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## Percutaneous Vertebral Augmentation Relieves Painful Compression Fractures



**Alfred Steinberger, MD**  
Neurological Surgery

Although many patients diagnosed with vertebral compression fractures heal with non-invasive treatments, new advances in surgery have brought positive outcomes to those who remain in pain, even after conservative therapies.

"Of those who are still incapacitated and are not seeing improvement with a

brace and medication, then there are surgical means to alleviate symptoms," said Alfred Steinberger, MD, the former chairman and a neurological surgeon at Englewood Health, who is also an assistant clinical professor in the Department of Neurosurgery at the Icahn School of Medicine at Mount Sinai, in New York City.

Surgical treatment most commonly involves minimally invasive vertebroplasty. "Depending

on the nature of the fracture," Dr. Steinberger said, "certain unstable vertebrae, which are the minority in these cases, might require a fusion.

"Obviously, there are other types of compression fractures which could be traumatic or due to tumors or infections, and these are more complicated and, depending on the broader question of the health of the patient, may require spinal fusion surgery."

There are a variety of causes of compression fractures, but among the most common is postmenopausal osteoporotic compression fracture. In fact, vertebral compression fractures are the most common complication of osteoporosis, with estimates of 700,000 fractures annually in the United States (*Am Fam Physician* 2016;94[1]:44-50).

Patients with compression fractures almost always have significant pain, Dr. Steinberger said, but for most patients, pain management and a back brace will allow them to heal within three to four months. For other patients, percutaneous vertebral augmentation surgery can provide positive results, either through vertebroplasty or kyphoplasty (*Biomed Res Int* 2019;2019:1386510).

Dr. Steinberger discussed new technologies that augment the technical abilities of neurosurgeons to increase patient comfort and minimize healing time from procedures such as spinal fusion.

"Englewood has embraced these innovations," he said. Neuronavigation, which uses computer guidance to place spinal instrumentation, and minimally invasive techniques that minimize tissue disruption are two major areas of innovation that are rapidly developing in spinal surgery.

"The placement of spinal instrumentation can be done very safely with computer guidance," Dr. Steinberger said, and with minimally invasive techniques, "a great deal of benefit can be accomplished without the need for much larger open surgeries.

"Robotics are beginning to come into play," he said. Computational tools like virtual reality also are being studied in research centers around the country, and Dr. Steinberger looks forward to seeing them eventually incorporated into practice.

"These are just beginning, and in the future may prove to be very helpful," he said. ●