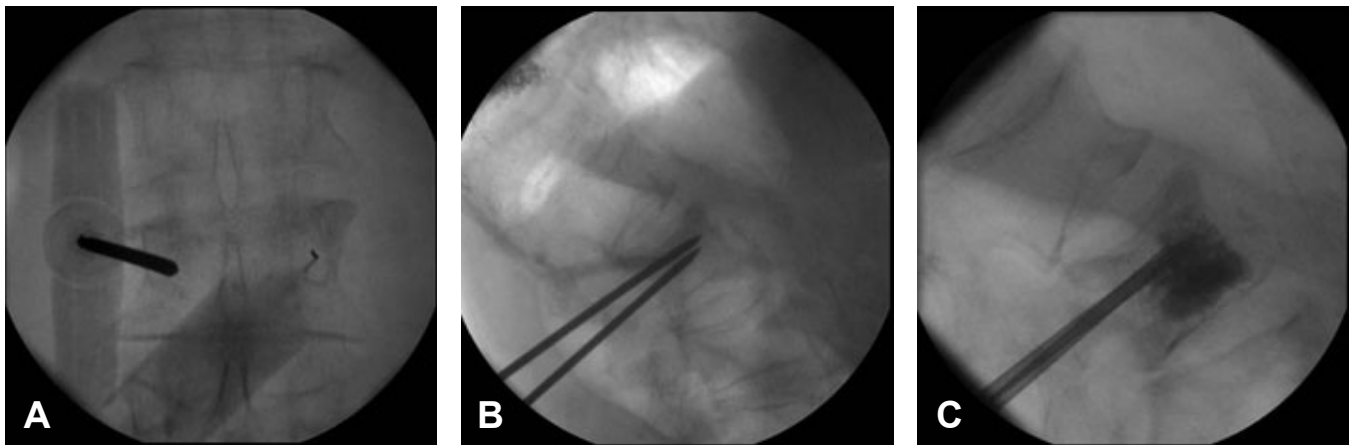




Spine Intervention: Vertebroplasty

Research indicates that osteoporosis can be caused by a diet lacking in calcium, excessive alcohol consumption (particularly in men), menopause, chronic steroid therapy and smoking. It is estimated that 1 in 3 women and 1 in 8 men over the age of 50 has osteoporosis-worldwide. Fractures, which result from abnormal bone thinning, can result in pain and disability. Vertebroplasty and kyphoplasty are minimally invasive methods of treating patients with compression fractures of the spine. A medical bone cement (polymethyl methacrylate) is injected into the collapsed vertebral body to stabilize and in some cases improve vertebral body height. Vertebroplasty can also be used to stabilize vertebrae affected by tumors such as hemangiomas, metastases, lymphoma or myeloma. Patients are evaluated in our office and may undergo tests such as plain x-rays, CT scan or MRI of the spine to identify their condition.

In most cases vertebroplasty is performed as day surgery with conscious sedation which includes IV medications for relaxation and pain control. Patients are placed prone on the procedure table and given IV antibiotics. After sterile preparation and administration of local anesthesia, a needle is placed in the affected vertebral body along the pedicles. Under direct fluoroscopic visualization, a mixture of polymethyl methacrylate cement (PMMA) and an opacifying agent such as barium are injected into the bone. When the appropriate amount has been administered, the needle is removed and a bandage is placed over the small incision. Many patients experience instant relief of painful symptoms. Patients are watched for several hours in the hospital and usually sent home the same day.



(A) Fluoroscopic images during the procedure show placement of the vertebroplasty needle on the left and localization of the pedicle on the right at L2.

(B,C) Lateral image shows placement of both needles in the lateral plane and the next image shows delivery of methylmethacrylate into the vertebral body.

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(D) MRI shows bone edema and mild loss of height consistent with acute compression fractures of the T11 and L2 vertebral bodies.

(E) The needles are removed and the final AP image shows placement of the bone cement into the T11 and L2 vertebrae following treatment of both levels. The patient's pain significantly improved

The Neurovascular Service at Massachusetts General Hospital provides a multidisciplinary approach to patient care that combines neurosurgery, neurology and interventional neuroradiology. Based in the Department of Radiology, the Neurovascular Service's Interventional Neuroradiology Program uses minimally invasive procedures to treat a range of neurovascular disease and spinal disorders. For more information, visit www.mgh-interventional-neurorad.org

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