



THE PAIN JOURNAL

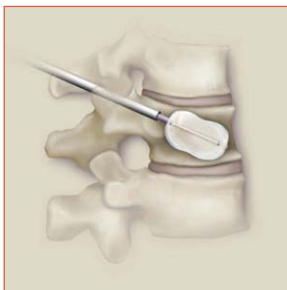
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Balloon Kyphoplasty: A minimally invasive treatment for vertebral compression fractures

An Original Contribution by Akil S. Benjamin, D.O.

Osteoporotic vertebral compression fractures have become a major national health issue because of their high incidence, increasing associated costs and deleterious sequelae. An estimated 84% of vertebral compression fractures are associated with pain. Acute pain typically lasts approximately four to six weeks, with the pain occurring axially and correlating with the level of fracture. Activity aggravates the pain whereas lying down or sitting alleviates the pain. Point tenderness is a common finding on examination but is not present in 10% of cases and therefore should not be considered a requisite finding for surgical intervention. Chronic pain occurs in one-third of vertebral compression fractures and is more likely to ensue when one level is severely collapsed or multiple levels are involved. Loss of vertebral body height, thoracic kyphosis, and pain can also contribute to impaired pulmonary function, with the severity of pulmonary function



decline correlating with the severity of spinal column deformity. Other side effects of vertebral compression fracture include impaired mobility, limited exercise tolerance, chronic depression, and an increased likelihood of death.¹ Over the past decade, spinal augmentation procedures such as vertebroplasty and balloon kyphoplasty have been commonly used to stabilize vertebral compression fractures, restore vertebral height, decrease pain, and improve quality of life.

The technique of balloon kyphoplasty is a variant form of vertebroplasty and was initially developed in 1998 for the treatment of osteoporotic compression fractures of vertebral bodies. Balloon kyphoplasty has now been carried out worldwide on over 230,000 patients with more than 275,000 vertebral fractures. Kyphoplasty was also developed to overcome some limitations encountered with percutaneous vertebroplasty.² Indications for kyphoplasty are generally the same for vertebroplasty and include painful or progressive osteoporotic vertebral compression fractures, painful or progressive osteolytic vertebral compression fractures, vertebral compression fractures due to... ➔ *continued on page 3*



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- www.midatlanticspine.com

Patient Success: Car Accident Invokes Unbearable Pain

All Jenny wanted was to be able to play catch again with her grandchildren

Her pain was unbearable. No longer could she push the sweeper or take care of household laundry. Gone were the days she could play outside with her grandchildren. Even sitting for 10 to 15 minutes was a challenge for her. Instead Jenny spent her days trying to relieve her severe back pain the best she could. She relied on prescribed pain medications taken throughout the day, and she was in the hospital very four to five weeks to fight her pain – all caused by a car accident from seven years earlier.

To help relieve her pain, Jenny's orthopedic surgeon performed a spinal fusion, a surgical procedure sometimes used to correct problems with the bones. Over the years she also received Intradiscal Electrothermal Therapy... ➔ *continued on page 4*

Current and cutting-edge information on treating spine and pain related disorders.

NATIONAL HEALTH EVENTS**September 2009**

Healthy Aging® Month
www.healthyaging.net/events.htm

Leukemia and Lymphoma Awareness Month
www.lls.org

National Alcohol and Drug Addiction Recovery Month
www.recoverymonth.gov

National Sickle Cell Month
www.sicklecelldisease.org

Ovarian Cancer Awareness Month
www.ovarian.org

Prostate Cancer Awareness Month
www.fightprostatecancer.org

Reye's Syndrome Awareness Month
www.reyessyndrome.org

Sports and Home Eye Safety Month
www.preventblindness.org

October 2009

National Breast Cancer Awareness Month
www.nbcam.org

National Chiropractic Month
www.acatoday.org

National Disability Employment Awareness Month
www.dol.gov/odep

National Physical Therapy Month
www.apta.org

National Spina Bifida Awareness Month
www.spinabifidaassociation.org

Bone and Joint Decade National Action Week (Oct. 12-20)
www.usbjd.org

National Drug-Free Work Week (Oct. 19-25)
www.dol.gov/drugfreeworkweek

World Osteoporosis Day (Oct. 20)
www.iofbonehealth.org/about-iof/iofprograms/outreach-education/worldosteoporosis-day.html

Healthy Advice Q&A

Patient questions answered by Frank J. E. Falco, M.D.



