



## PNT Provides Lasting Pain Relief and Improved Function for Low Back Pain Patient with History of Failed Conventional Treatments

### Summary

A physically active 50-year-old male with a history of chronic low back pain presented with an exacerbation of back pain and a subsequent radiation of pain down his right leg. His response to a variety of treatment options, including epidural steroid injections, osteopathic spine manipulation, and physical therapy, proved unsatisfactory due to the limited degree or duration of his pain relief. Despite these interventions, persistent pain frequently caused the patient to miss work and curtailed his other routine activities. He had few remaining treatment options when presented with the opportunity to enroll in a clinical trial of the Vertis PNT™ (Percutaneous Neuromodulation Therapy) System (Vertis Neuroscience, Seattle, Washington), a new, minimally invasive therapy for low back pain. After treatment with PNT, the patient reported marked, long-term pain relief. He was able to resume his prior level of physical activity and, since completion of the trial (a total of ten weeks), has required no further interventions for back and associated leg pain.

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### Clinical History and Presentation

The patient works as a mechanic, repairing heavy equipment. He led a physically active lifestyle that included motorcycle riding, home construction and repair, and cutting firewood, until developing low back pain in 1981 following a motorcycle accident. After the accident, an x-ray showed a compression fracture in the lumbar spine. An MRI of the lumbar spine showed broad-based disc bulging at the L3-L4 and L4-L5 levels. Imaging studies also showed early signs of spondylosis, or arthritis, in his lower back.

The patient's immediate recovery was good, although over the first several weeks he was left with occasional recurring strains of the low back, common for an injury of this type. His family doctor referred him to Hastings Orthopedics in March 2001 with significant worsening of his low back and radiating right leg

pain, which began in February 2001.

At Hastings Orthopedics, the patient's pain was treated with a variety of conventional treatment approaches, including epidural steroid injections, osteopathic manipulation, physical therapy, anti-inflammatory medications, and analgesics. The results were marginal, and the pain persisted. For example, manipulation temporarily improved his back pain, but when the patient returned to work and started doing heavy lifting, the pain recurred, causing him to return for additional therapy. Similarly, the epidural steroid injections somewhat improved the lower extremity pain, but only for 1-2 weeks.

By the time the patient was referred to Hastings Orthopedics, pain was causing him to miss at least one day of work per week. When at work, pain interfered

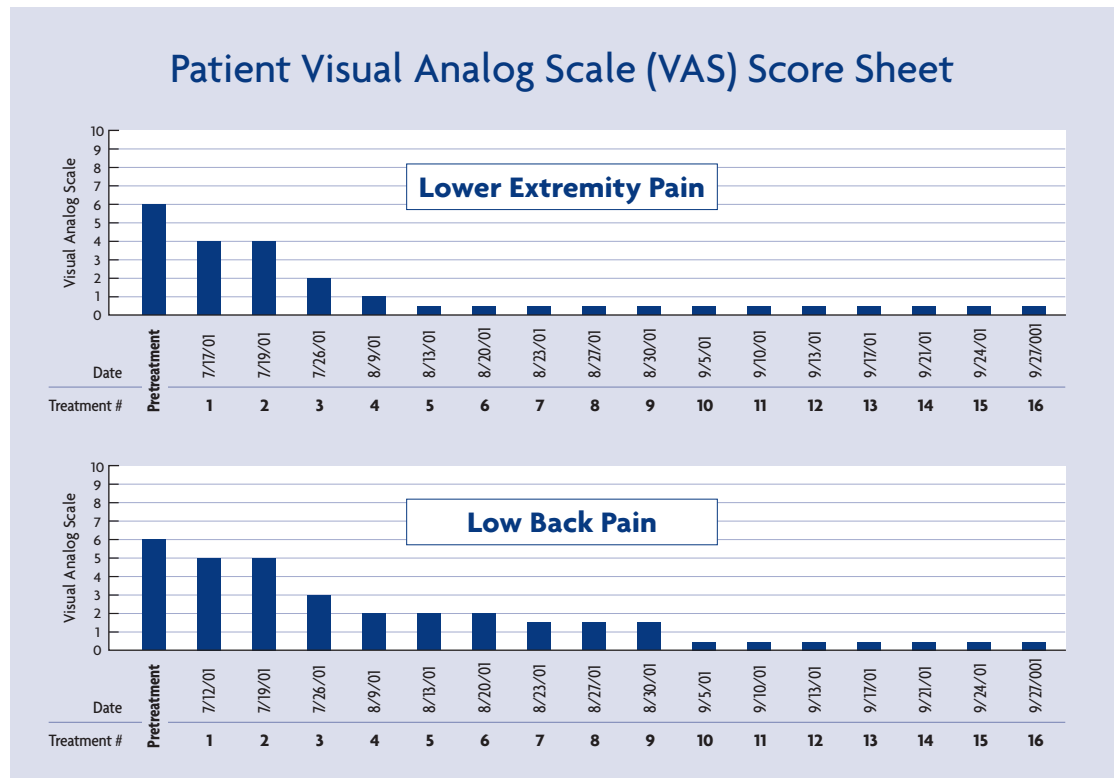
with the patient’s ability to perform his job. The pain also limited his participation in other activities—he was remodeling his home and had been helping friends do the same, but persistent pain prevented both activities. Riding a motorcycle also had become quite uncomfortable. The patient was seeking more meaningful and long-lasting pain relief but had severely limited options—all traditional therapies had been ineffective, and his condition was not amenable to surgical treatment. When the opportunity to participate in a clinical trial of PNT became available, the patient agreed to enroll.

