

M.D. NEWS

A BUSINESS AND LIFESTYLE MAGAZINE FOR PHYSICIANS



The UCI Spine Center

Dr. Charles Rosen, Founding Director

The University of California, Irvine, Spine Center

A University Approach to the Spinal Patient

By Rachael Stillman

The American Academy of Orthopedic Surgeons estimates that 200,000 lumbar spinal fusion surgeries are performed for chronic back pain each year, using painful bone graft procedures, yet between 20 and 30 percent of the operations are not successful. Today, relatively new procedures like TranSI and procedures that use Bone Morphogenetic Protein (BMP) are gaining prominence across the country and in universities such as the University of California, Irvine (UCI), Medical Center. These new procedures increase the fusion rate of lumbar surgery to 95 percent while dramatically reducing the associated pain and recovery time.

The UCI Spine Center is dedicated to providing accurate diagnosis and comprehensive care for all spine-related problems with less regard to the costs than private hospitals. UCI Spine Center physicians have expertise in all areas of spinal pathology including spinal stenosis, disc herniations, disc degeneration, arthritis, spine trauma including fractures and spinal cord injury, scoliosis, infections, tumors, neck pain and back pain.

Founding Director of the UCI Spine Center Dr. Charles Rosen, associate clinical professor of surgery, has been performing spinal surgery for 17 years. He became involved at the University six years ago and created the UCI Spine Center three years later, in 2002.

“The idea was to create an organized way of taking care of people that had spinal problems, with the emphasis on making an accurate diagnosis without regard to cost. We wanted to establish a triage system after the precise diagnosis was made to make sure the patients received the appropriate conservative care, which is not always surgery,” said Dr. Rosen. “We treat patients who require everything from physical and occupational therapy to pain management and rehab. We are not just a surgical center; we take a comprehensive view of spine care and only perform surgery if it’s necessary.”

CHRONIC BACK PAIN

According to Dr. Rosen, the majority of back pain in the country is degenerative in nature.

“At some point in life, most people get a tear in the outer covering



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Regular patient conferences ensure multiple viewpoints and better care by the Spine Center’s three spinal surgeons. Here, Dr. Charles Rosen and Dr. Douglas Kiestler discuss a recently performed outpatient percutaneous lumbar fusion of L5 – S1. Not shown: Dr. Nitin Bhatia.

of one or two of their two lower discs from some type of trauma such as twisting or lifting, or even sitting for prolonged periods over years. Once it tears, it starts to lose water and shrink, which changes the mechanics in the back. It can even pop out or herniate. The facet joints in the back of the spine become arthritic because they are no longer loaded properly due to less frontal support. This can lead to stenosis or narrowing due to bony spurs that develop. It can even lead to an unstable spine or spondylolisthesis where the vertebrae partially dislocate or sublux. This whole sequence accounts for the majority of back pain in the country,” said Dr. Rosen.

The treatment is different for each of these. Ninety percent of disc herniations get better on their own and don’t require surgery. Very few degenerated discs require fusions. There are a lot of other treatments, and surgery should be considered only as the last resort.

BONE MORPHOGENETIC PROTEIN (BMP)

However, when it is needed, spinal fusion can be an effective treatment for debilitating disc degeneration. It involves fusing one or more vertebrae, often removing the degenerated discs entirely. Traditionally, the surgery required an iliac bone graft, which transplanted bone chips

from the patient's pelvis or ilium to the spinal vertebrae. The bone graft is then supposed to stimulate the painful vertebrae to grow together and thus eliminate pain. Taking bone grafts, however, prolongs the surgery and the tissue disruption, as well as increases blood loss, which may require blood transfusion. Also, the risk of infection is increased. The procedure is almost always very painful, often more painful than the original back pain. Worse still is the 20 percent failure rate associated with bone grafting, in which the bone fails to fuse. Patients usually spend a week at the hospital followed by three or four months of recovery time before returning to work. The fusion process often takes six or nine months to complete, and if the bone fails to fuse, patients may endure repeat back surgeries.

Today, bone morphogenetic protein (BMP) is a viable alternative to bone grafting. FDA-approved since 2002, BMP is a human protein that aids in bone growth. First discovered in the 1960s, it is a naturally growing protein that the human body produces in trace amounts. Through genetic engineering, the BMP was isolated and recreated synthetically in a concentrated form.

