



# An Innovative Technique for Refractory Plantar Fasciitis in Ipsilateral Complex Regional Pain Syndrome

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## Abstract

This is a case report of utilizing a technique to help a patient resolve refractory plantar fasciitis in the ipsilateral limb that she had a blunt force work place injury that led to complex regional pain syndrome Type I. Complex regional pain syndrome can be very difficult to treat. When a patient develops orthopedic pathology in the same area as the complex regional pain syndrome, the patient can have devastating outcomes. Additionally, many solutions to the orthopedic pathology can lead to increased symptoms of the complex regional pain syndrome.

fasciitis superimposed on the complex regional pain syndrome of the ipsilateral leg [2,3]. Her symptoms of plantar fasciitis included pain in the morning when she took her first few steps out of bed. Some of this pain would get better but then she would have increased pain the heel along the plantar fascia as the day progressed. She was referred then to the primary author for evaluation and treatment of the plantar fasciitis [4].

Following referral to the primary author, an MRI was obtained showing thickening of the plantar fascia with no stress fractures. The patient underwent six months of conservative care including night splints, walking boot, orthotics, heel cups, limited weight bearing, anti-inflammatory medication and physical therapy. Physical therapy included plantar fascia stretching, hamstring stretching, and modalities including ultrasound treatments with minimal relief. Ultrasound treatments included using the ultrasound machine with gel on the plantar fascia to help with the symptoms. Unfortunately, her plantar fasciitis would continue to aggravate her complex regional pain syndrome and her symptoms persisted with both conditions with no improvement. The patient then asked for other minimally invasive options that might help the plantar fasciitis. Minimally invasive options were discussed with her including shock wave therapy, platelet injections, and utilizing a Tenex probe to debride/aspirate the thickened plantar fascia under ultrasound [5,6]. The option of third opinions were offered to her as well. Obviously, no guarantees were made with any of these techniques given the complexity of her case.

## Introduction

Concomitant conditions in limbs following work place injuries that result in complex regional pain syndrome are very difficult conditions to treat. The patient is at risk for continued pain and difficulty from either complex regional pain syndrome, the condition, or a combination of both. Additionally, trauma such as blunt trauma, surgery, or comorbid conditions can continue to exacerbate the symptoms of complex regional pain syndrome.

## Case Report

A 37-year-old female patient sustained a workplace injury to her lower extremity and developed complex regional pain syndrome to her left lower extremity. She had her thigh hit by a fork lift and had no fractures. She had injured the soft tissue envelope. Initially, she had had physical therapy for soft tissue mobilization, and strengthening. She was initially on narcotics for pain, and weaned to anti-inflammatories. However, she progressed to having pain distally into her leg, ankle, and foot. She was referred to our clinic for secondary evaluation to our physiatrist (DIS) who subsequently began treatments for the diagnosis of complex regional pain syndrome based on Budapest criteria of her symptoms. Her symptoms included sensory pain out of proportion to the leg. She had intermittent bluish discoloration to the leg with no vascular injury. She had difficulty with extending her knee due to the pain along her leg. Finally, she had intermittent swelling in the leg as well with activity.

Over the next four months, she underwent standard treatments for complex regional pain syndrome including physical therapy and three lumbar sympathetic blocks [1]. Each of the blocks provided relief from two to four weeks. During the course of physical therapy, she began to experience classical symptoms of plantar

Razdan and colleagues had treated 100 patients in the study, beginning in August 2013 with the Tenex probe. Those patients presented with chronic, refractory plantar fasciopathy, and all patients had previously failed to respond to medications, activity modification, and arch supports. Before treatment, patients reported how their foot pain affected their ability to manage everyday life through the Foot and Ankle Disability Index (FADI). FADI scores were collected from the patients at two weeks, six weeks, and six months post treatment. Two weeks after treatment, 90% of patients showed an improvement in symptoms, and these improvements were maintained at six months. Patients also reported being highly satisfied with the treatment and had no treatment-related complications [6].

The patient chose to undergo partial division of the plantar fascia under ultrasound after doing her own research in all of these techniques. She underwent the procedure without any complications.

Postoperative course once the incision healed in 2 weeks included continued physical therapy, weight bearing as tolerated in the boot, anti-inflammatory medication as needed and wearing the night splint. Her orthotics were readjusted as well. Her plantar fascia symptoms resolved eight weeks after the index procedure which is typical for resolving refractory plantar fasciitis [6]. Her complex regional pain syndrome symptoms then improved over the next nine weeks with continued physical therapy, water therapy and an additional lumbar sympathetic injection. She no longer needed any medications. She successfully returned to her work duties and was discharged to follow-up as necessary. Three years later she remains free of symptoms from this injury.

## Discussion

Refractory plantar fasciitis in ipsilateral complex regional pain syndrome from workplace injuries may benefit from utilizing the Tenex probe under ultrasound to help with symptoms. The Tenex probe utilizes ultrasonic energy to debride and aspirate damaged tissue. In this particular case, we believe that the patient had developed CPRS I from the workplace injury, then developed the

plantar fasciitis which continued to prolong the CPRS I. Once the plantar fasciitis was treated, the CPRS I resolved with the appropriate treatments. These devastating injuries for patients can lead to a life of disability and pain. Having an additional safe, effective technique for these symptoms may help with the outcomes for these patients.

## References

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