



## Association for Radiologic & Imaging Nursing

### Clinical Practice Guideline

#### Vertebroplasty

#### Overview

Vertebroplasty is a percutaneous procedure performed to treat painful vertebral compression fractures. The procedure uses Polymethylmethacrylate (PMMA) through a needle percutaneously inserted into the body of the vertebrae to stabilize the compression fracture. This procedure is commonly performed as an outpatient procedure for treatment of osteoporotic, metastatic, and benign lytic lesions such as hemangiomas of the spine. It is not typically used to treat the non-osteoporotic acute traumatic compression fracture.

#### Target Audience

RNs working in the Interventional Radiology Division

#### Content/Strategies

Osteoporosis is present in one out of every four women and one out of every eight men, over the age of 50. Along with the aging baby boomer generation, it is being identified by the public in greater numbers as a health risk.

Neoplastic disease can metastasize to the vertebrae causing compression fractures. Treating these painful lesions in a palliative manner can improve end-of-life quality.

Hemangiomas destabilize the body of the vertebrae leading to compression fracture. Eighty to 90 percent of patients obtain significant pain relief.

#### Nursing Considerations:

##### Pre procedure-

- Adequate intravenous access

- Proper positioning—often these patients are frail elders who must be positioned prone for the procedure.

  - Bony prominences must be protected.

  - Care must be taken when moving these patients to prevent causing fragility fractures to legs and ribs.

  - Adequate airway maintenance in the prone position must be assured.

  - Most procedures can be done under conscious sedation with some local anesthetic, although some might require general anesthesia depending on their acuity level.

##### Intra procedure-

- Absolute sterility of this procedure is imperative—full surgical scrub of site, cap/mask for all in room.

- Frequently assess pain, comfort levels, level of sedation, adequacy of ventilation (O2 sats) and tolerance of the procedure.

##### Postprocedure-

- Rest supine for 2-4 hours. Stand and walk after 2-4 hours.

- Discharge home with their routine medications.

- Instructed to look for and report new pain and fever.

##### Signs of Complications-

- Chest Pain/Hypoxemia—could indicate a PMMA embolus, Ventilation-Perfusion (VQ) scan or CT scan

Back Pain—could indicate new vertebral fracture or rib fracture or PMMA in the foramen or spinal canal. A computed tomography (CT) is needed to rule out fracture/leakage of PMMA.

Neurological Changes—PMMA embolus to the central nervous system. CT scan to rule out leakage as evidenced by lower extremity weakness, loss of bowel or bladder control.

**Contraindications:**

- Coagulopathies
- Infections current
- Significant spinal cord compromise

**Clinical Complications:**

- Transitory fever
- Transient worsening of pain
- Radiculopathy
- Rib fractures
- Infection
- Spinal cord compression
- Cement pulmonary embolism

There is some debate about vertebroplasty of a single level increasing the risk of fracture at adjacent levels. Patients must have adequate discharge instructions to assist them in discerning the routine complications. These written instructions would include that fever up to 101 may be expected. Patients may also have a temporary worsening of pain; if their medications do not give adequate relief they should go to the emergency department and call their physician. Patients must be given instructions to seek immediate medical care for complaints of chest pain, shortness of breath, loss of bowel or bladder control, numbness, or tingling in their extremities.

**References**

- Evans, A.J., Jensen, M.E., Kip, K.E., DeNardo, A.J., Lawler, G.J., Negin, G.A., et al. (2003). Vertebral compression fractures: Pain reduction and improvement in functional mobility after percutaneous polymethylmethacrylate vertebroplasty retrospective report of 245 cases. *Radiology*, 226(2), 366-372.
- McKiernan, F., Faciszewski, T., & Jensen, R. (2004). Quality of life following vertebroplasty. *American Journal of Bone and Joint Surgery*, 86-A( 12), 2600-2606.
- Kallmes, D.F., & Jensen, M.E. (2003). Percutaneous vertebroplasty. *Radiology*, 229, 27-36

**Other Resource**

Society of Interventional Radiology Website: <http://www.sirweb.org/patPub/vertebroplasty.shtml>

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