Q: *How is urinary incontinence treated? – Stephen B., Aberdeen, MD*

A: Urodynamics is the electronic evaluation of bladder function and how the body stores and releases urine. This involves computerized measurement of the bladder's ability to store and empty urine. The concept is similar to an EKG which is a computerized evaluation of the function of the heart. Urodynamic testing helps your doctor learn how well your bladder and sphincter muscles work. This test can help explain symptoms such as: incontinence, frequent urination, sudden urges to urinate, problems starting a urine stream, painful urination, problems emptying your bladder completely, and recurrent urinary tract infections.

Q: *My brother had a TruFuse for his Facet Disease. Tell me about this procedure. – Ralph B., Rehoboth Beach, DE*

A: TruFUSE® is a low risk, minimally invasive surgical procedure used to treat patients suffering from back pain due to a diseased facet joint. Facet joint disorders are among the most common of recurrent disabling, low back problems causing serious symptoms, including long term disability. TruFUSE addresses the pain by using cork-shaped dowels made of human bone, called allografts, to stop the painful spinal facet joints from moving. It fills a large void between traditional non-surgical pain management and major surgery. This technique also reduces time off from work, recovery time, and rehabilitation.

Q: *I'm new to Delaware, and I would like some information on your practice. – Susan H., Delaware City, DE*

A: Mid Atlantic Spine and Pain Physicians is the most comprehensive private practice in the United States treating the full spectrum of spine and pain related disorders while delivering world-class patient-focused care. With easily accessible locations in Delaware and Maryland, our practice is staffed with a team of top-rated, board-certified physicians, chiropractors, and licensed practitioners providing individualized treatment for patients in a very compassionate and caring setting with a supportive team approach. We pride ourselves on providing the right diagnosis and the right treatment plan right from the start on your road to recovery.

Q: *I have leg pain from a pinched sciatic nerve. What alleviates the throbbing? – Barry B., Baltimore, MD*

A: The sciatic nerve is your largest nerve, running from the base of your spine to your feet. It can become pinched if a vertebral disk bulges out and presses on it. Aspirin or ibuprofen may relieve your discomfort and help in preventing pain reoccurrences. Maintain a diet high in fiber, fruits, and vegetables to prevent constipation. Avoid lifting, bending, and sitting on soft surfaces. Seek assistance when attempting to stand. Sleep on a firm mattress with at least one pillow under your knees.

Health Tip: Recent studies make a direct connection between longevity and teeth flossing.

Balloon Kyphoplasty: A treatment for vertebral compression fractures

Continued from page 1 -- written by Akil S. Benjamin, D.O.


...myeloma, metastasis and vertebral angioma with intractable pain and with no neurological symptoms. Contraindications include pregnancy, uncorrected coagulopathy, active infection (epidural abscess, sepsis, osteomyelitis, and discitis), fractured pedicles, contrast allergy, burst fractures, soft tissue tumors and osteoblastic lesions.^{2,3}

A full detailed description of the procedure is well documented in the literature. In short, kyphoplasty involves the insertion of a balloon to the vertebral body fracture site under fluoroscopic guidance via a cannula. After proper position is established, the balloon is inflated in an attempt to reduce the fracture and filled with a radiocontrast medium for better visualization. Subsequent deflation of the balloon leaves a cavity between the vertebral endplates which is then generally filled with polymethylmethacrylate (PMMA) which is more viscous than is possible with percutaneous vertebroplasty.⁵

In 2009, Wardlaw et al performed a study investigating in patients with acute vertebral compression fractures, is balloon kyphoplasty more effective than nonsurgical care? The study took 300 patients with a mean age of 73 who had one to three vertebral fractures from T5 through L5, with one fracture showing edema on magnetic resonance imaging, one showing a 15% loss of height, and a back pain score four on a scale of 0 to 10. Patients were allocated to kyphoplasty (n=149) or nonsurgical care (n=151). Primary outcome measures were a change from baseline to one month in Short Form (SF)-36 physical component summary scale score

(range 0 to 100). Secondary outcomes included SF-36 scores at 3, 6, and 12 months and adverse events. Results of the study were that kyphoplasty led to greater improvement in mean SF-36 physical component summary scores than did nonsurgical care.

