Case Report

Recurrent Complex Regional Pain Syndrome after Minor Hip Surgery

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Abstract

Complex regional pain syndrome (CRPS) Type I, a chronic pain disorder, occurs in the sequel of certain predisposing conditions. Recurrence may be observed in 4%–10% of cases in the same or another limb. There are no specific parameters to prevent CRPS after surgery or trauma. However, some authors have reported several recommendations about surgical techniques and Vitamin C supplementation. We report a case who had CRPS Type I history before and developed recurrent CRPS Type I in the lower limb due to surgery for osteonecrosis of the hip. We observed significant improvement with physical therapy and medication.

Keywords: Complex regional pain syndrome, hip surgery, recurrent complex regional pain syndrome

Introduction

Complex regional pain syndrome (CRPS) Type I is a chronic pain disorder which occurs after some predisposing conditions including trauma, infection, surgery, cervical radiculopathy, soft-tissue contusions, fractures, tendon ruptures, and myocardial infarction.[1,2] Symptoms and findings are characterized by pain, allodynia, edema, trophic and vasomotor changes in the affected limb. As well as the pain is not limited to a specific nerve distribution or dermatome, it is not associated with the severity of injury either. CRPS is clinically separated into three phases as acute, dystrophic, and atrophic. According to extremely various durations of each period, separation of these phases is not possible unlikely. The pathophysiology is not clear, and some theories are suggested such as irregular sympathetic system, neurogenic inflammation, and immobilization. Furthermore, psychological features are accused as a predisposing factor.[3,4] CRPS can be reactivated after a disease-free period with further trauma or another operation in the same or another limb.[5]

We report a case, who had CRPS Type I history in the lower limb after minor trauma, with recurrent CRPS Type I in another limb due to core decompression and bone grafting for osteonecrosis of the hip.

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Case Report

A 47-year-old male had a history of CRPS Type I after left foot fourth finger soft-tissue injury, due to the spread of the complaints to the feet and ankle, and prolonged his symptoms throughout 3 months. He had been implemented 45 sessions of physical therapy program and medical treatment in our department because of left lower-limb CRPS Type I. Then, he had completely ameliorated. One year later, the patient had felt pain in his right hip and he had applied to orthopaedist. In the sequel, osteonecrosis of the right femoral head had been identified by magnetic resonance imaging (MRI). Having been operated due to osteonecrosis and performed core decompression and bone grafting for the right hip by an orthopedist, he had been advised immobilization throughout 2 months because of casting after surgery. Along with mobilization, the patient began to feel pain in his right foot.

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On the occasion of prolonged complaints, he had applied to his surgeon. In consequence of X-rays and MRI, he had been diagnosed right lower-limb CRPS Type I. He had been performed physical therapy in another hospital throughout 21 sessions. However, he was consulted in our department by his orthopedist for continuing complaints. The patient presented with complaints of difficulty in walking, swelling in the right foot and ankle, pain in the course of mobility, and resting. On physical examination, in inspection, he mobilized with two crutch, his right foot and ankle were edematous and a little red. Also, elongation and thickening were observed in hair of right foot. On palpation, there were prominently tenderness, allodynia, and paresthesia on the right ankle. Furthermore, he had a limited range of motion on the ankle. The Numeric Rating Scale was 8 out of 10. In laboratory examination, erythrocyte sedimentation rate was 7 mm/h (3–20), C-reactive protein (CRP) was 3.98 mg/L (0–6), and rheumatoid factor was negative. Triple-phase bone scan was compatible with CRPS [Figure 1]. Regional osteoporosis was seen in his ankle on routine X-ray examination [Figure 2]. MRI of the right foot showed that there was a compression fracture in the talus [Figure 3]. He was using some drugs including ibuprofen 1200 mg/day, pregabalin 150 mg/day, and calcium carbonate and Vitamin D3. He was undergone physical therapy (transcutaneous electrical nerve stimulation, whirlpool, range of motion exercises, and partial weighting on the limb). His medical treatment was readjusted (pregabalin 300 mg/day, ibuprofen 1600 mg/day, and calcium carbonate plus Vitamin D3). A significant improvement was observed following nine sessions of physical therapy and medication. In addition to this, the Numeric Rating Scale decreased to the level of 1 efficiently.

