



Spinal Cord Stimulation For Chronic Leg Pain Secondary to Peripheral Vascular Disease: Functional Capacities and Changes After A 22-Year History Of Pain, Edema and Ulcers

Author(s): D. Janene Holladay, MD and Andrew J Carvalho, MSc

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INTRODUCTION: Patients suffering from leg pain secondary to peripheral vascular disease (PVD) can have reduced function and may face limb amputation. Although neuromodulation with the use of spinal cord stimulation (SCS) devices is used primarily in the treatment of spine-related neuropathic pain disorders, there is growing evidence that SCS can be successful in the treatment of pain secondary to a multiple of diseases including PVD. We report a case where the patient has had chronic bilateral leg pain associated with PVD for over 20 years, and now with SCS has had noticeable improvements within days of treatment. **OBJECTIVES:** The objectives of this case study were to assess physical function before treatment and to completely relieve pain by using SCS in a patient suffering with chronic PVD of the lower extremity.

METHODS: A 55-year old male presented with a 22-year history of pain associated with bilateral PVD with deep venous thrombosis (DVT), and peripheral neuropathy. In addition to taking photographs of the patient's lower leg and feet, a functional capacity evaluation (FCE; Ergo Science) test comprising of walking 500ft, climbing 100 stairs, standing for 5min, repetitive squatting, sitting for 5min and hand grip strength, were conducted and the results recorded before the SCS-trial. The patient was then taken to the operating room. After sterile preparation and draping in the prone position, the area over the patient's left L2 pedicle was anesthetized. A #14 gauge Tuohy needle was inserted over the left L2 pedicle into the epidural space at T12-L1. Positive loss of resistance was felt to air. An 8-electrode percutaneous lead (Advanced Bionics, Precision™) was

advanced through the needle up to the T10 vertebral level on the left side. This procedure was repeated on the right side in the same manner, and the temporary extension cords were hooked up to the generator. Programming was carried out until both feet and ankles were covered by the stimulation in a stocking glove fashion. The stylets and needles were then removed. The leads were attached to the skin with an anchor and #2-0 silk. Steri-Strips were applied and a sterile dressing was applied.

RESULTS: Although the patient's legs were self-treated with topical analgesic before coming to the clinic, the reported pain score before functional testing and SCS-trial was 4 out of 10. Pain scores increased to 6 with standing, climbing stairs and walking. The patient was unwilling to perform the repetitive squatting due to deconditioning. On the six tasks, the patient stopped before reaching a maximum effort 33% of the time. During the first 3 days the patient experienced pleasurable pain relief in both lower limbs from the SCS device. Additionally, he reported a noticeable decrease in swelling and some improvement in skin color.

CONCLUSION: These results demonstrate that SCS can give immediate relief of chronic pain, edema and skin discoloration secondary to PVD with DVT and peripheral neuropathy. In addition to pain scores, functional capacity evaluations can give objective measures for assessing the efficacy of SCS in the treatment of patients with PVD.

LEARNING OBJECTIVES: SCS may be a successful treatment modality for chronic PVD in the lower extremity.