Shorter Recovery Time

As Dr. Rosen and a growing number of spinal surgeons across the country have found, BMP has a higher fusion rate and shorter recovery time for both spinal and neck fusions. Dr. Rosen's own research shows a successful fusion rate of more than 95 percent. Recovery and return to work are more than twice as quick, with greatly diminished post-operative pain. Aside from feeling better quicker, this has enormous implications for dramatically decreasing the expense of keeping an injured worker on disability.

"BMP gives you a more reliable fusion rate. We used to take bone from the iliac crest, which has been the gold standard for years, and then patients would come in saying, 'My back's great, but it hurts where you took this bone from my hip.' Now with BMP, you don't have to do that anymore," said UCI Spine Center surgeon Dr. Douglas Kiester, director of Biomechanical Spinal Research. Dr. Kiester spent 10 years in private practice before joining the UCI Spine Center in 1998.

Surgeons place a solution of recombinant human bone morphogenetic protein (rhBMP-2) powder in a titanium cage that occupies the space which previously held the damaged disc. The BMP then stimulates bone growth between the vertebrae, eventually fusing the two together.

"People can recover much quicker with BMP. The whole goal is not only to have what we call solid fusion, but also to allow the patient to return to work and their normal life with the best results possible, as quickly as possible," said UCI Spine Center surgeon Dr. Nitin Bhatia. Dr. Bhatia completed a spine surgery fellowship at the University of Miami and a second fellowship in scoliosis surgery before coming to the Spine Center two years ago.



Microscopic discectomy performed on an outpatient basis.

PHOTO BY ONE IMAGE

TRANS1 OUTPATIENT LUMBAR FUSIONS

FDA-approved just this year, TranS1 is a minimally invasive lumbar fusion that avoids the major dissection of the surrounding soft tissue structures typically associated with conventional fusion surgery. It is designed to reduce recovery time and pain for patients, and is the first lumbar fusion that can be done as ambulatory surgery. Three- or four-inch incisions have been replaced with one-inch incisions. Through such an incision, a tube is placed in front of the sacrum up to the L5 – S1 disc. A drill and other various instruments are used to remove the damaged disc. Then, BMP is pushed into the disc space, and a special screw is put in to rigidly immobilize the disc space. The procedure takes about an hour.

TranS1 allows most lumbar fusion patients to return home within 24 hours and go back to work in three weeks or less. In comparison, typical lumbar fusion patients stay in the hospital three to five days after surgery and are not able to return to work for months.

"People are literally out the door that same day. Then they are back to work in a week. They're not going to be in bed for a month," said Dr. Rosen. "I have been performing this surgery since June, and I have personally reviewed all the cases and follow-up CT scans of all cases done in Europe and Brazil over the last three years. Thus far, the cases I've looked at which utilized the latest designs have all successfully fused."

WORKERS' COMPENSATION RELIEF

Statistics from the National Institutes of Health claim that 65 to 80 percent of all people have back pain at some time in their life, and that back pain is the most frequent cause of activity limitation in people younger than 45 years old. It is also one of the greatest single health expenses in terms of work days missed and money spent on treatments and rehabilitation.

"The largest amount of money spent on worker's compensation injuries is lower back pain. The ideal is to get patients out of the hospital

Addressing the Spiraling Costs of Workers' Compensation

Lower back injuries are the largest single source of workers' compensation claims. The UCI Spine Center is helping to solve the workers' comp crisis by focusing on strategies and treatments that improve surgery results, lower expenses and allow individuals to return to work more quickly. These include:

- More outpatient surgery to avoid hospital stays
- Increased use of percutaneous and microscopic surgery to decrease healing time. Small incisions means less pain.
- More use of surgical procedures with BMP's proven 95% fusion rates. Avoid re-operations for non-unions. Avoid bone graft pain, shorten hospital stays and halve recovery time.
- Get injured workers back to work quickly to avoid the disastrous "6 month mark" for disability.

and back to work quickly. And that's what TranS1 and BMP do," said Dr. Rosen. "Not only is the hospital stay shorter, the return to work is shorter, too. For the heavy laborer it's probably three months, versus five or six the other ways. For non-heavy laborers, it's a week or two versus two to three months."

