

Parapleji Tedavisinde Elektroterapi Cihazına Bağlı Gelişen Yanık Olgusu

Unusual Burn as a Complication of Paraplegia Treatment Caused by an Electrotherapy Device

Elektroterapi Yanığı / Electrotherapy Burn

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Özet

Kas ve sinir hastalıkları gibi iskelet kası zayıflıklarına neden olan hastalıkların tedavisinde elektroterapi tedavisi yaygın olarak kullanılmaktadır. Elektroterapi cihazının neden olduğu bir yanık olgusuna literatürlerde mevcut değildir. Bu olgu sunumunda, 21 yaşında bir paraplejik bir erkek hastada, elektrotların yapıştırıldığı sol uyluk ön yüzünde meydana gelen bir yanık vakası takdim edilmektedir. Bu olguda yanık alanları konservatif olarak 5 haftada tedavi edilmiştir. Elektroterapi tedavisine bağlı meydana gelebilecek yanıklar, alınacak basit tedbirlerle engellenebilir. Alınacak tedbirler ve eğitim ile bu vakaların görülme insidansı azalacaktır.

Anahtar Kelimeler

Yanık, Elektroterapi, Galvanik Akım.

Abstract

Electromyostimulation (EMS) therapy is widely used as a part of physiotherapy for all patterns of skeletal muscle weaknesses like paresis, paralysis, neuropathies, and myopathies. To our knowledge, burns caused by the use of an electrotherapy device have not been reported earlier. We report the case of a 21-year-old man who suffered full thickness burns by electrical stimulation with electrode implanted on the anterior side of his left thigh. The burn area was treated consevatively within five weeks without any surgery. The burn injuries due to electrotherapy device are preventable and therefore, some basic measures may reduce the incidence of accidental burn injury. We hope that this case report will raise awareness about the dangers involved in the ever-increasing use of electrotherapy devices.

Keywords

Burn, Electrotherapy, Galvanic Stimulation.

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Introduction

Electromyostimulation (EMS) therapy is widely used as a part of physiotherapy for all patterns of skeletal muscle weaknesses like paresis, paralysis, neuropathies, and myopathies. EMS is a technique to elicit muscle contraction by delivering electric impulses to the muscles. To our knowledge, burns caused by the use of an electrotherapy device have not been reported earlier.

Case Report

We report the case of a 21-year-old man who was paraplegic. The patient involved in a road traffic accident became paraplegic and developed a deep sacral pressure sore that failed to heal with the conservative methods. He was operated on and the defect closed with a transposition flap. He was allowed to sit on the flap after 3 weeks and discharged for rehabilitation. During the fifth seance of rehabilitation period, he had sustained full thickness burns by electrical stimulation with electrode implanted on the anterior side of his left thigh (Figure 1). Galvanic electric stimulation with a width of 400ms was applied to the patient. Burn areas were dressed every day. Suitable antibiotic therapy was begun with the consultation of the infectious disease department. The burn area was treated consevatively within five weeks without any surgery.



Figure 1. Full thickness burns on the anterior side of the left thigh.

Discussion

EMS is a technique to elicit muscle contraction by delivering electric impulses to the muscles. The electric impulses are generated by an electric device and delivered through electrodes to the skin in direct proximity to the muscles to be stimulated.[1] The electrodes generally are pads that are made to adhere to the skin. EMS has been claimed to have a positive effect on spasticity, range of motion (ROM), and muscle strength. EMS is also used as a complementary technique for sports training.[2] Therapy sessions may last from minutes to hours.

Electrotherapy devices may be set in a wide range of frequencies and intensities, depending on patient preferences, desired sensations, and treatment goals. High-voltage pulsed galvanic stimulation is gaining widespread use for paraplegic patients. Galvanic, direct electrical stimulation with pulse widths of up to 300 ms has been the conventional stimulation treatment for denervated muscle. However, a high-voltage galvanic stimulation more than 360 ms produces a spontaneous breakdown in skin resistance and electrical stimulation current passes through the skin with negligible thermal and electrochemical effects.[3] The high-voltage pulsed galvanic stimulation may cause localized deep burns on the electrode-implanted skin areas.

These burns are preventable and therefore, some basic measures may reduce the incidence of accidental burn injury due to electrotherapy device

1) Applying a test stimulation at the beginning of the treatment reduces potential problems later.
2) Daily care of electrodes must be performed.
3) Failed electrodes must be replaced with new one.
4) Irritation of the skin around the electrodes must not be ignored
5) Physiotherapist should be informed if more than 300 ms pulse with is needed for physicial rehabilitation programme.

We hope that this case report will raise awareness about the dangers involved in the ever-increasing use of electrotherapy devices.

References

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