

# Orthopaedic Observations

*A Matter of Medicine...*

## Arcuplasty-A Minimally Invasive Option for the Treatment of Spinal Fractures

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Vertebral compression fractures will number in excess of 500,000 this year. These fractures stem from underlying weakness of the bone, often from osteoporosis. In fact, one fourth of women reaching menopause can expect to have one or more vertebral compression fractures in their lifetime. Of those women over 70 years of age, 25% have evidence of compression fractures.

In those women over 80, 50% have such evidence. The strongest predictive factor of a compression factor is the presence of a prior fracture.

Many of those who suffer from vertebral compression fractures do not realize that they have had such a fracture. In fact, such injuries may arise from atraumatic events. Patients can often recall experiencing severe sharp pain after simply coughing, sneezing, or bending forward. In these situations, the pain is often sharp and severe in nature. Other people cannot recall a specific incident, but simply notice that they have lost height. Loss of height can accompany the development of a so-called “dowager’s hump.” This is a prominence of the upper back that develops as the spine angles over the fracture. Fortunately, most of these fractures are not accompanied by weakness, numbness or other neurological defects.

There are many risk factors for vertebral compression fractures. The single largest factor is a prior history compression fracture. Other risk fractures include a diagnosis of osteoporosis or menopause. Those patients who are on long term systemic steroids or certain seizure medications are also at higher risk. These risk factors increase the risk for the development of a vertebral compression fracture.

Diagnosis of a compression fracture can be made with the use of x-rays, MRI, or CT Scans. Plain x-rays are the simplest method of confirming the diagnosis. The normally square or rectangular shaped vertebrae take on the shape of a wedge or flattened disc. Those who have had

compression fractures in the past may need to differentiate an acute fracture from a chronic one. In these situations, MRI has an excellent role. An MRI can differentiate between an acute injury and a stable healed fracture, by demonstrating signal changes in the marrow of the vertebrae.

Treatment options for these types of injuries include many options such as observation, bracing, pain medications and surgery. Traditional methods entail managing the pain of a fracture with medications and the application of a brace to prevent further collapse and deformity of the broken vertebrae. This is analogous to the methods by which a broken limb might be managed with a cast. Unfortunately, the brace is cumbersome and poorly tolerated by many patients.

Arcuplasty is a new minimally invasive method of treating vertebral compression fractures. The procedure shares its roots with other cement augmentation procedures such as, vertebroplasty and kyphoplasty. Arcuplasty represents the latest refinement in the stabilization of compression fractures. Through a single 3 millimeter incision a working channel is established into the vertebral body. Through this tiny access port a variety of instruments can access the fractured bone. An arc shaped osteotome allows the creation of a cavity within the injured bone. This cavity can then be expanded further to restore some of the shape of the fractured bone. After the cavity is prepared, bone cement is gently advanced into the space while under the guidance of live x-rays, or fluoroscopy. This bone cement will cure within minutes, and cure the bone pain associated with the fractured vertebrae. The entire procedure can be done in under twenty minutes. Often times patients awake to immediate relief, and some are able to go home the same day.

Vertebral compression fractures are a common painful condition that previously was extremely difficult to

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treat. Arcuplasty represents a minimally invasive surgical procedure, that has advanced the treatment of this condition. Arcuplasty is one of the cutting edge, minimally invasive spinal surgery procedures that will ease suffering while providing a possible outpatient solution to a difficult problem. Prior to the advent of this minimally invasive procedure, patients often suffered with pain and uncomfortable braces for many

months before seeing an improvement in their pain or function.

Those patients that undergo the procedure earlier make more rapid improvements, though many find improvement even after many months of suffering. Now, patients can undergo a minor procedure aimed at rapid alleviation of their painful compression fracture.

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*He attended Boston University for his undergraduate studies. After graduating Alpha Omega Alpha from Boston University School of Medicine, he traveled to the University of Southern California-Los Angeles Medical Center where he completed his residency in Orthopaedic Surgery. At the University of Southern California-Los Angeles Medical Center he was awarded the Marshal Schiff Award and Herman Epstein Award. Dr. Wijesekera specialized in Spinal Surgery at the University of California Davis Medical Center, where he completed fellowship training in all aspects of adult and pediatric spinal surgery.*

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