

Continued Sciatic Blockade for Phantom Limb Pain



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ABSTRACT

Phantom Limb Pain (PLP) is an excruciating type of pain that gives a sensation of the continued presence of an amputated limb. Physicians have used many methods and drugs to treat PLP. We present a case of continued sciatic nerve block performed for PLP that developed after a traumatic amputation. We conclude that infusing a local anesthetic via a perineural sciatic catheter effectively treated PLP and stump pain after traumatic leg amputation.

Key words: Amputation, phantom pain, stump pain, sciatic perineural catheter

Fantom Uzun Ağrısı için Devamlı Siyatik Blok

ÖZET

Fantom uzuv ağrısı (FUA) ampute uzvun devamlı olarak varlığının hissedildiği şiddetli bir ağrı türüdür. Hekimler FUA tedavisi için pek çok metod ve ilaç kullanmışlardır. Biz travmatik amputasyon sonrası gelişen FUA için uyguladığımız devamlı siyatik blok olgusunu sunuyoruz. Biz perinöral siyatik kateter ile yapılan devamlı lokal anestezi infüzyonunun travmatik bacak amputasyonu sonrası gelişen güdük ağrısı ve FUA' yı etkin olarak tedavi ettiği sonucuna vardık.

Anahtar kelimeler: Amputasyon, fantom ağrısı, güdük ağrısı, siyatik perinöral kateter

INTRODUCTION

Phantom Limb Pain (PLP) is caused by an injury to peripheral nerves that, under normal circumstances, transmit pain signals to the brain. An injury and the subsequent healing process can leave these nerves especially likely to continue transmitting “pain” signals after the amputation. Patients describe this pain in various ways; they feel as if their missing limb is being compressed or distorted or is burning or aching, or they feel a “stabbing” or “throbbing” (1). In this case report we aimed to discuss continued sciatic nerve block for PLP with literature.

CASE

A 36-year-old male patient suffered from PLP after a traumatic right leg amputation under his knee caused by an occupational accident. He underwent surgery for his amputation under general anesthesia. Two days after his amputation, he developed a stump infection, severe stump pain and phantom pain that felt like burning, stabbing and throbbing with pain in his missing foot and second toe. Another operation was planned for stump revision. In the operating room, we inserted an ultrasound-guided sciatic perineural catheter and then an ultrasound-guided femoral nerve block (20 mL 0.25% levobupivacaine) and

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Received: 26.02.2011, Accepted: 18.04.2011

sciatic block (20 mL 0.25% levobupivacaine) via catheter for anesthesia (Figure 1). We administered postoperative analgesia using a patient-controlled analgesia (PCA) infusion with 0.01% levobupivacaine at a bolus dose of 5 mL, lockout time 30 min and limit of 4 hours and 20 mL (Abbott Pain Manager, Chicago, IL, USA). The patient used PCA as long as he felt pain and his pain was gone by the fourth day. He used an antibiotic for 15 days. No phantom pain or any other sensation in the amputated leg ever reappeared.

DISCUSSION

We saw that a continued sciatic perineural block with PCA treated PLP after a traumatic leg amputation during the early postoperative period. Ephraim et al (1). showed that 80% of patients experience phantom pain within four weeks of their amputation. Some studies have illustrated that PLP is a complex phenomenon that involves the spinal cord, brainstem, thalamus and cortex, and that peripheral factors can be attributed to neural reorganization at multiple levels (2). In addition, amputation-induced long-lasting potential membrane depolarization might be associated with the synaptic mechanisms for PLP (3). The exact mechanisms of this complex's neural interactions remain unclear. Some factors other than those mentioned above might also contribute to PLP's development, including the degree of pre-amputation pain (4); the presence of noxious intraoperative inputs brought about by cutting skin, muscle, nerve and bone; acute postoperative pain (including that caused by pro-inflammatory processes) and psychological factors (5). This patient's stump was inflamed, which might have been an inducing factor for PLP. After orthopedic surgery, peripheral nerve blockage with continuous infusions offers the benefits of prolonged analgesia with fewer side effects, greater patient satisfaction and faster recovery than morphine (6,7). In a recent study, Borghi et al (8). placed a perineural catheter immediately before or during surgery in 71 patients undergoing lower extremity amputation. They found that using a prolonged postoperative perineural infusion of a local anesthetic is an effective therapy for treating PLP and other sensations after lower extremity amputation. Other reports support these results (4,9,10).

Therapy's onset is significant for the prognosis. If therapy begins during the first days after amputation, the success rate is 80-90%; if it begins later than that, the success rate falls to only around 30 % (11). Hence, the catheter

should be implanted for pain relief as early as possible, ideally before surgery. When a continuous nerve block was started immediately after the surgical procedure, no cases of PLP appeared within a one-year observation interval (12). However, Rouillet et al (13). placed a popliteal sciatic nerve catheter preoperatively and showed that despite the use of regional anesthesia, chronic opioid consumption before leg amputation is associated with increased postoperative morphine consumption and PLP.

Other reports of leg amputations found epidural anesthesia or peripheral nerve catheters to be ineffective for preventing PLP or decreasing postoperative morphine consumption on day 7 or at 1 and 6 months (9,12,14). Because PLP is a neuropathic pain with a central element, preoperative regional techniques probably cannot prevent it (15). A few studies have assessed preoperative or immediately postoperative perineural sciatic or posterior tibial nerve blocks. Those blocks provided short-term pain relief and the patients used less morphine for 2-3 days. Despite these early benefits, the two studies' intervention and control groups did not differ in the amount or severity of pain they felt after the third day (16).

All studies show that regional techniques can induce PLP and treatment can be insufficient following amputations that result from chronic diseases. But regional techniques such as a perineural sciatic catheter can treat PLP after traumatic amputations. Post-amputation pain consists of both stump pain and PLP. After leg amputation, stump pain is associated with PLP in 50-80% of amputees (17). Our patient suffered from stump pain with PLP and we treated his stump pain, as well as his PLP, with PCA with a perineural sciatic catheter. In conclusion, we think that PCA with a perineural sciatic catheter effectively treated both PLP and stump pain after traumatic leg amputation.

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Figure 1. Before surgery for stump revision



Figure 2. After perineural sciatic catheter inserted

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