Spinal Compression Fractures: Stopping a Downward Spiral

By Avery M. Jackson, MD, FACS, FAANS

Broken hip. Those two words alone are enough to strike fear into the hearts of many older patients. They’ve heard the horror stories. They also know that getting prompt treatment can drastically improve a person’s short- and long-term prognosis.

But while 400,000 people are hospitalized for hip fractures each year, nearly twice as many—upwards of 700,000 patients—experience a spinal compression fracture. And if left untreated, the prognosis is as bad as, or worse than, that for a hip fracture.

The big issue is that nearly 45 percent of spinal compression fractures have historically gone undiagnosed, leaving patients frustrated, confused, and often in pain.

Causes of Spinal Compression Fracture

The risk factors for vertebral compression fracture (VCF) are similar to those for hip fracture. In most cases, underlying osteoporosis (often undiagnosed) is a major contributing factor.

People with deficiencies of calcium and vitamin D are more susceptible to weakened bones and fractures. Those who smoke tobacco or consume three or more cups of caffeinated coffee per day are more likely than others to experience a decline in bone density.

Since women are more prone to osteoporosis than men, they’re more likely to experience a VCF, too. The incidence of spinal compression fractures also increases with age.

Other causes of VCFs include high impact trauma, and complications as a result of myeloma or metastatic bone disease.

Symptoms of Spinal Compression Fracture

Diagnosis of a vertebral compression fracture can be somewhat elusive. The symptoms can vary markedly among patients. And while a small percentage of VCFs are asymptomatic upon presentation, far more exhibit symptoms that go unrecognized.

Many VCF patients come to Michigan Neurosurgical Institute after being told their discomfort and back pain are the result of the aging process or spinal arthritis, and not much can be done about it.

Unlike with a hip fracture, many patients don’t experience sudden pain to indicate a break has occurred. VCF pain may begin mildly and worsen over time as the fracture gradually becomes more problematic.

In most cases, however, the pain will worsen with standing or walking, and can become acute when the patient lifts objects or twists his or her torso. Lying down (since it relieves pressure on the spinal column) can provide some relief. Pain may radiate around the body along the rib cage.

In cases of multiple fractures (particularly in patients with previously undiagnosed fractures), symptoms can include height loss, kyphosis/curved back, and breathing problems (as progressively the lungs have less space in which to expand).

To help rule out a spinal compression fracture, it is helpful to know that numbness or tingling from nerve compression are not typical VCF symptoms.

Diagnosis

Diagnosing a VCF can usually be done with standard radiographs, and physical examination will usually show an increased tenderness directly over the acute fracture area. Frontal and lateral X-rays are the first diagnostic step—just be sure to image the entire spine, because nearly 30 percent of patients with spinal compression fractures have multiple breaks.

If a VCF is suspected but the initial X-rays aren’t conclusive, follow-up imaging may be needed to show the break, as the injury can develop slowly over time, similar to a greenstick limb fracture.

In some cases, an MRI, bone scan, or repeat X-ray may be needed to confirm the diagnosis, but not usually. Even less often, a follow-up CT scan may be needed to verify the break.
The High Price for Neglecting Treatment

Patients who have a spinal compression fracture that goes undiagnosed or misdiagnosed are poised for a downward spiral in their health status. If left untreated, a spinal compression fracture begins a process that includes:

- Continued back pain
- Spinal deformity
- Decreased lung capacity
- Impaired motor function
- Loss of appetite
- Sleeping problems

- Decreased activity
- Increased fracture risk
- More bone loss
- Increased pulmonary complications and co-morbidities
- Increased risk of premature mortality

In the typical misdiagnosis of a VCF, the pain is attributed to arthritis or “old age.” Correct diagnosis is important because some prescribed treatments – including physical therapy – can actually worsen the problem and increase the likelihood of additional VCFs.

Treating the Underlying Problem

Once a spinal compression fracture has been diagnosed, swift treatment can make a great difference in the outcome – especially since having one VCF significantly increases the risk of having another.

Rest and pain management are usually the first missteps in treatment. While these can help alleviate the symptoms, they do nothing to address the underlying problem: a break in a vertebra.

To help mend the break, two procedures have become the standard: vertebroplasty and kyphoplasty. Both are outpatient procedures that help heal the fracture by injecting acrylic cement into the collapsed vertebra. But whereas vertebroplasty only heals the break (through cement injection alone), kyphoplasty restores vertebral height – and reduces future fracture risk—with cement injected into a space created by using a high-pressure balloon.
There is considerable misinformation about these outpatient surgical options for spinal compression fracture, mostly based on early, flawed clinical studies. However, recent studies have shown conclusively that life expectancy is significantly longer in patients whose VCFs are treated surgically (through either vertebroplasty or kyphoplasty) vs. those treated non-surgically. Additional benefits of these vertebral augmentation procedures are pain reduction, decreased risk of future vertebral fractures, and improved quality and length of life.

Robert James, M.D., a retired family physician who was referred to us with compression fractures, talks about his kyphoplasty experience in a video interview posted on our website at www.MichNeurosurgical.com. He notes that, before his procedure, he could not walk and needed assistance with most basic activities. Right after the procedure, which he calls “a miracle,” he felt far less pain, and was able to move with much less pain – and was walking again shortly thereafter.

His experience isn’t unusual. Because the cement used to fuse the bone hardens within 15 minutes, there is little real healing that must take place from a clinical standpoint. Patients are generally able to return to their pre-VCF activities — without need for physical therapy or rehabilitation.

And recent literature reviews4, including one of all of the Level I and II data on vertebral augmentation, have shown that VCF patients treated with vertebroplasty or kyphoplasty had a median life expectancy between two and seven years longer than VCF patients managed non-surgically.

Of course, like all surgeries, vertebroplasty and kyphoplasty have risks that primarily depend on the patient’s overall health. This minimally invasive surgical option isn’t right for:

- Patients with spinal curvature that is a result of something other than osteoporosis
- Patients with spinal stenosis, herniated disk with nerve or spinal cord compression, or loss of neurologic function not associated with a VCF.

Overall

Given our aging population, more and more patients are bound to turn to their primary care physicians for relief from back pain, and in many cases, the cause will be an undiagnosed spinal compression fracture. It’s important to spot these fractures as soon as possible — especially when minimally invasive treatment options can significantly reduce pain, increase quality of life, and stop the downward spiral.

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