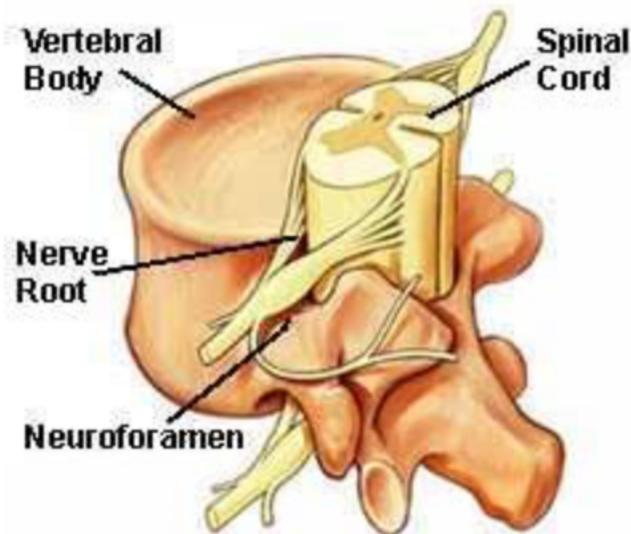


What is a Compression/Wedge Fracture?

A compression fracture is a common fracture of the spine. It implies that the vertebral body has suffered a crush or wedging injury. The vertebral body is the block of bone that makes up the spinal column.



Each vertebral body is separated from the other with a disc. When an external force is applied to the spine, such as from a fall or carrying of a sudden heavy weight, the forces may exceed the ability of the bone within the vertebral body to support the load. This may cause the front part of the vertebral body to crush forming a wedge shape. This is known as a compression fracture. If the entire vertebral body breaks, this is considered a burst fracture and is discussed elsewhere.

The compression fracture may range from mild to severe in terms of severity. A mild compression fracture causes minimal pain, minimal deformity and is often treated with time and activity modification.

Severe Pain

A severe compression fracture may be such that the spinal cord or nerve roots are involved, as they are draped over the sudden angulation of the spine. This may cause severe pain, a hunched forward deformity (kyphosis) and rarely neurologic deficit from spinal cord compression.

Risks - Osteoporosis - Trauma

The risk for spinal compression fracture increases with age. Osteoporosis is the most common risk factor for compression fractures. Osteoporosis is a condition in which there is thinning of the bones, weakening them. This may be due to certain medications, old age, inactivity, genetic factors, or a lack of calcium in the diet.

In general, some trauma occurs with each compression fracture. In cases of severe osteoporosis, the trauma may be minimal, such as, stepping out of a bathtub or lifting a

heavy object. Moderate trauma is usually required to create a fracture in patients with mild to moderate osteoporosis. This may range from falling off a chair to an automobile accident. A normal spine may also suffer from a compression fracture when there is a severe forward bending injury. This most commonly occurs from a fall from a height or an automobile accident.

Nerve Injury

Neurologic injury is rare with compression fractures. The degree of neurologic injury is usually due to the amount of force present at the time of injury. If there is severe angulation of the spine secondary to a wedge fracture, this may stretch the spinal cord and create injury. This would then lead to loss of strength and sensation, as well as reflexes. In most patients with osteoporotic compression fractures, there is no neurologic injury but only pain from the fracture. However, if left untreated the fracture angulation may worsen and lead to late paralogical injury.

Vertebral Compression Fracture Treatment

The majority of mild to moderate compression fractures are treated with immobilization in a brace or corset for a period of six to twelve weeks. The duration of treatment is based on symptoms and x-rays. As pain subsides and x-rays show no change in the position of the spine and healing of the fracture, the brace may be discontinued.

The purpose of the brace is two-fold. Bracing helps to reduce acute pain by immobilizing the fracture. It also helps to reduce the eventual loss in height and in angulation from the fracture. Compression fractures treated in a brace tend to have less deformity than those treated without a brace. Occasionally, bracing beyond twelve weeks is indicated in those patients with severe osteoporosis.

Cervical spine compression fractures may be immobilized using a rigid collar and/or a soft collar. Medications, such as analgesics and/or muscle relaxants may help lessen the pain of a compression fracture.

Minimally Invasive Spine Surgery (MISS) and Vertebral Compression Fracture Care

Balloon kyphoplasty is a minimally invasive treatment performed to stabilize vertebral compression fractures and reduce pain. The procedure is performed under local or general anesthesia. After a small pathway is created into the fractured bone, a small orthopaedic balloon is guided into the vertebra. The balloon is gently inflated to create a cavity within the vertebral body. The cavity is filled with medical cement that sets to stabilize the fracture and reduce pain.

Percutaneous vertebroplasty is a surgical procedure performed under anesthesia that may be used to treat compression fractures. During this procedure, a catheter is advanced into the compressed vertebra. Through the catheter, bone cement is injected into the fractured vertebra. The bone cement hardens to stabilize the vertebral body. This procedure may be indicated in cases of severe osteoporosis, severe pain, or when a vertebral fracture fails to heal following bracing treatment.

When Surgery is More Extensive or Complex



More extensive spinal surgery is rarely indicated for patients with compression fracture. While some more extensive or complex spinal surgical procedure may be performed minimally invasively, sometimes an open approach is needed (e.g., long incision). Indications would include severe fracture with neurologic injury, severe angulation, failure to heal with initial bracing, increased angulation despite bracing or late increasing neurologic deficit.

Spinal stabilization and fusion procedures may be necessary to stabilize the portion of the spine affected by the spinal fracture. Spinal instrumentation and fusion uses devices—such as rods, plates, interbody devices (e.g., cage) and/or screws to stabilize the spine. Fusion employs the use of bone graft to join the instrumentation (devices) and bone as it heals together. The operative procedure may be performed from the front (anterior) or back (posterior) of the spine. These types of approaches involve the fractured vertebra and adjacent segments (vertebrae above and below the fracture). The type and extent of the surgery depends on the severity of the vertebral fracture, as well as the patient's general health, which is explained by the spine surgeon.

Recovery Includes Fracture Prevention

Most patients can expect to make a full recovery from their compression fracture. Typically, braces are worn for six to twelve weeks followed by three to six weeks of physical therapy (PT) and exercise. Some patients may benefit by use of a bone growth stimulator. PT and regular exercise can help a patient to regain core body strength and build endurance of the trunk musculature. Overall strength, aerobic capacity and flexibility are also helped by physical therapy.

Most patients can return to a normal exercise program six months after a vertebral compression fracture. Regular exercise, including anti-gravity movements is recommended to help increase bone density and prevent future compression fractures. A balanced healthy diet, and bone building supplements, and prescription medications recommended can help increase bone mineral density needed for strong bones.

Read more about compression and wedge fractures at spineuniverse.com