This difference remained at three and six months. The frequency of adverse events did not differ between groups. Authors concluded that in patients with acute vertebral compression fractures, balloon kyphoplasty was effective and safe compared with nonsurgical care.


There are no randomized trials to compare vertebroplasty and balloon kyphoplasty and therefore the available data only allows for indirect comparisons. On the basis of systematic reviews of the literature, it appears that patients undergoing either procedure achieve a comparable reduction in pain. Biomechanical studies suggest that kyphoplasty may initially be more effective in improving vertebral height and sagittal imbalance. Overall, complication rates for both procedures are low; however, vertebroplasty appears to have a higher rate of cement extravasation with associated pulmonary emboli and compression of neural elements. Cadaveric models show decreased leakage of PMMA cement in kyphoplasty compared with vertebroplasty. It has been hypothesized that the inflatable bone tamp used during kyphoplasty compacts the trabecular bone, which may seal potential paths for cement leakage through bone or veins. 

References: 1) Stadhouders, A., Buskens, E., et al. "Nonoperative Treatment of Thoracic and Lumbar Spine Fractures: A Prospective Randomized Study of Different Treatment Options." *J Orthop Trauma* 2009;23:pp588-594. 2) Becker, S & Ogon, M., Balloon Kyphoplasty." *Springer Vienna* 2008. pp 30-41. 3) Wardlaw et al. "Balloon Kyphoplasty Was Effective and Safe for Vertebral Compression Fractures Compared with Nonsurgical Care." *Lancet* 2009 Mar 21;373: pp1016-24. 4) McCall, T., Cole C., Dailey, A. "Vertebroplasty and kyphoplasty: a comparative review of efficacy and adverse events." *Current Review Musculoskeletal Medicine*. 2008 March; 1(1): pp17-23.

Self-Help Pain Relief: Vertebral Compression Fractures

Compression fractures of the back are actually broken bones of the spine (vertebrae)

Compression fractures are rarely treated surgically unless it is necessary due to bone pressing on the spinal cord or nerves. A minimally invasive surgery, called Kyphoplasty, is used by MASPP to treat certain compression fractures in osteoporotic and multiple myeloma patients. This safe and effective method restores lost vertebral body height and corrects spinal deformity with a low complication rate. More than 95% of patients rate this treatment as a success and have immediate pain relief. Since the bone cement hardens within 15 minutes, there is really no healing and usually do not need any form of additional therapy. Additionally possible benefits of this procedure include:

- Significant reduction in back pain
- Significant improvement in quality of life
- Significant reduction in number of days per month a patient remains in bed (most patients had a 100% reduction in days in bed, one month post-surgery)
- Significant improvement in mobility
- Significant improved ability to perform activities of daily living, such as walking, hobbies and work; and
- Significant reduced number of days where pain interferes with daily activities. 

RECOMMENDED RESOURCES

"The Whole-Food Guide to Strong Bones: A Holistic Approach" by Annemarie Colbin. *Read this to prevent compression fractures by building stronger bones.*

"The Bone-Building Solution" by Sam Graci, Dr. Leticia Rao, and Dr. Carolyn DeMarco. *Comprehensive guide to building bone health, providing advice for the teenage years through the sixties and beyond.*

"Strong Women, Strong Bones" by Miriam Nelson and Sarah Wernick. *Groundbreaking guide to understanding and combating osteoporosis; more than 100,000 copies sold in its original edition.*

Health Tip: Eight hours of sleep and frequent rests during activities will ease joint stress.

