

New minimally invasive therapeutic method in chronic back pain

Anna Starzyńska¹, Tomasz Szmuda², Paweł Słoniewski²,
Wiktor Olijewski², Izabela Oleszkiewicz¹, Joanna Filipowicz¹

¹ Department of Maxillofacial and Oral Surgery, Medical University of Gdansk, Gdańsk, Poland

² Department of Neurosurgery, Medical University of Gdansk, Gdańsk, Poland

Chronic back pain is thought to be one of the most common symptoms that prompt people to seek medical attention. Chronic pain affects 1 in 5 adults in Europe.¹ It is defined as pain persisting beyond a period of normal tissue healing and/or experienced every day for 3 months or more. It can have a profound effect not only on the individual who is suffering pain but also on their family and society in general. Chronic pain may be continuous or intermittent and is always accompanied by physiological and psychological changes including sleep disturbance, frequent medication dependence, and emotional changes such as irritability, withdrawal, and depression.² On average, 38% of Europeans with chronic pain report that their pain is not adequately managed.¹

A 57-year-old man had suffered from chronic low back pain (LBP) for 40 years. Conventional therapy including the use of nonsteroidal anti-inflammatory drugs and physical therapy was ineffective. As a result of LBP, the patient went on ill-health retirement. The axial plane of magnetic resonance imaging at the L4/L5 level was performed (**FIGURE 1A**). The spinal surgery was not considered to be beneficial owing to minor degenerative changes. However, the patient presented significant intractable back pain, which hampered most of his daily activities. Hence, we decided to use spinal cord stimulation (SCS). This noninvasive technique, which delivers mild electrical impulses via implanted electrodes, was the first-choice therapy for the patient. A stimulator was implanted with no complications (**FIGURE 1BCD**). A significant reduction of pain was observed and the patient regained his former activity level. He is planning to return to work.

The therapy of chronic LBP includes noninvasive methods such as the use of NSAIDs, opioids, and antidepressants, as well as physical therapy. The use of medications must be balanced against the well-known side effects. When noninvasive

methods are not sufficient, the spinal surgery is proposed. It is estimated that approximately 10% to 40% of the individuals undergoing back surgery have a poor outcome. These patients are known as having failed back surgery syndrome (FBSS), and additional surgery is often required.^{3,4} Fully implantable and reversible technique – SCS – has revolutionized the approach to alleviating intractable pain in FBSS.⁵

To our knowledge, this is the first report on SCS therapy of LBP in a patient without history of prior spinal surgery. Today, the technique of SCS can be minimally invasive and performed under local anesthesia during a day surgery procedure. The SCS system consists of implantable pulse generator and an electrode placed percutaneously in the epidural space at the relevant spinal cord level. According to the “gate theory”, electrical stimulation of primary afferent fibers results in the central nociceptive suppression.⁵

SCS is a sophisticated reversible therapeutic technique to relieve pain and reduce medication use. Nearly one-third of the patients claim they have been poorly informed about new options to better manage their pain.¹ We believe that it is important to improve the knowledge on this method among physicians. It may represent a valuable treatment option for chronic back pain, even in patients without prior spinal surgery.

REFERENCES

- 1 Breivik H, Collett B, Ventafridda V, et al. Survey of chronic pain in Europe: prevalence, impact on daily life, and treatment. *Eur J Pain*. 2006; 10: 287-333.
- 2 Atkinson L, Sundaraj SR, Brooker C, et al. Recommendations for patient selection in spinal cord stimulation. *J Clin Neurosci*. 2011; 18: 1295-1302.
- 3 Tharmanathan P, Adamson J, Ashby R, Edlabe S. Diagnosis and treatment of failed back surgery syndrome in the UK: mapping of practice using a cross-sectional survey. *Br J Pain*. 2012; 6: 142-152.
- 4 Kumar K, Taylor RS, Jacques L, et al. Spinal cord stimulation versus conventional medical management for neuropathic pain: a multicentre randomised controlled trial in patients with failed back surgery syndrome. *Pain*. 2007; 132: 179-188.
- 5 North RB, Wetzel FT. Spinal cord stimulation for chronic pain of spinal origin: a valuable long-term solution. *Spine*. 2002; 27: 2584-2591.

