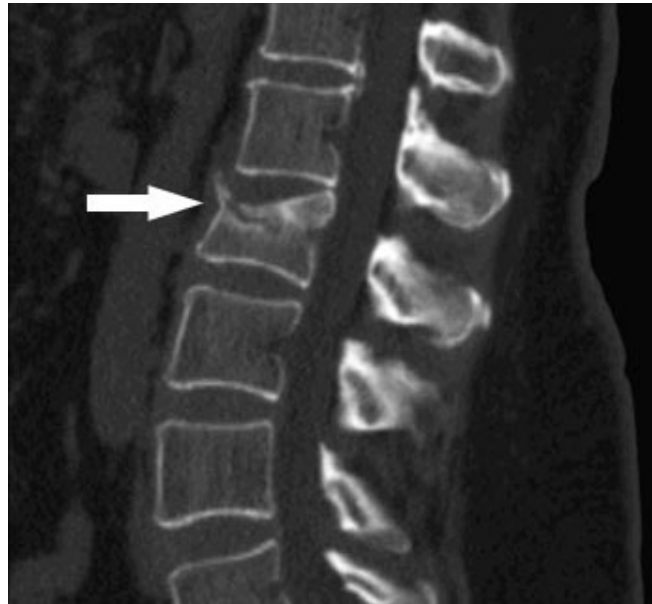


What are compression fractures?

Compression fractures are broken bones of the spine that occur generally with minimal trauma. Normally the vertebra bones are rectangular in shape (when seen from the side on X-Rays.) When a compression fracture occurs, the bone takes on a wedge shape as the bone collapses.

Compression fractures can occur gradually, typically not causing much pain but

leading to a hunched over posture (kyphosis). More often, however, they occur suddenly, leading to a lot of pain.



What causes compression fractures?

Osteoporosis is the most common cause of compression fractures. As osteoporosis develops, the spongy bone of the vertebrae becomes thin and brittle. It is no longer able to hold up under your activities, and can collapse. The osteoporosis also affects healing. As you can imagine, the weak bone has less ability to heal quickly. It often does not take much force to cause a fracture. In fact, I've had patients have a compression fracture simply by bending over, coughing, lifting a light object, tying their shoes and rolling over in bed. Sometimes more than one

fracture occurs. Fairly commonly we see evidence of prior fractures that the patient may not have known about.

Less commonly, but very importantly, compression fractures can also be caused by a tumor in the bone. The most common of these is multiple myeloma, which is a cancer of the bone marrow cells. This disease leads to weakening of the bone. We also commonly see metastasis (spread) of cancer from another part of the body such as the lungs, breast, prostate, thyroid, and kidney.

Who are at risk for these fractures?

Anyone can develop a compression fracture, but they are more commonly seen in the elderly. Women tend to develop osteoporosis more commonly and to a much greater degree than men, so we see more compression fractures in women than in men.

What are the symptoms?

Pain is the most common symptom. Usually it hurts directly at the level where the fracture occurs. If the broken bone has burst, it can also put pressure on the nerves and spinal cord. This can lead to pain radiating around the chest or belly, or even into the legs. In severe cases pressure on the spinal cord can lead to weakness, problems with control of the bowel or bladder, and in very rare circumstances...paralysis. The pain associated with compression fractures is usually constant, and is often made worse with movement and activity. People can become constipated due to the pain and pain medications. People can become depressed because the pain tends to be constant, and does not go away quickly. You may lose your appetite due to the pain.

How are compression fractures diagnosed?

I use a combination of questioning you about how the pain started and its location, physical examination to determine the

location of pain, and imaging to get a better view of the spine anatomy.

X-Rays – These are the first test ordered, and are very helpful in making a diagnosis. What I look for is misshapen bones in the area of the pain. X-Rays, however, cannot determine the age of a fractured bone, nor can they tell me if there is pressure on the nerves or spinal cord.



MRI – The MRI is the best tool we have to tell us if a fracture is new, or if it is old and healed. The MRI also gives us a lot of information about the shape of the bone by showing pictures in slices of the body. It will also help us to see if the fracture is caused by a tumor or infection. , There are some who cannot have an MRI such as those people with a pacemaker, defibrillator, aneurysm clips, metallic heart valves, or other implantable electronic devices. Typically you can have an MRI if you have had a joint replacement.

Bone Scan – This is a test where a radioactive tracer medication is injected into your blood stream and goes to areas of bone activity. Fractures have a high amount of activity. This test is used typically for

those patients who cannot have an MRI. I will typically also order a CT Scan along with the bone scan. The CT Scan allows us to look at the bone in slices similar to the MRI to give me more information about the shape of the bone.

What are the treatments for compression fractures?

The goals of treatment are to reduce pain, decrease the deformity, and return you to a functional lifestyle. The traditional method of treatment has been non-surgical. This would include pain medication, bracing (if tolerated) and time to allow the fractures to heal.



Many people will do well with this approach. Unfortunately it can take a very long time for the fractures to heal (6-12 months), and in some patients, the pain is severe, which affects their daily lives. Pain medications often are required. Occasionally we will also prescribe a nasal spray called Miacalcin (calcitonin). This hormone does help bone to form better, and in some patients actually reduces the pain caused by spinal compression fractures. The downside is the cost.

Kyphoplasty & Vertebroplasty - More recently, invasive procedures such as Kyphoplasty and Vertebroplasty have become popular. Both of these minor procedures predictably reduce the pain from the fractures quickly by injecting material (bone cement – the same material we glue hip replacements in with) to solidify and stabilize the bones. These procedures reduce or eliminate the pain in up to 90% of patients quickly. They are safe, low risk, predictable, and easy to do. They are done as an outpatient, and when comfortable, the patient can return to their desired activities quickly. Kyphoplasty has an additional advantage in that in some fractures it allows at least some correction of the wedging of the bone. These treatments are not experimental, and are becoming the first line of care in many patients.

Spinal Fusion Surgery – This approach is rarely recommended, except in those patients who are demonstrating significant nerve or spinal cord compression as the result of their fracture. Because the bones are so fragile, the screws and other implants used in spinal fusion have a hard time holding in the bones. As a result, large operations are needed, with a lot of hardware, and they are at high risk of complications of loosening or dislodgement of the hardware, breakage of the hardware, and failure of the bones to fuse together.

What about fractures caused by cancer?

These can be challenging. Unfortunately, if the compression fracture is due to cancer, it means, typically, that the patient has cancer that has spread. It is fairly common, in fact, that the first sign that someone has cancer is the pain or fracture of the spine after the cancer has already spread. If we suspect the possibility of cancer (either by how the MRI looks or if the patient has a known history of cancer), a biopsy is done to make a diagnosis. Many of these cancers can be treated with radiation. Sometimes a larger spine fusion operation is required to attempt to remove the tumor and stabilize the spine. Unfortunately, in many cases, the existence of metastases is a prognosticator for a poor outcome.