



CASE REPORT

Pulmonary embolism occurring in a patient treated with spinal cord stimulation

Spinal kord stimülatörü takılan hastada gelişen pulmoner emboli

Tülin ARICI, Mustafa KURÇALOĞLU, Meltem UYAR, Can EYİĞÖR

Summary

Spinal cord stimulation (SCS) has been shown to be an effective method for treating many chronic pain syndromes. In addition, providing pain relief with SCS can reduce immobilization and complications related to immobilization. The present case describes pulmonary embolism (PE) that occurred in patient being treated with SCS for post-laminectomy syndrome. The possibility of PE must be kept in mind while treating patients with SCS.

Keywords: Immobilization; pulmonary embolism; spinal cord stimulation.

Özet

Spinal kord stimülasyonunun (SCS) birçok kronik ağrı sendromunun tedavisinde etkili bir yöntem olduğu gösterilmiştir. Ayrıca SCS ile ağrı palyasyonunun sağlanması immobilizasyon ve immobilizasyon ile ilişkili komplikasyonları azaltabilir. Biz bu olguda postlaminektomi sendromu nedeniyle spinal kord stimülatörü uygulanan hastada deneme dönemi sırasında görülen pulmoner emboliye yaklaşımımızı sunduk. SCS hastalarında pulmoner emboli şüphesi akılda bulundurulması gereken bir durumdur. Ayrıca SCS ile ağrı palyasyonunun sağlanması immobilizasyon ve immobilizasyon ile ilişkili komplikasyonları azaltabilir.

Anahtar sözcükler: Immobilizasyon; pulmoner emboli; spinal kord stimülasyonu.

Introduction

Spinal cord stimulation (SCS) has been shown to be an effective method for treating many chronic pain syndromes. It is widely used in the treatment of post-laminectomy syndrome, complex regional pain syndrome, radiculopathy resistance to conservative or surgical treatment, peripherally vascular diseases, and visceral pain. It has also been applied to non-pain-related conditions, such as congestive heart failure, interstitial cystitis, and intractable spasticity.^[1] SCS seems to be cost-effective in the treatment of many chronic neuropathic pain conditions.^[2] Clinical series have reported 50%–70% successful pain relief in patients treated with SCS based on reduction in pain severity scores, improvement in function, and decreased pain medication dependence.^[3]

Immobilization is related to pain in patients with chronic pain; it increases remarkably in the trial period of SCS because the electrodes protruding out of the body restrict the patient's movements. Therefore, it is likely that the patients face the problems, such as thromboembolism, caused by immobilization.

In this case, we present our approach toward pulmonary embolism (PE) occurring in the trial period after electrodes were implanted in a patient treated with SCS because of post-laminectomy syndrome.

Case Report

A 59-year-old female patient presented with a complaint of pain in her back and legs since 5 years. The patient had been operated twice in the lumbar spine

Department of Anaesthesiology, Ege University Faculty of Medicine, İzmir, Turkey

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Correspondence: Dr. Tülin Arıcı. Ege Üniversitesi Tıp Fakültesi Anesteziyoloji ve Reanimasyon Anabilim Dalı/Algoloji Bilim Dalı, İzmir, Turkey.

Phone: +90 - 342 - 221 07 00 **e-mail:** arici-tulin@hotmail.com

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region because of compression fracture. After these operations, she suffered from chronic low back and bilaterally lowers extremity pain and was repeatedly hospitalized. The pain was characterized as constant, burning, and biting. Her visual analog scale (VAS) score for pain intensity was 8-9/10. Electrodiagnostic studies showed lumbar radiculopathy.

Because the patient was not treated with physical therapy, medication (pregabalin 600 mg/day, tramadol 200 mg/day, and oxycodone 80 mg/day), or interventional pain treatments (facet median branch radiofrequency thermocoagulation and epidural steroid injection), it was planned that SCS would be administered to her. In the patient, percutaneous lead with eight electrodes was placed to the epidural space via a 14-gauge modified Tuohy needle at L1-2 under fluoroscopy. The trial lead was advanced carefully to the T9-10 disc space under fluoroscopy. The patient was controlled and observed during trial period because she was suffering from anemia and fatigue. After the internal medicine consultation, she was diagnosed as having iron deficiency anemia.

One week after the electrodes were implanted, she experienced slight chest pain and cough, and her fatigue increased. Her physical examination results were normal, and X-ray was usual. The patient was consulted by a cardiologist. The cardiac pathology was not determined. Subsequently, her cough became less severe, but her chest pain and fatigue continued. She was also consulted by a chest disease specialist. Subsequently, her D-dimer level was analyzed because of the suspicion of pulmonary embolism. The D-dimer level was increased, and the patient was given prophylactic Clexane treatment. She then underwent computed tomography pulmonary angiography (CTPA), which revealed filling defects at the branches of pulmonary artery feeding the right lung lower segment consistent with pulmonary embolism. Clexane dose was increased to 0.6 ml twice a day, and Clexane treatment was continued during the trial period of SCS evaluation. The patient reported substantial pain relief on her lower back and legs, with decreased VAS scores for pain intensity. She was implanted with the spinal cord stimulator generator along with Clexane treatment. No complication was observed in the pre- and postoperative periods. She demonstrated excellent improvement in pain. Clexane treatment was stopped, and Coumadin treatment was started. The

patient was discharged, and she could immediately return to her daily life.

Conclusion

The clinical signs and symptoms of PE may be non-specific, and diagnostic confirmation using imaging and laboratory tests is required.^[4] The combination of clinical probability estimation, CTPA, and serum D-dimer levels is usually used to establish the diagnosis.^[5] Dyspnea, tachypnea, chest pain, cough, hemoptysis, tachycardia, syncope, and respiratory crepitations are common symptoms of PE, but none of these is unique to the condition. Syncope or near syncope, hypotension, extreme hypoxemia, electromechanical dissociation, or cardiac arrest is suggestive of a massive PE.^[4] Pulmonary embolism is a potentially fatal condition if left untreated.^[6, 7] Its presentation can be relatively mild, sometimes even mimicking myalgia or a simple cough. This causes the diagnosis of pulmonary embolism to be easily missed.^[6] Our patients had no other symptoms except slight chest pain, slight cough, and fatigue. It helped us think that the patient was immobile. Many fatal cases are not diagnosed premortem because of the nonspecific clinical symptoms with which patients often present.^[4]

Pulmonary embolism may occur without any predisposing factors. However, one or more factors may be determined, for instance, conditions that require patients to lie for a long time, such as old age, venous thromboembolism, active cancer, paresis, cardiac disease, respiratory insufficiency, congenital or acquired thrombophilia, and use of the oral contraceptive.^[5, 8, 9] In our case, there was immobilization related to chronic neuropathic pain in her back and legs. The electrodes also increased her immobilization. The patient restricted her movements much more to protect the connection of the electrodes. This created a predisposing factor for pulmonary embolism. Therefore, such patients should be supported for mobilization during the trial period of SCS.

The suspicion of pulmonary embolism must be kept in mind while treating patients treated with SCS. We suggest that providing pain relief with SCS will reduce immobilization and complications related to it. Therefore, cost-effectiveness of SCS might be increased, and the patients can be cured of illnesses depending on immobilization.

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