Correspondence to:
Anna Starzyńska, MD, PhD, Katedra
i Klinika Chirurgii Szczękowo-
-Twarzowej i Stomatologicznej,
Uniwersytet Medyczny w Gdańsku,
ul. Smoluchowskiego 17,
80-214 Gdańsk, Poland;
phone: +48-58-349-30-90,
fax: +48-58-349-31-00,
e-mail: ast@gumed.edu.pl
Received: June 1, 2013.
Revision accepted: June 2, 2013.
Conflict of interest: none declared.
Pol Arch Med Wewn. 2013;
123 (7-8): 421-422
Copyright by Medycyna Praktyczna,
Kraków 2013

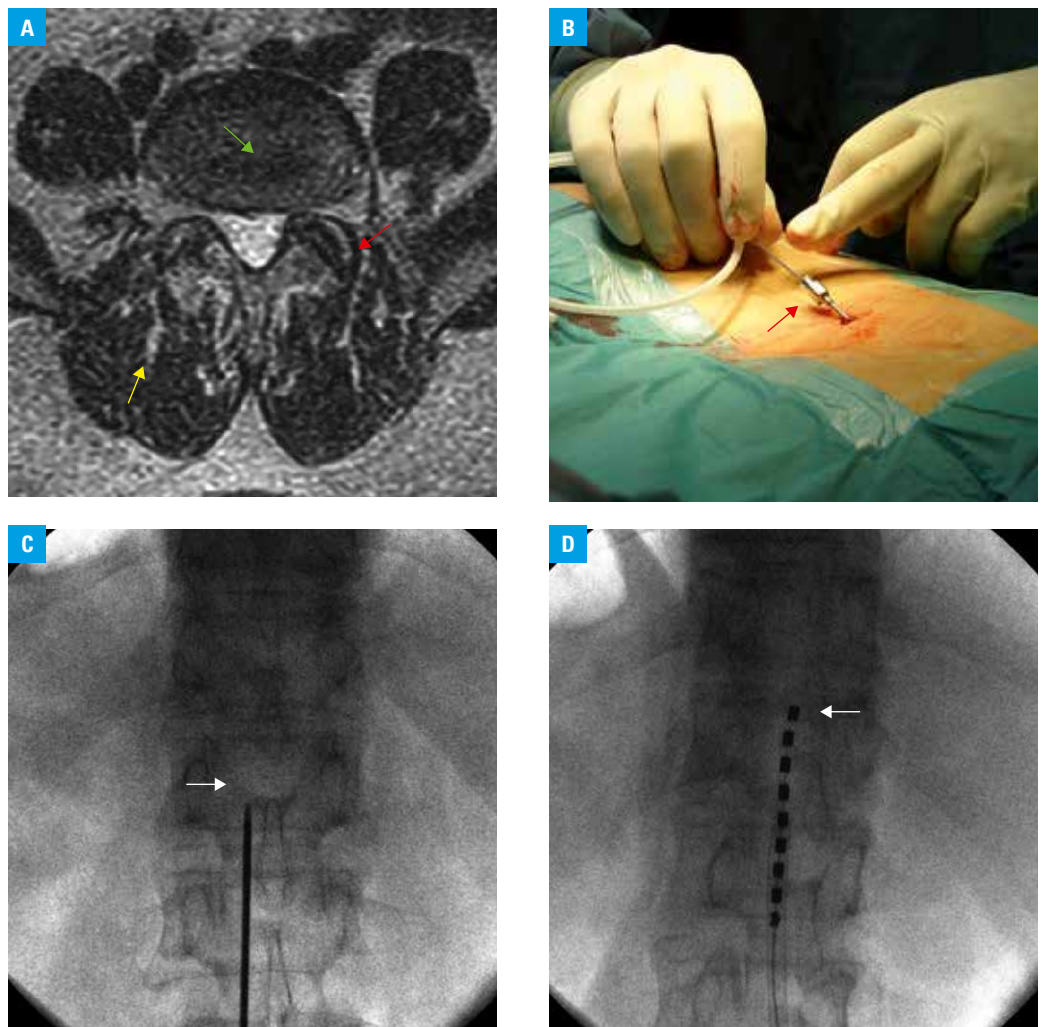


FIGURE 1 Magnetic resonance imaging of the lumbar spine and spinal cord stimulation procedure; **A** – axial plane magnetic resonance imaging (MRI) at the L4/L5 level. Lumbar spine spondylosis pertains to degeneration of the facet joints (red arrow), dehydration of discs (green arrow), and occurrence of fat tissue in the paravertebral muscles (yellow arrow); based on the symptoms and MRI findings, the patient was not offered any spinal decompression surgery; **B** – the prone position enables the insertion of the Touhy needle (red arrow) to the epidural space at the level below Th12 for guidewire placement; the whole procedure is conducted under local anesthesia; **C** – AP intraoperative radiogram visualizing the entry point for the Touhy needle tip to the epidural space (white arrow); **D** – percutaneous stimulating lead (S8, St. Jude Medical Company, Minneapolis, Minnesota, United States) is inserted through introduction sheath system (Epiducer, St. Jude Medical Company); the tip of the electrode is steerable by a curved stylet (white arrow), which allows for the placement at the desired vertebral level