

Acupuncture treatment of phantom limb pain and phantom limb sensation in a primary care setting

Arwel Davies

Correspondence to

Dr Arwel Davies, Brynhyfryd Surgery, Brynhyfryd Square, Swansea SA5 9EB, UK; agdavies.1@sky.com

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ABSTRACT

A 45-year-old man presented with phantom limb pain and phantom limb sensation 12 weeks after an above-elbow amputation of his right arm. He underwent seven sessions of acupuncture at weekly intervals carried out by his general practitioner on his intact left arm, with complete relief of the phantom limb pain and considerable improvement of the phantom limb sensation of his right arm. This case demonstrates the possible benefits from the use of short acupuncture sessions for a potentially chronic condition undertaken within the constraints of a busy general medical practice.

This case report details the successful use of acupuncture of an intact left arm to treat phantom limb pain (PLP) and phantom limb sensation (PLS) following amputation of a patient's right arm. The treatment took place in a community-based general medical practice, with the acupuncture sessions included within the normal surgery sessions of a general practitioner (GP) with an interest in acupuncture.

CASE REPORT

History

The patient was a 45-year-old man with a long history of chaotic drug and alcohol misuse. He had been under the care of the local drug and alcohol services on an intermittent basis for some years. He had been stable from a drug and alcohol perspective for many months prior to his amputation and there was no history of significant mental health problems.

In early 2012 he was found unconscious on the floor of his home after an unintentional overdose of illicit street drugs. He had been lying on his right side for an unknown period of time and, on admission to hospital, he was found

to have a crush injury and compartment syndrome of his right arm. Despite fasciotomy, his arm was not salvageable and he underwent a high above-elbow amputation of his dominant right arm 2 days after admission. The level of amputation was such that he is unlikely to be suitable for future fitting with a useful prosthetic arm.

He was first seen by his GP 6 weeks after surgery for a review of his medication and care package. At the time he was complaining of pain and an uncomfortable sensation in his absent right arm. He was further reviewed by his GP 12 weeks after surgery with the pain and sensation in his right arm still causing him considerable problems.

Assessment

At 12 weeks after amputation the patient described an overall unpleasant sensation of his right arm still being present. This sensation was particularly prominent at the hand and wrist. Although in normal proportion to his left, he described the right arm as being shorter (approximately three-quarters the length of his left arm). He described the pain in his amputated right arm as a burning type pain in the hand and a separate sharp pain shooting up his arm.

As acupuncture of his intact left arm was being considered as a treatment option, the left arm was assessed. He was sensitive to palpation at certain points along his left arm—most notably at points corresponding to the Traditional Chinese Medicine (TCM) points of LI11 and LI14.

The clinical impression was of PLP and PLS following amputation of his right arm. The patient had undergone a course of acupuncture by the same GP for a

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neck problem some 5 years previously with good effect. He was amenable to the idea of a trial of acupuncture to his left arm in an attempt to alleviate the pain and sensation in his right arm.

Medication

During the course of acupuncture he was taking a number of prescribed medications including clonidine, diazepam, pregabalin, paracetamol, tramadol and venlafaxine. These medications were all being prescribed, and he was already suffering from PLP and PLS before he started his course of acupuncture. In fact he had been taking prescribed venlafaxine for some years before his amputation and had a long history of buying illicit diazepam from street sources. Prescribed clonidine, pregabalin and tramadol had been initiated during his postoperative recovery in hospital.

The only medication dose changed around the start of the acupuncture treatment was diazepam, which had previously been taken haphazardly and was standardised at a daily prescribed dose of 14 mg. The dose of diazepam was increased to 20 mg daily after session 7. However, this remained a relatively low dose of diazepam for this patient with his past history of prolonged drug misuse.

During the early sessions the patient was taking pregabalin for neuropathic pain at a dose of 600 mg twice daily, which was double the maximum recommended dose.¹ The dose of pregabalin was halved after the third session, with a further reduction to 300 mg once daily before the fifth session. A reduction in the dose of pregabalin would be expected to result in a worsening experience of pain.

Treatment

At the first session, 13 weeks after his amputation, baseline PLP and PLS were measured on a visual analogue scale (VAS) graded from 0 to 100. The VAS score at the first session was 73 for PLP and 94 for PLS. The VAS was measured at each subsequent session and at intervals after the end of the acupuncture.

At the first session, five points in the patient's left arm and neck were needled. Needles were inserted at TCM points LI8, LI11, LI14 and GB21 (Dong Bang needles 0.25×30) as these points were sensitive on palpation. In addition, LI4 was needled (Dong Bang 0.20×15) for its general analgesic effect. The needles were stimulated after insertion and there was a marked *de qi* effect, especially at LI4, LI8 and LI14, and the patient mentioned an immediate reduction in pain intensity in his right arm. All needles were removed after only 3 min at this first session owing to the strong *de qi* at some of the points. Immediately after removal of the needles the patient noted that his right arm was less painful and also felt numb and shorter compared with the start of the session.

At follow-up a week later the patient described the first session from his perspective. While the needles were in his left arm, the area surrounding the needle points felt hot but he had no sensation in his amputated right arm for the duration of needling. He also felt euphoric during the session. He had not experienced any right arm pain since the first session, but there had been a gradual return of sensation. The right arm was perceived to be shorter at the second session—being about half the size of his left arm.

At this second session, four left arm points were needled: LI4, LI8, LI11 and LI14. These points became the standard points used for all subsequent sessions, with the duration of needling being increased to 5 min for this and subsequent sessions. All needles were stimulated after insertion to achieve *de qi*.

