In today’s world of fad diets and miracle cures, one might be skeptical when first finding out about percutaneous laser disc decompression (PLDD). How effective and long lasting could this seemingly painless and instantaneous procedure be? After seeing the results of the PLDD firsthand, one could still query what the long-term outcomes might be. After further research, a study was devised to follow-up on patients who underwent this procedure 10 years ago.

Low back pain is one of the major causes of lost work time and disability in the United States. For pain due to herniated discs, a variety of treatment modalities have been prescribed, including open discectomy, microdiscectomy, and automated nucleotome discectomy. The disadvantages of these treatment options are general anesthesia, greater risks, the requirement for hospitalization and the longer recovery times associated with the procedures. By contrast, PLDD is an enticing alternative given the low risk, immediate relief, and long-lasting benefits. Percutaneous laser disc decompression is indicated for nonsequestered herniated discs, failed back syndrome, repeat procedures on reinjured discs and most recently, extruded nonsequestered discs.1

Since Choy and Ascher first introduced PLDD in Austria in February 1986, over 35,000 procedures have been performed worldwide.2 With a growing need came Food and Drug Admin-
istration (FDA) premarket approval of the delivery system in 1991, and the American Medical Association granting a Current Procedural Terminology (CPT) code in January 2000. The procedure is innovative and ingenious. Under local anesthesia and fluoroscopic guidance, an optical fiber is introduced from a posterolateral approach into the disc through an 18-gauge needle. Applying Neodymium:YAG (Nd:YAG) laser energy via an optical fiber causes a small volume of the nucleus pulposus to be vaporized, with a corresponding marked decrease in disc pressure. The effect is immediate, with patients walking out of the office virtually pain free.

Objective

Until now, there has not been a documented study that demonstrates the long-term benefits of PLDD. The objective of this retrospective, nonrandomized, nonblinded study is to show the outcomes 10 years post-PLDD.

Design

Patients were selected from among those seen at the Laser Spine Center who had undergone lumbar PLDD from September 9, 1989, to March 20, 1991. The selection criteria included having herniated discs documented by magnetic resonance imaging or computed tomography, and corresponding clinical symptoms. In addition, patients had to have failed 3 months of conservative management, including anti-inflammatory medications, rest, muscle relaxants, physical therapy, and/or epidural steroid injections. Also, a second concurring opinion was sought from a neurologist, neurosurgeon, or orthopedic surgeon. Exclusion criteria included ongoing litigation, cancer, vertebral fracture, myositis, lateral recess syndrome, severe osteoarthritis, myositis, bone spur impingement on nerve roots, previous surgery with scar tissue nerve root entrapment, severe spondylolisthesis, or pure bony spinal stenosis.

Patient Selection

A total of 61 patients met the entrance criteria and were surveyed by telephone. Despite several attempts to reach everyone, 31 could not be contacted. Of the remaining 30 patients, 2 were deceased, and 9 advised that they had undergone unspecified back surgery. A total of 19 participants were able to participate in the study (15 men, 4 women). Of these 19 eligible participants, 2 had PLDD done at the L3-L4 level, 11 at L4-L5, and 6 at L5-S1. Pa-