Michael Best, a contractor and construction business owner, had a lumbar fusion using BMP and TranS1 procedures and was back to work in 10 days.

"I've worked in construction all my life and I've always had back pain. I used to have this really terrible shooting pain going down my right leg," said Best. "I decided to do the surgery and it was everything Dr. Rosen said it would be — it was a one-inch incision and I was in and out. Two months later, my disc has almost completely grown in. And the pain is gone — that's the key thing."

THE UNIVERSITY SETTING DIFFERENCE

New procedures and innovative techniques are often utilized at universities first, which is why UCI is one of the few places in Southern California where both TranS1 and BMP are available. "One of the real advantages of being at the university is that we are able to see, use and receive new technology before it's available anywhere else. We are really on the forefront of education and cutting-edge techniques such as TranS1. I think that's a big advantage. As we embrace new technologies, and see good results from them, we'll probably use them more frequently," said Dr. Bhatia.

Patients routinely come from all over California and out of state to receive treatment at the UCI Spine Center. And the technology and cutting-edge tools will only get more sophisticated when the new \$350 million UCI Medical Center is completed in three years. When completed, the new hospital will house the latest medical technologies, including state-of-the-art operating rooms that will enhance the Spine Center's ability to provide the specialized medical and surgical treatments.

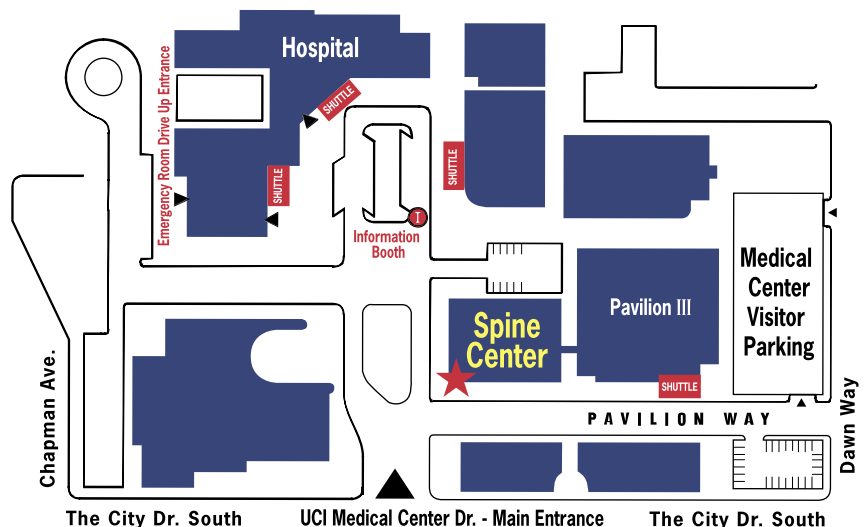
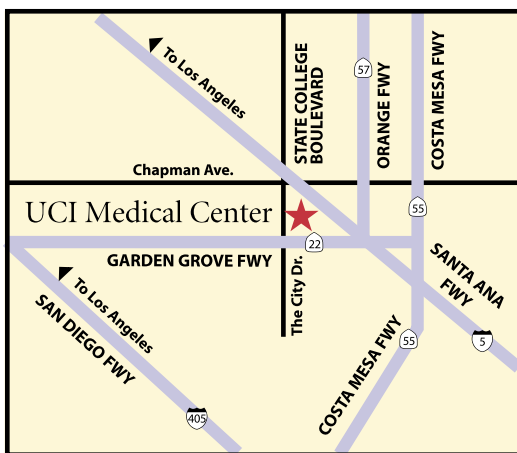
AN INNOVATIVE AND COMPREHENSIVE APPROACH

Always forward looking and progressive, the UCI Spine Center is the only university medical center in Orange County. Access to the latest technology, combined with the comprehensive, caring approach provided by Dr. Rosen and his colleagues, assures that patients receive optimal back treatment. That means a quicker recovery time and true relief for patients, their families and employers.

For more information on the UCI Spine Center, contact Dr. Charles Rosen at (714) 534-0547, or visit www.CharlesRosenMD.com. ■

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