



# Managing Progressive Chronic Regional Pain Syndrome II Through the Use Spinal Cord Stimulation in the Upper Extremity After Failure with Conservative Therapy

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**INTRODUCTION:** A neuropathic condition in which nerve injury may (type II) or may not (type I) be indicated, complex regional pain syndrome (CRPS) can have an iatrogenic cause. When its detected and treated early with physical therapy, sympathetic nerve blocks and oral medication, a patient can have a significant pain reduction. In this case, the patient was diagnosed with carpal tunnel syndrome, but surgical repair induced the CRPS-II. The disease progressed leading to allodynia and hyperesthesia of the right hand and the need to wear a glove. Initial stellate ganglion blocks produced pain reduction but not absence.

**OBJECTIVES:** The objective of this case study was to completely relieve pain associated with CRPS-II in the upper extremity through neuromodulation with the use of a spinal cord stimulation (SCS) device.

**METHODS:** After 4 years of unsuccessful treatment, a 48-year old female presented with right hand, wrist, arm and neck pain. Within the first 4 months, conservative treatments including medication, stellate ganglion blocks, epidural steroid injections and Bier blocks were done with some reduction in pain scores. A diagnosis of CRPS-II was made and an SCS-trial was performed. The area of T5 to C3 was prepped in sterile, aseptic conditions. The superior pedicle of L2 was located and a L5 gauge Touhy needle was advance to the epidural space to C7. A Medtronic quadripolar lead was placed percutaneously through the Touhy needle and advanced up until the lead was placed up into the cephalad aspect of the T4 vertebral body positioned right of the midline. The procedure was confirmed by

fluoroscopy. Testing was done and stimulation was achieved into the patient's usual painful area. After the trial period, the patient received a permanent implant of an SCS system.

**RESULTS:** Before SCS, the patient reported allodynia and hyperesthesia with burning, sharpness, swelling and numbness in her right hand, arm and neck; pain scores were 10s. With conservative treatment, pain scores fell to 6. After 1 day of SCS-trial, the pain score fell to zero. With the permanent SCS device, the pain in the treated area remains zero. The patient shows no signs or symptoms of CRPS-II and now lives without the glove in the treated right arm.

**CONCLUSION:** In this case study, we showed that even during the disease progression of CRPS-II, SCS obtained significant results, giving great pain coverage, eliminating allodynia and hyperesthesia and any signs or symptoms of the disease. The patient then went on to resume a healthy quality of life with complete changes to normalcy.

**LEARNING OBJECTIVES:** Progression of CRPS-II with SCS can eliminate allodynia and hyperesthesia in the upper extremity.