Acupuncture in Complex Regional Pain Syndrome – A Case Report

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Abstract
Complex Regional Pain Syndrome is a painful condition of the extremities, which course with sensory, vasomotor and trophic changes. The exact pathogenesis is still unknown and there is no optimal treatment well defined. This disorder can be physically limiting and should be approached in a multifactorial way. Acupuncture has been tried in this conditions and it seems to be viable and effective. The authors present a clinical case where acupuncture was applied with success.

Keywords: Complex Regional Pain Syndrome, Acupuncture, Chronic Pain.

Introduction
Over 140 years ago, Silas Weir Mitchell described for the first time a painful condition related to traumatism of major peripheral nerves seen during the American Civil War [1]. Throughout the XX century many designations were applied to describe similar conditions, as reflex sympathetic dystrophy, algodystrophy, causalgia, Sudeck’s atrophy, transient osteoporosis and acute atrophy of the bone [2] [3]. All these different terminologies were abandoned and replaced by Complex Regional Pain Syndrome (CRPS) in 1995 [3]. CRPS is a chronic disorder of the extremities characterized by pain, swelling, limited range of motion, vasomotor instability, skin changes and patchy bone demineralization. [3]. It is categorized in 3 types: type 1 – caused by an initiating noxious event (crush or soft tissue injury, immobilization, tight cast or surgery) without any nerve lesion; type 2 – associated with a major nerve lesion; type 3 – when no specific causal injury or lesion has been identified [4]. The clinical diagnosis is made according to the Budapest Criteria, which takes into consideration sensory, vasomotor, sudomotor and trophic changes [4].

The exact pathogenesis of CRPS is unclear. Hypothesis can be divided into peripheral and central mechanisms, with central nervous system abnormalities predominating. Signs and symptoms may begin at the time of injury or may be delayed for weeks. [1]

There is no gold standard therapy for CRPS, and so it remains a medical challenge [4], [5], [6]. Treatments are numerous and the integration of physical therapy, pharmacotherapy, psychotherapy, surgery and other invasive interventions were proposed [4] [6]. Very little research has been done in the field of complementary medicine such as acupuncture for CRPS [4] [6] [7]. It is known that acupuncture relieves pain, with few side-effects, reduces inflammation, and relaxes the stressed mind [4]. Acupuncture has been tried as a therapy in these patients with favorable results [6], [8], [9] [10]. However, future studies are needed to support these findings.

The authors present a clinical case of CRPS which had improvement with acupuncture treatment.

Clinical case
Male patient, 63 years old, who has been complaining for the last 5 years of left ankle pain. The pain described as permanent, interfering with sleep, without neuropathic characteristics, began after repeated traumatic ankle sprains. The pain worsens with movements and local pressure, reaching an intensity of 10 (maximum 10, Numeric Pain Rating Scale). The pain intensity has restricted daily activities. The patient later develops local cyanosis, hair loss, edema and allodynia. A CRPS type-1 diagnosis was made. The patient was treated with several drugs (acetaminophen, non-steroidal anti-inflammatory, tramadol, gabapentin, amitriptyline, tapentadol, nortriptyline, venlafaxine) in optimized schemes, with only a partial response. The patient describes only a 40% improved in pain maintaining daily limitations in quality of life. Three popliteal blocks are performed, with temporary relief of pain, lasting only a few days. Capsaicin was applied with a good initial analgesic effect at rest. However, one month after treatment, the patient complained of pain once again. Another capsaicin treatment was performed, this time only a week of pain relief was achieved. During this time, the patient was also doing physiotherapy.
After medical review, acupuncture treatment was attempted. We started acupuncture using 0.26mmx2.5mm needles, with electrical stimulation (3Hz of frequency, applying maximal tolerated intensity), once a week for six weeks. Every session we surrounded the painful area with six needles and then we applied electrical stimulation across this area over 15 minutes. We also punctured the point 36 of Stomach Meridian (ST36), without electrical stimulation.

Over the six weeks of treatment, we verify a progressive and significant improvement in pain. After completing treatment, the patient had no allodynia and when applying pressure on the ankle the patient classified pain intensity as 1 or 2. There was no pain at rest and he could sleep without any pain disturbance. The ankle movements were larger and less painful. The patient could now walk and stand for longer periods of time, due to better pain management. Maximum pain referral was 4 in 10, which occurred when walking on an irregular surface.

No major complications occurred due to the treatment procedure, other than minimal bleeding in some punctured points. The treatment caused no additional pain to the patient.

It must be noted that during the first week of acupuncture capsaicin treatment was attempted for the third time. During all six weeks of treatment, the patient continued physiotherapy and was medicated with venlafaxine and tapentadol, without any dose adjustment.

This improvement of pain was very significant in our patient overall quality of life.

**Discussion**

CRPS is a chronic pain condition with a wide spectrum of features. Clinical cases can have a large variation in pain severity, ranging from a mild disorder to one which is very disabling [1]. There is no guidelines for an optimum treatment and all the therapies must be integrated [4], [5], [6]. Early detection and treatment is key to avoiding chronicity [4]. This patient had CRPS type 1 and went through several treatment regimes. Some treatments were more invasive than others yet never ever achieved total relief of patient complaints, until acupuncture treatment was performed. Few research exists supporting the use of acupuncture in similar cases. In some published cases no favorable results were obtained, while other authors have featured promising results when acupuncture is performed in association with other treatments [6], [8], [9], [10]. The selected points were based on local effect of acupuncture and the ST36 was punctured by its association with lower limbs pain and limitation movement improvement [11].

We cannot determine if pain improvement in this patient is solely due to acupuncture, but regarding the previous response to other therapies, it seems that the acupuncture sessions were effective. As a matter of fact, the drugs were the same, with no dose adjustment since two weeks previously to the first acupuncture session without no pain difference. Also, the physiotherapy was continued for several months before. The first capsaicin treatment had very good results, but the second failed in maintain relief. It may be argued that the third capsaicin treatment contributed to pain improvement, however, lasting results are more likely due to acupuncture treatment in combination with physical therapy and drug medication. Therefore, we believe that acupuncture was effective and played an important role in our patient’s overall improvement.

**Conclusions**

CRPS is a disorder which can cause important daily life restrictions. There are no optimal therapeutic protocols. However some complementary therapies, such as acupuncture, have been shown to be viable and promising.

In order to make treatment protocols, more research is needed and larger clinical studies should be performed.

**References**