Acupuncture in Phantom Limb Pain – A Case Report

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Abstract
Phantom sensation, with or without pain, is usually present in amputee individuals and it reduces their quality of life. Many hypotheses have been proposed to explain the pathophysiology behind phantom pain, yet it remains to be established which theory is the most accurate. Treatment options are limited, and there is no consensus on an optimal treatment. In addition to pharmacologic interventions, many nontraditional therapies for pain have been applied. Acupuncture is one therapy which has previously been shown to provide beneficial results, although the number of reported cases remains low. The authors describe the treatment with acupuncture of a man with phantom limb pain with favorable response. This case provides evidence that acupuncture is a promising therapeutic option in phantom pain. However, more studies are needed to prove its benefit.

Keywords: acupuncture, phantom limb pain, amputee.

Introduction
Phantom pain is a concept that represent the pain perceived in a part of the body that is no longer present. It was introduced in the 16th century by a military surgeon, Ambrose Pare [1]. In recent decades, with the advance of investigation, researchers have provide more information about phantom pain characteristics, etiologies and treatment [1] [2]. Studies have shown that near 70% of amputees suffer from phantom pain in the first few weeks following amputation [3], and in 5-10% of cases the pain becomes chronic [3]. Every part of the body could suffer with phantom pain, however, limbs are by far the most commonly involved [1]. Usually, limb amputations are secondary to vascular disease, diabetes, or traumatic event [1]. Phantom pain characteristics are unique from one patient to another. Pain duration is variable, lasting for only a few seconds to as long as two hours [1]. Tingling, throbbing, piercing, and a sensation of pins and needles are among the most commonly used terms to describe this pain [2].

Many hypotheses have been proposed for this kind of pain, however, it remains unclear which theory is the most accurate [1] [2]. The studies made so far led us to conclude that phantom pain is the result of a combination of cortical and peripheral mechanisms and also visual and proprioceptive inputs [1], [2].

There is no clear consensus on an optimal treatment algorithm [1], [2]. Opioids, anticonvulsants, lidocaine, clonidine, ketamine, amitriptyline, non-steroidal anti-inflammatory drugs and calcitonin are the most common used drugs [1]. Besides pharmacologic interventions, a few complementary therapies have been tested: transcutaneous electrical nerve stimulation (TENS), deep brain and spinal cord stimulation, biofeedback, massage, ultrasound, acupuncture, and virtual reality/mirror therapies. These alternative treatment options have shown promising results that warrant further study [1] [2]. Surgical interventions, such as neurectomy, lobectomy, and sympathectomy, are usually employed when other treatment methods have failed [2].

Acupuncture has previously been reported to have benefit in phantom limb pain using different protocols. However, only a few clinical cases have been reported [1], [3], [4], [5], [6]. The authors will present a case of phantom limb successfully treated with acupuncture.

Clinical case
Male, 62 years old patient with a history of severe peripheral arterial disease. An aortobifemoral bypass in 2013 and two posterior bypass angioplasties in 2014 were performed.

The patient presented in May of 2015 with pain and paresthesia of the left lower limb, attributed to a new stenosis of the left bypass branch. Unsuccessful revascularization was attempted through two separate attempts at bypass surgery. Eventually, a left lower limb amputation, above the knee, was performed when the patient presented foot ischemia. Postoperative period was complicated by necrosis of the surgical stump requiring a new amputation. The second surgical scar healed with no complications, yet the patient complained of stump and phantom limb pain. Multiple pharmacological schemes were attempted, all with a weak response. Due to the persistency of the phantom pain, we decided to try out an acupuncture pro-
The patient complained of phantom limb pain, localized in the foot, especially in the heel, described as a “gnawing dog bite”. The pain appeared more than ten times a day, with at least one hour duration, occasionally lasting up to two hours. The patient classified the pain intensity as 9 or 10 in a maximum of 10 (Numeric Pain Rating Scale). We started acupuncture with 0.26X25mms needles using the points 26 and 27 of Urinary Bladder Meridian (BL26 and BL27 respectively), and applied electrical stimulation with 3Hz in maximum intensity tolerated by the patient, for 15 minutes. After this, it was punctured the path of pain in the contralateral leg and also the point 4 of Large Intestine Meridian (LI4), YinTang, TaiYang, and BaiHui with 0.25X15mms needles during another 15 minutes, without any electrical stimulation. The protocol was repeated daily in the first three days, then in alternate days for more three sessions and, finally, one day a week for three weeks. A total of nine sessions were performed.

There were no complications associated with the procedure, other than minimal bleeding in some puncture points. The puncture caused no additional pain to the patient. During the acupuncture protocol, the patient was medicated with tramadol 150mg twice a day, gabapentin 400mg three times a day, metamizole 575mg three times a day. Sublingual fentanyl was administered before stump wound cleaning.

A progressive improve of phantom pain was observed. After terminating the acupuncture protocol, the patient described rare, sporadic pain, with an intensity of 3 or 4 in a maximum of 10. That improve in pain granted a better overall quality of life to our patient.

Discussion

Peripheral arterial disease is the most common cause of limb amputation [1]. Due to a failed bypass angioplasty, our patient’s lower left limb was amputated, resulting in phantom pain. Phantom pain occurs in a majority of amputee patients [3]. Many different approaches have been proposed for management of phantom pain, although there is no specific treatment guidelines [1], [2]. Acupuncture has been tried in some cases of phantom pain, with some clinical cases providing promising results [3], [4], [5], [6]. A review of the literature has demonstrated favorable results when applying acupuncture on the contralateral limb, scalp and/or ear [3], [4] [5] [6]. In this case we punctured the contralateral limb, but also decided to use de BL26 e BL 27 since those points match the L5 and S1 nervous roots, which provide sensation to the target complaint area of the patient. The other points ((LI4) YinTang, TaiYang, and BaiHui) were applied to relieve insomnia, suppress sympathetic activity and provide general analgesic effect [4], [5], [7]. Although our patient maintains residual pain, he presented with a greater overall quality of life and better pain management.

Conclusion

Larger studies are needed to clarify the efficacy of acupuncture in patients with phantom pain and to ensure the reproducibility of applied protocols. We suggest that acupuncture should be tried as a complementary therapy of phantom pain and we hope that this case, in addition to previous similar publications, provide enthusiasm for more research to explore the efficacy of acupuncture in this particular population.

References