Overall, the patient underwent seven sessions of acupuncture at weekly intervals. As shown in figure 1, the PLP completely resolved during the course of the acupuncture sessions while there was a considerable improvement in the VAS scores for the PLS over the first five sessions—from 94 at the first session to 19 at the fifth.

Between sessions 5 and 6 the patient had a heavy fall onto his right shoulder, resulting in a severe flare-up of both pain and sensation. However, he responded well to the sixth session of acupuncture 2 days after the fall, to such an extent that the PLS disappeared completely for 2 weeks. After the sixth session he did not experience sensations such as feeling the need to lean on his right elbow or to pull down cuffs at his right wrist. This was the only time during the course of sessions that his PLS disappeared completely.

The patient has been reviewed since completing his acupuncture. When seen 3 weeks after his final acupuncture session (22 weeks after amputation), he

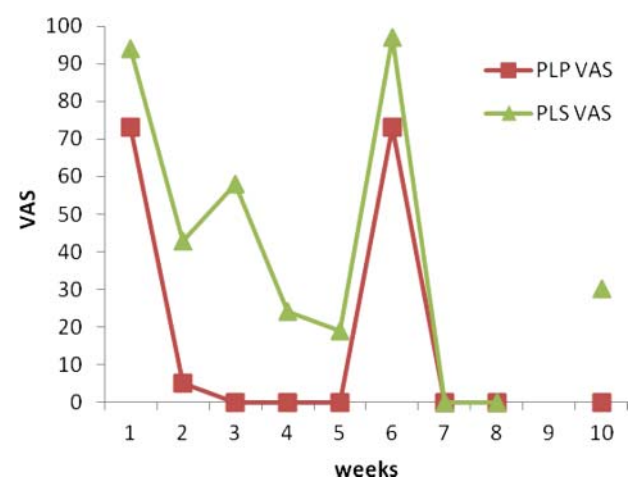


Figure 1 Visual analogue scale scores for phantom limb pain (PLP) and phantom limb sensation (PLS) during 7 weeks of acupuncture and 3 weeks follow-up (week 26 scores were PLP=0, PLS=7).

reported that he was completely free of right arm pain. He did have some sensation (VAS score 30), but said it was bearable compared with before the acupuncture. He felt his right arm continued to be about half the length of his left arm.

He was reviewed again 19 weeks after his final acupuncture session (38 weeks after amputation). At this time he was still free of pain and his PLS had continued to improve (VAS score 7). Interestingly, he felt that his right arm was now shorter than previously, being approximately one-third the length of his left arm. This represents a considerable improvement on his initial presentation when he felt the right arm to be about three-quarters the length of his left arm.

DISCUSSION

PLP and PLS are types of perceptual sensitive phenomena and are common complaints after amputation of limbs. Painless sensations can occur in up to 90% of patients, often stabilising in the first year after amputation.² PLP and PLS after upper limb amputation can become chronic problems, with over 80% of patients experiencing some sensation or pain many years after surgery.³

A number of possible contributing mechanisms to PLP, including stump-related pathology, spinal and cortical changes, have been proposed, and it has proved notoriously difficult to treat, with the most promising methods complementing pharmacological approaches with physical, psychological and behavioural intervention.⁴ PLP has variously been described as burning, tearing, electric shock in type. It is particularly problematic after traumatic amputation, with up to two in three patients being affected.⁵

Acupuncture has previously been reported to be of benefit in PLP and PLS,^{6,7} although the total numbers of patients included in these reports were low. Most recently, Bradbrook needled the asymptomatic intact limb in three patients in a rehabilitation clinic for patients with lower limb amputation.⁸ It was this short series which provided the inspiration for considering acupuncture as a treatment option for the patient described in this report but, in contrast to the cases described by Bradbrook, all of which involved lower limb amputations, the patient in this report underwent amputation of his upper limb.

There appears to be little consensus on the optimal duration of needling to obtain the optimal effect from acupuncture sessions, with needling time often influenced by personal preference. There are schools of thought suggesting that brief periods of needling are effective.⁹ Needling time during the first session was short at 3 min due to the marked *de qi* effect. Since the symptomatic response at the first session was good, subsequent sessions were limited to a maximum of 5 min needling time each session. This worked well for this patient, as the sessions were fitted into busy general practice surgeries running on a 10 min

appointment system. There is little flexibility within such a system to allow dedicated acupuncture sessions with longer appointment slots, and there is minimal scope for arranging sessions more frequently than once weekly.

The patient and GP had developed a good therapeutic relationship over a number of years, and the patient had had a good response from acupuncture some years previously for an unrelated problem. This previous experience may have influenced his agreement to the idea of undergoing acupuncture of his intact limb for PLP and PLS.

As acupuncture was used as an early intervention with the first session being only 13 weeks after surgery, the good response may be due to the fact that PLP and PLS had not become established in this patient.

In this particular case the patient derived considerable benefit from short sessions of acupuncture. This benefit was commented on when he attended a secondary care pain control clinic which was unaware that he was having acupuncture in primary care. The clinic letter noted a dramatic improvement in his symptoms to the extent that the patient no longer had any pain whatsoever in his phantom limb.

Even 5 months after the end of his acupuncture sessions he remained free of PLP, his PLS was continuing to improve and his perception of his right arm was that it was shortening. His VAS scores for PLP had fallen from 73 at the first session of acupuncture to 0 at review 3 weeks after ending the acupuncture sessions and 0 again on further review 19 weeks after the end of acupuncture. The VAS scores for PLS were 94 at the start, 30 on review 3 weeks after the end of acupuncture and 7 on further review 19 weeks after the end of acupuncture. This may represent the continued effect of the acupuncture or may have represented continued healing after his amputation. Only time will tell how long this benefit will last. It will be interesting to see what his PLP and PLS VAS scores will be over the next 12–18 months.

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