What is vertebral augmentation?

Vertebral augmentation, often called kyphoplasty or stentoplasty, is a minimally invasive procedure to treat vertebral compression fractures. In this procedure, a small, medical balloon (with or without stent) is inflated in the vertebral body. This creates a cavity within the fractured vertebral body. In some cases, the inflation of the balloon also helps to restore the original height of the crushed vertebra. In a kyphoplasty procedure, the balloon is then removed; in the case of a stentoplasty procedure, the balloon is also removed but a metallic stent stays within the vertebral body to maximise the chance of height restoration maintenance.

After the removal of the balloon, medical-grade bone cement is injected into the cavity created by the previous inflation of the balloon. The cement hardens quickly, stabilizing the fracture and strengthening the weakened bone. Most patients experience pain relief following this treatment.

More information

For more information on vertebral augmentation, please consult your doctor.

International Osteoporosis Foundation:
www.iofbonehealth.org
What is a vertebral compression fracture?
The spine is made up of many individual bones called vertebrae that stack together in a column. Just like other bones in the body, these vertebrae can fracture. A vertebral compression fracture is an injury that occurs when the main part of the vertebra, the vertebral body, experiences too much pressure and collapses in height. These fractures happen most often in the thoracic (upper back) and lumbar (low back) regions of the spine.

What causes vertebral compression fractures?
Compression fractures in the spine generally occur when a vertebral body has been weakened due to osteoporosis or cancer. When a vertebra is weakened, everyday activities such as lifting a child, bending down to pick something up, or even sneezing can cause a fracture. When these fractures occur, the vertebral body collapses into a wedge shape. Vertebral compression fractures may cause severe back pain, limited mobility, and/or a “hunched-over” appearance due to the change in shape of the vertebral body.

What are the treatment options?
A vertebral compression fracture may heal on its own over several weeks or months. Traditional treatments include bed rest, external bracing, and strong pain medications. However, some patients remain in pain after these therapies and may require further treatment, such as vertebral augmentation.

Who is a candidate for vertebral augmentation?
Vertebral augmentation is indicated for painful compression fractures resulting from osteoporosis or tumor. A doctor will perform testing to determine whether a patient has a vertebral compression fracture that will benefit from treatment with vertebral augmentation. This may include x-rays, magnetic resonance imaging (MRI) and/or bone scans.

What are the risks of vertebral augmentation?
Potential complications following vertebral augmentation should be discussed with your doctor prior to having the procedure. The risks can be higher in patients with additional medical conditions such as heart disease or other cardiovascular conditions.

What happens during the procedure?
The procedure is generally performed under general anesthesia, with the patient laying face down on the table. The skin and underlying tissues are numbed and, under high quality x-ray imaging, a needle is passed carefully into the fractured vertebral body. When the needle is in the appropriate position, a balloon (with or without stent) is used to create a cavity within the vertebral body and is then removed. In the case of a kyphoplasty procedure, the balloon is then removed; in the case of a stentoplasty procedure, the balloon is removed and a metallic stent stays within the vertebral body. After the cavity is created, the cement is mixed and slowly injected into the cavity during constant x-ray monitoring. When the cavity is filled, the needle is removed. For one fracture, the procedure usually takes less than one hour. Some patients have more than one vertebral compression fracture. In these cases, multiple fractures may be treated during the same session.

After the procedure, the patient is allowed to carefully test his or her mobility. Sometimes patients go home the same day, but overnight stays in the hospital are generally necessary. Most patients experience significant pain relief within the first 1–2 days following vertebral augmentation. Medications may be prescribed following the procedure and should be used only as directed. These include:

- Pain medications – usually reduced over several days after the procedure
- Osteoporosis therapy medications – to prevent further bone loss and reduce the risk of future fractures