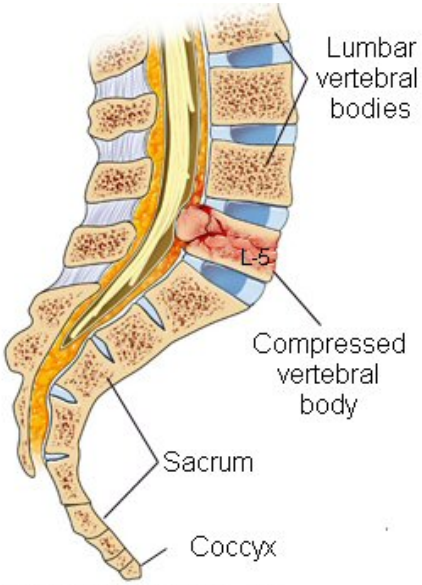
Kyphoplasty, Balloon

Balloon Kyphoplasty is a procedure in which orthopedic balloons are used to gently raise a collapsed vertebral body in an attempt to return it to the correct size and position. This condition is also called a vertebral compression fracture, VCF or VTF. Most often the cause of this collapse is due to osteoporosis of the vertebral body. Osteoporosis is a condition which comes on with aging. Osteoporosis is due to a loss of mineral from the bone. This causes a softening of the bones. The diagnosis of these fractures is usually made with x-rays and or magnetic resonance imaging (MRI). Some advantages of this procedure are:

- Restoration of vertebral body height.
- Correction of spinal deformity.
- Relatively low complication rate.

The procedure is usually done by orthopedic surgeons, neurosurgeons, interventional radiologists, and interventional neuroradiologists who specialize in treating the spine with balloon kyphoplasty.



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This procedure is not useful for:

- Patients with young, healthy bones or those who have sustained a vertebral body fracture or collapse in a major accident.
- Patients with spinal curvature such as scoliosis or kyphosis that is due to causes other than osteoporosis.
- Patients who suffer from spinal stenosis or herniated discs with nerve or spinal cord compression, and loss of neurological function not associated with a vertebral compression fracture.
- Patients with known metastatic disease of the spine.

THE BENEFITS OF BALLOON KYPHOPLASTY INCLUDE:

- Reduction in back pain. If there is pain due to the procedure, it will typically lessen within two weeks.
- Improved quality of life.
- Improved mobility (you can get around better).
- Improved ability to perform activities of daily living.

PROCEDURE

The kyphoplasty procedure involves the use of a balloon to restore the vertebral body height and shape. This is followed by bone cement to strengthen it. The procedure may be done under intravenous sedation (going to sleep). The patient may need local anesthetic or general anesthetic. The patient lies face-down on the operating room table. Two X-ray machines are used to show the collapsed bones.

The surgeon makes two small (less than 1/8 inch (3mm)) incisions. A tube is then inserted into the center of the vertebral body. Through this tube, balloons are placed in the vertebral body. Then the balloons are inflated. This creates a cavity. This pushes the bone back towards its normal height and shape.

Once the cavity is created, the surgeon removes the inflatable balloon. The cement is mixed and used to fill the cavity in a slow and controlled fashion. The cement hardens. Then the surgeon takes out the tubes. The incisions are closed with a single stitch. Patients usually go home the same day. Patients can go back to all normal activities of daily living as soon as possible. There are no restrictions.

RISKS

As with any surgery, there are potential risks. Although the procedure is designed to minimize risks, complications may occur. Be sure to discuss the risks with your caregiver. Balloon kyphoplasty is not right for all patients. Complications may require more treatments. Complications that can occur, include:

- The usual risks of local or general anesthetics apply. These risks depend on the patient's overall health.
- Heart attack (*myocardial infarction*).
- Stroke (*cerebrovascular accident*).
- A blockage in the lung (*pulmonary embolism* - there is a very small chance of the cement traveling to lungs).
- There is a small risk of the bone cement leaking from within the boundaries of the vertebral body. In most cases, this rare event does not cause any problems. However, if the cement does leak it may cause:
  - Pain.
  - Altered sensation.
  - Very rarely, paralysis.
  - Should the cement leak further, more significant surgery may be needed to stop the irritation of the nerves or spinal cord.
- In very rare circumstances the cement may irritate or damage the spinal cord or nerves.
- Heart stops beating (*cardiac arrest*).
- Excessive bleeding (*hemorrhage*).
- Infection (there is a small chance of the cement block becoming infected at the time of surgery or even years later).

PROGNOSIS

- Kyphoplasty is associated with pain relief of the vertebral body collapse. Patients usually rate their treatment a success.
- Patients typically do not need any physical therapy or rehabilitation after a kyphoplasty procedure. Because bone cement hardens within 15 minutes, there is really no healing that needs to happen from the patient's standpoint.
- Occasionally, patients complain of persistent pain after kyphoplasty. This may be due to:
  - Irritation of tissues involved in the procedure.
  - Underlying arthritis and degeneration of other parts of the spine.
- Pain that remains from arthritic or degenerative changes in the spine may be treated with the usual medicines and an ongoing exercise program.
- All patients should take bone-strengthening medicine during treatment and for the rest of their lives. If more vertebrae collapse, kyphoplasty can also be used at those other levels.

Document Released: 11/23/2005 Document Re-Released: 01/09/2011
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