

Minimally invasive surgery for osteoporotic vertebral fractures

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Osteoporotic vertebral fractures constitute a major health care problem, not only because of their high incidence but also due to their direct and indirect consequences for health-related quality of life and health care expenditures. The mainstay of management of symptomatic vertebral compression fractures is targeted medical therapy, including analgesics, bed rest, external fixation, and rehabilitation. However, anti-inflammatory drugs and certain types of analgesics can be poorly tolerated by elderly patients, and anti-osteoporotic drugs (such as calcitonin and Fosamax) show only long-term efficacy. Because of the risks of open surgery in elderly patients suffering from osteoporotic vertebral fractures, surgical treatment has generally been limited to cases with concurrent spinal instability or neurologic deficits.

Vertebroplasty was first used in Europe to treat vertebral hemangiomas and is now widely used to treat pain due to spinal metastases or vertebral compression fractures caused by osteoporosis. Under local anesthesia, 1 or 2 X-ray machine-guided percutaneous needle injections of bone cement are made into the spinal fracture in order to enhance the strength of the vertebral body and reduce the pain. Such minimally invasive surgery is still dangerous, posing such risks as infection, bleeding, and leakage of bone cement causing neurological damage. Of course, adjacent fractures may occur in the future. Given professional technique and appropriate patient selection, percutaneous vertebroplasty is an excellent method for treating patients with osteoporotic vertebral fractures.

In balloon kyphoplasty, the Sky Bone Expander System, or vesselplasty, a tamp is inserted into the vertebral body via the vertebroplasty route, allowing compression of cancellous bone, creation of a cavity to prevent cement leakage, and realignment of the spinal curvature. Not only pain relief but also spinal alignment can be achieved.

The U.S. Food and Drug Administration (FDA) approved the treatment of spinal fractures or tumors with balloon kyphoplasty in 1998. In the United States,

balloon kyphoplasty is the usual treatment for osteoporotic vertebral fractures. However, this equipment remains quite expensive (up to \$3,000) in Taiwan, so widespread use will require good communication with the patient and family.

<http://www1.cgmh.org.tw/intr/intr2/c3270/enortho/index.html>

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