

A **better choice** for your patients.
A **smarter choice** for healthcare.

Fragility fractures are a serious and growing problem for older adults and the healthcare system. In fact, 50% of women and 25% of men will have an osteoporotic fracture during their lifetime.¹ Vertebral compression fractures (VCFs) are the most common with an estimated 700,000 such fractures reported nationally each year.² The annual direct medical cost is estimated at \$746 million.² Vertebroplasty offers a proven and safe treatment that assures the best quality results for your patients and the healthcare system.



Did you know?

By the year 2010, the National Osteoporosis Foundation (NOF) estimates that more than 52 million women and men aged 50 and older will have either osteoporosis or be at increased risk due to low bone mass. By the year 2020, NOF expects this number to increase to over 61 million.¹

Contact your Stryker representative to learn more about VCFs and Stryker Vertebroplasty, request patient education materials, or to locate a leading practitioner in your area.

Clinical
Consequences
of VCFs

Because many patients and their families regard back pain as an unavoidable consequence of aging, approximately two-thirds of VCFs go undiagnosed.^{3,4} Additionally, some vertebral fractures can take days to weeks to develop. Active efforts to diagnose VCFs are critical because if left untreated, they can lead to long-term complications, known as the "downward spiral."⁵

Table 1
Patient Complications Associated with VCFs⁶

- Reduced range of motion and protracted inactivity
- Respiratory decrease and increased lung disorders
- Decreased appetite and poor nutrition due to compression of abdominal organs
- Constipation
- Bowel obstruction
- Deep venous thrombosis
- Worsening of osteoporosis
- Progressive muscle weakness
- Loss of height and kyphosis
- Prolonged pain
- Loss of independence
- Crowding of internal organs
- Higher risk of future VCFs
- Increased mortality

Footnotes

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their life.



Stryker Vertebroplasty
Relieving pain. Improving lives.

Assessment and Diagnosis

VCFs should be suspected in patients older than 50 years with acute onset of sudden low back pain. Most patients will remember a specific injury as the cause,⁷ but some fractures may occur without any history of increased force on the spine. Evaluating the patient's risk, taking a history, conducting a physical examination, and ordering radiologic studies are essential to assessing and diagnosing VCFs,²¹ as outlined in **Figure 1**.

Assessment: Contributing Risk Factors

VCFs are recognized as a hallmark of osteoporosis,⁸ and many of the risk factors are the same.⁹ Other risk factors include trauma or use of steroids and anticonvulsive medications. Additionally, a history of a VCF and other fractures, such as the wrist, are strong predictors of a subsequent VCF.^{10,11}

Diagnosis: Physical Examination

A physical examination will reveal tenderness directly over the area of acute fracture, made worse by standing or walking. VCF pain is usually localized to the fracture area and is nonradicular. Palpitation often elicits pain.¹² An increased kyphosis may also be noted.¹³ In cases of uncomplicated compression fractures, straight leg raise will be negative and neurologic examination will be normal.⁶

Diagnosis: Radiology

The diagnosis can be confirmed if plain radiography films and/or STIR sequence MRI show the classic wedge deformity correlating with the area of tenderness found on physical examination.⁶ MRI is also an excellent tool to exclude other causes of back pain, as well as to identify the best vertebral bodies to treat. A bone scan is useful for determining bone density. CT scans can be helpful for identifying a suspected fracture that is not well visualized on plain films.



Image 1
Lateral x-ray showing compression fracture at T8

Table 2
Benefits of Stryker Vertebroplasty

- Relieves pain
- Increased range of motion
- Return to previous levels of activity
- Improved quality of life²³
- Low complication rate
- Outpatient procedure: no overnight hospital stay
- No general anesthesia

Did you know?

Up to half of patients with a prior VCF will experience additional fractures within three years, with many occurring within the first year.¹

Table 3
Procedure Illustrations



A. Vertebral compression fracture



B. Needle is guided into the fractured vertebra



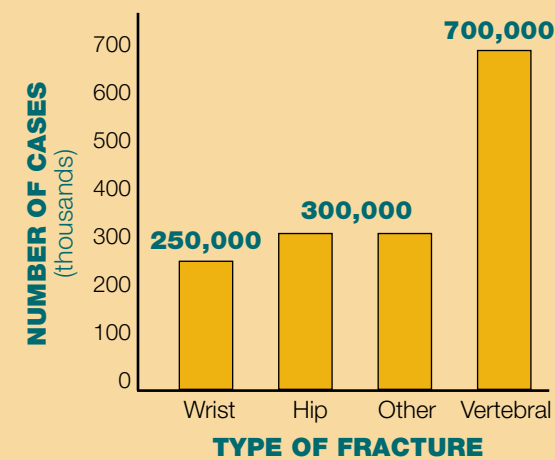
C. Bone cement is injected, filling the spaces within the vertebra



D. Stabilized vertebral body, typically relieves pain within 48 hours of the procedure

Did you know?

Osteoporosis is responsible for more than 1.5 million fractures annually, the majority of which are vertebral fractures.¹



Treatment

Traditional treatment for vertebral compression fractures is nonoperative and conservative: bed rest, analgesics, muscle relaxants, external back braces, and physical therapy. Patients who do not respond to conservative treatment or who continue to have severe pain may be helped by Stryker Vertebroplasty.

Multiple clinical studies have shown that vertebroplasty has a high success rate^{14, 15, 16, 17, 18} and a low complication rate.^{17, 19} This minimally invasive procedure decreases pain and increases mobility in 90% of patients within 24 to 48 hours.¹⁴ It has a well-established safety record and is typically covered by Medicare and most private insurers.

Table 2 summarizes the benefits of Stryker Vertebroplasty.

Clinical Outcomes

Stryker Vertebroplasty is a well-established treatment for VCFs. Twenty-two years of clinical studies have demonstrated positive outcomes following vertebroplasty (percutaneous vertebroplasty) for the treatment of vertebral compression fractures.

- A study by ME Jensen, AJ Evans, JM Mathis, DF Kallmes, HJ Cloft, and JE Dion¹⁴ showed that 90% of patients (29 patients with 47 fractures) suffering from age-related or steroid-induced osteoporosis experienced pain relief and improved mobility at 24 hours post-vertebroplasty.
- An open prospective study by B Cortet, A Cotton, N Bourtry, RM Flipo, B Duquesnoy, and P Chastanet¹⁵ reported significant pain reduction and improvement in health profile scores of 16 patients treated at 20 vertebral levels.
- Results from a Mayo Clinic study¹⁸ concluded that patients (113 patients were treated at 164 vertebral levels) who underwent vertebroplasty experienced relief of back pain and symptoms, as shown by improvement in vertebral pain and Roland-Morris Disability Questionnaire scores.

In summary, the studies indicate that percutaneous vertebroplasty can provide statistically significant pain relief in patients with VCFs.

Figure 1

Initial Evaluation of Acute or Chronic Back Pain^{12,14, 20, 21, 22}