MASPP News: At the Podium

MASPP Docs Present at AAPM&R's Annual Assembly

A group of doctors from MASPP presented “Advances in Spinal Cord and Peripheral Nerve Stimulation” – a Spine/ Spinal Cord Injury Educational Track – during the American Academy of Physical Medicine and Rehabilitation’s (AAPM&R) 70th Annual Assembly and Technical Exhibition at the Austin Convention Center in Austin, Texas on October 22-25, 2009. The physicians presenting included Dr. Frank Falco, Dr. Obi Onyewu, Dr. Renato Vesga, Dr. Tony Al-Amin, Dr. Allan Vrablea, and Dr. Jeff Berger.

The presented course, “Advances in Spinal Cord and Peripheral Nerve Stimulation”, gave way to a discussion on the clinical application of spinal cord and peripheral nerve stimulation in the treatment of painful disorders other than extremity pain and incorporate the indications, contraindications, equipment, technique, complications, and individual experiences in treating atypical pain disorders such as occipital headaches, genital/rectal pain, and coccydynia.

The annual assembly presents the opportunity for physical medicine and rehabilitation (PM&R) physicians and providers to interact in addition to continuing education. The event offers over four days brimming with a variety of educational opportunities, professional exhibits, research presentations, and networking events all geared specifically to the needs of today’s PM&R professionals. ☺

MASPP Staff: Meet Heather Penny

On the Go with Patients, Family & Self



If you are looking for Physician Assistant Heather Penny, most likely she is the one on the go and rarely sitting still. Packing in a full day at the practice, only to return home to give her all to her family, she models her drive and ambition after her mother who raised four children at a young age while balancing and building a successful career. Her mother wanted Heather and her siblings to have more opportunities than herself; instilling strong values and morals along the way. Now with the same work ethic and commitment as her mother, Heather hopes to follow and instill the same to her own children.

After growing up in Philadelphia, Heather attended Lock Haven University (LHU) and received a B.S. in Health Science. She then moved to attend East Stroudsburg University (ESU) for clinical exercise physiology. While completing her cardiac rehabilitation in a Cardiac Intermediate Care Unit, Heather’s interest in medicine deepened. Changing gears, she returned to LHU, completed the Physician Assistant Program, and then returned to ESU to earn a M.S. in Clinical Exercise Physiology.

Running around in the office, at home, or on a trail, Heather continues to push her own boundaries and goes the distance for all. After a fulfilling day at the practice, she returns to a favorite part of the day – time with husband and boys. ☺

Don't want to miss an upcoming issue of The Pain Journal? Sign up online!

<http://www.midatlanticspine.com/painjournal/index.html>

PAIN LECTURE SERIES

Fridays • 7:00-8:00 a.m.
MASPP Elkton Office
Open to the public; Free

September 4
Spinal Cord Stimulation

September 11
Complex Regional Pain Syndrome

September 18
Principles and Techniques of Acute Pain Management

September 25
Acupuncture for the Pain Patient

October 2
Trigger Point Injections

October 9
Pharmacology of Non-Narcotic Analgesics

October 16
Anatomy and Physiology of the Pain Projection System

Patient Success: Car Accident Invokes Unbearable Pain

Continued from page 1 -- All Jenny wanted was to play with her grandchildren again

...(IDET), epidural injections, and other treatments. None provided the relief Jenny was hoping to obtain.

Finally, Jenny had a temporarily Peripheral Nerve Stimulation (PNS) implanted by Dr. Frank Falco. Immediately, she started to feel the relief she was hoping to have. Once Jenny received the permanent PNS, not only did she have even greater pain relief, she was able to walk better than before and no longer was having slips and falls. She later had a second PNS.

PNS is a minimally invasive procedure that is revolutionizing the way physicians treat patients suffering from chronic nerve-related pain. During treatment, electrodes are inserted by peripheral nerves, delivering low-level electrical impulses that interfere with pain perception. Pain sensation is greatly reduced, if not diminished. A trial with a temporary device is standard before a permanent device is placed.

Jenny is thrilled with her results from the PNS. She can now play with her children and move around like she once could. Her only wish now? That she knew about the Peripheral Nerve Stimulation sooner. ☺



Health Tip: Use a stool or sturdy ladder to reach objects that are seated above your shoulders.