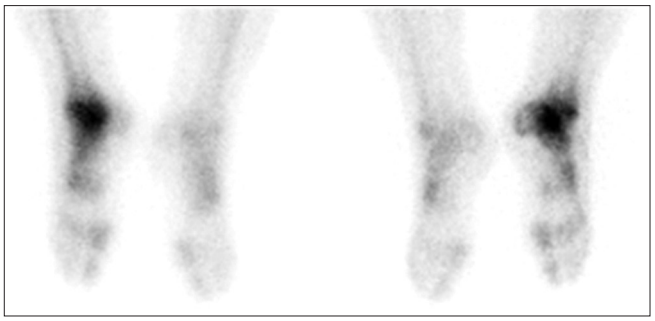


Figure 1: Triple-phase bone scan was compatible with complex regional pain syndrome for the right ankle (anterior-posterior and posterior-anterior images, respectively)



Figure 2: Regional osteoporosis on X-ray

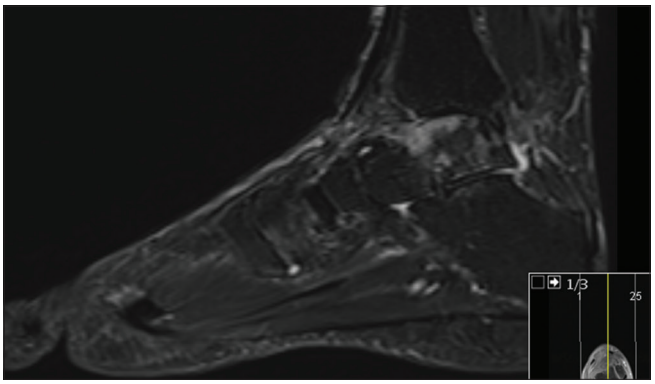


Figure 3: Compression fracture in the talus on magnetic resonance imaging of the right ankle

Discussion

CRPS Type I, a posttraumatic disorder, commonly associated with surgery including extremities, is a scarcely complex clinical entity for clinicians. The incidence has been reported 1%–37% after distal radius fracture. Some synonyms are also used to describe CRPS such as reflex sympathetic dystrophy syndrome, Sudeck's atrophy, and algodystrophy.[3] The Budapest criteria for the diagnosis of CRPS, modified version of Orlando criteria, have a greater specificity and also include motor features of the syndrome [Table 1].[1]

While it has a good prognosis with early diagnosis and treatment, prolonged misdiagnosis and lack of treatment result in chronic disability. Recurrence is observed in 4%–10% of cases 3 months to 20 years after the initial event.[6] There are no specific parameters which are known to prevent CRPS after surgery or trauma. But still, a number of authors have reported several recommendations including careful operative technique, knowledge of anatomy, avoidance of nerve traction, and proper postoperative care to reduce the frequency of this disorder. Physical therapies, mirror visual feedback, medication (oral/topical medication or injections), and surgery may be effective solutions in the process of treatment. Vitamin C supplementation after surgery is associated with reducing the risk of developing CRPS. Although optimal dose is not clear, 500–1000 mg/day doses are commonly taught to be effective than lower doses. Typically, a 500 mg/day dose is used for 50 days. Furthermore, early mobilization after limb surgeries has been reported to prevent CRPS.[5,7,8] Parallel to this information, in a sequel of 2-month immobilization period, our case even developed CRPS Type I.

Table 1: Budapest clinical diagnostic criteria for complex regional pain syndrome

Continuing pain, which is disproportionate to any inciting event
Must report at least one symptom in three of the four following categories
Sensory: Reports of hyperalgesia and/or allodynia
Vasomotor: Reports of temperature asymmetry, and/or skin color changes, and/or skin color asymmetry
Sudomotor/edema: Reports of edema, and/or sweating changes, and/or sweating asymmetry
Motor/trophic: Reports of decreased range of motion, and/or motor dysfunction (weakness, tremor, and dystonia), and/or trophic changes (hair, nail, and skin)
Must display at least one sign* at time of evaluation in two or more of the following categories
Sensory: Evidence of hyperalgesia (to pinprick) and/or allodynia (to light touch, and/or deep somatic pressure, and/or joint movement)
Vasomotor: Evidence of temperature asymmetry, and/or skin color changes, and/or asymmetry
Sudomotor/edema: Evidence of edema, and/or sweating changes, and/or sweating asymmetry
Motor/trophic: Evidence of decreased range of motion and/or trophic changes (hair, nail, and skin)
There is no other diagnosis that better explains the signs and symptoms

*A sign is counted only if it observed at the time of diagnosis

Spinal cord stimulation may be performed, if symptoms still persist after 3–4 months.[1] However, it is reported that 74% of patients with CRPS Type I achieve resolution of symptoms with early treatment.[9] In our patient, we achieved great improvement with physical therapy and medication.

In conclusion, it can be suggested that people who will be performed any surgical procedures should be evaluated with regard to CRPS history ahead of operation. This may be fairly important to take precautions either during surgery or in postoperative care to prevent recurrence.

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initial s will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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