### PNT Results

Treatment for low back pain with PNT involves the delivery of electrical stimulation to the deep tissues in order to reach the peripheral nerve pathways that lead to the dorsal horn of the spinal column. The therapy is delivered using fine-gauge filament electrodes temporarily inserted to a depth of 3 centimeters. As part of

the clinical trial, the patient underwent 30-minute PNT treatment sessions once a week for four weeks, with no other intervention. Following the initial four-week period, the patient was treated approximately twice weekly for an additional seven weeks, for a total of 16 PNT treatments.

The patient rated his pain on a 10-point visual analog scale (VAS) before the initiation of therapy and before each treatment session. During the trial, his pain progressively decreased. Initially, the patient rated his low back and associated lower extremity pain as 6 on the VAS scale, with 10 being the worst imaginable pain. By the end of the trial, his pain at both locations had been reduced to less than one, with the greatest decrease occurring throughout the first six weeks and remaining constant for the balance of the treatment period. In addition, the therapy was well tolerated, with the patient reporting no significant side effects.



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The patient's last PNT treatment was in late September 2001. Since that time, he has not missed a day of work due to low back pain and has required no additional therapy. He has resumed all of his previous activities and has reported a high level of satisfaction with the results of the therapy. In early October 2001, he poured a concrete driveway. He also has resumed riding his motorcycle without difficulty.

## Discussion

Although osteopathic manipulation provided temporary relief of this patient's chronic low back pain, and epidural steroid injections temporarily improved his associated leg pain, these therapies failed to relieve pain at both sites or to provide lasting relief. Treatment with PNT, however, resulted in progressively more pain relief at both sites for a longer period of time.

As with most patients suffering from chronic low back pain, this patient confronted two issues regarding management of his pain: degree and duration of pain relief. He achieved minimal pain relief with a range of common therapies, including physical therapy, nonsteroidal anti-inflammatory drugs, and epidural steroid injections. In addition, repeated flare-ups of pain after various treatments became a significant problem, causing him to miss work and curtail many of his daily activities. Treatment with PNT addressed both issues, providing immediate and lasting pain relief. The patient has reported no exacerbation of pain since his last PNT treatment. Based on the positive response this patient had with PNT, he would be a candidate for further PNT treatment should his pain recur. The patient was closely monitored during the trial for adverse effects. None was observed.

As a result, PNT appears to be an efficacious option for the management of low back pain, and in this particular case, acute-on-chronic pain that has not responded satisfactorily to other therapies.

Prior to the clinical trial of PNT, there was skepticism about the potential efficacy of percutaneous electrical stimulation because it fell outside traditional management approaches to back pain based on osteopathic and allopathic medical training. In addition to the patient reported here, however, a number of other patients in the PNT clinical trial also have experienced similar positive results, pointing to PNT as a promising therapeutic option for treating low back pain.

## Conclusion

This patient's chronic low back pain and associated radiating leg pain were treated with a variety of traditional therapies without complete or lasting relief or pain. Although the patient's health insurance covered these therapies, he was responsible for 20% of the cost, a sizeable sum for costly therapies that were at best only moderately helpful. In contrast, the patient achieved significant and lasting pain relief with PNT. As a result, PNT appears to be an efficacious option for the management of low back pain, and in this particular case, acute-on-chronic pain that has not responded satisfactorily to other therapies. ■

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