

Lower Extremity Tissue Defect Caused by Mobile Phone Charger Explosion: A Case Report

Cep Telefonu Şarj Aleti Patlamasının Neden Olduğu
Alt Ekstremitte Doku Defekti: Olgu Sunumu

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SUMMARY

As the usage of cell phones is markedly increasing worldwide, accidental injuries and even lethal damages caused by cellular phone explosions have been reported lately. Although, cell phone charger explosion related scalding and tissue loss is extremely rare, they generally cause severe damage to tissues and cause severe complications, ending up in hospitalization. We are presenting a case of 9-year old female patient who was admitted to our emergency service due to a phone charger explosion that resulted in a lower extremity tissue defect.

Key words: Charger; explosion; tissue defect.

ÖZET

Cep telefonu kullanımı dünya çapında belirgin bir şekilde arttıkça, yaralanmaların, hatta ölümcül hasarların olduğu kazalar son zamanlarda bildirilmiştir. Her ne kadar cep telefonu şarj aleti patlaması ile ilgili yanık ve doku kaybı oldukça nadir olsa da, komşu dokularda ciddi hasar yapıp problem oluşturabilirler. Bu yazıda, cep telefonu şarj aleti patlamasına bağlı alt ekstremitte doku defekti ile acil servise başvuran dokuz yaşında bir kız çocuğu olgusu sunuldu.

Anahtar sözcükler: Şarj aleti; patlama; doku defekti.

Introduction

The use of electronic devices is ever increasing due to our heightened reliance on technology for daily routines. As electronic devices such as cell phones, tablet computers, and notebooks take a significant part of our life, the risks related to chemicals in the batteries and cables carrying high current are an issue and present possible danger to ordinary life.^[1-4] Improper manufacturing of such devices may put ones life in a potential threatening situation.

In the this case report, we present a 9-year old patient with a burn injury and tissue defect as a consequence of a cell phone charger explosion.

Case Report

A 9-year-old female applied to our emergency service due to a cell phone charger explosion. The patient stated that she plugged in her battery charger and pressed the “yes” key on the cell phone as it was ringing causing the charger to explode. Initial examination revealed a 5-6 cm uneven burn with a tissue defect involving skin and underlying subcutaneous tissue in the right anterolateral field above the knee. There were also several small areas of full thickness skin glow on both lower limbs (Figures 1a and b). The patient could not produce the battery charger as evidence since the charger broke into many pieces (Figure 1c). There was no other problem with her systemic examinations. The patient

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Figure 1. (a) Right anterolateral area above the knee and left upper leg injury. (b) The main injury on right upper leg shortly after mobile phone charger explosion. (c) Mobile phone charge adapter. (d) The final postoperative appearance of the injured region after immediate debridement and graft operation.

was consulted with a plastic surgery office and underwent rapid debridement and corruption preparation. There was no postoperative problem, and she was discharged with antibiotherapy (cephazoline). Dressing change on every other day was also suggested to the patient. There were no complications during the follow-up time as well. Figure 1d showed the final appearance of the right anterolateral area with a skin graft.

Discussion

Mobil phones usage is increasing daily, not only for spectators but also, for healthcare professionals especially during work hours in the hospitals.^[5] As we increasingly use these

devices in all aspect of the life, we also should be aware of the potential dangers of cell phones. There are some anecdotal studies for mobile phone battery explosion.^[4,6-8] However, we have not had many injuries associated with the use of phone chargers or any literature on this topic.

Karabağlı et al. reported a case of a 16-year-old female that was burned by a sudden exploding mobile phone.^[4] In their case study, the patient was speaking on the phone while it is charging. In our case study, the phone and the battery of the phone were intact after the explosion but not the charging device. Ben et al. reported a 24-year old man who was admitted to the hospital with multiple injuries, including severe burns in the left cheek and cervical area, perforation of left

tympanic membrane, cracking on skull base with paralysis of left facial nerve, and left clavicle fracture.^[2] These injuries were triggered by a spontaneously exploding mobile phone, which may have heated up during a prolonged (over half an hour) discussion. Contrary to our case, there was warning signal for the patient before the explosion occurred most likely due to lengthy phone conversation. There was no sign or evidence in our case that the explosion occurred just after plugging in the phone charger.

Fadeyibi et al. reported a case of a 1.5 volt conventional battery explosion and death which offered an extreme example about the danger of small batteries. The patient had 53% second degree burn and inhalation injuries, and subsequent death was reported in that case.^[3] The dangers of batteries are reported as precautionary statements, which are written on them and are indicative of the risk we take each day that we use any portable device.

Yigit et al. presented a case of the abdominal wall hematoma caused by an exploded phone.^[8] The victim just finished his conversation and there was no ringing or talking at the time of explosion, which is opposite of other reported cases including our study.

Using mobile phones has an inherent risk for various devices, including equipment and petroleum products. It was reported that there was no serious danger from using the cellular phone as long as they were 1 m away from susceptible equipment. With the most recent equipment, the security margin is much greater with a distance of 30 m away from the equipment.^[6] There was one record of an adult who was burned by detonation while employed on a petrol tank without any factors triggering this explosion apart from for his mobile phone ringing.^[7] In our case, when the patient wanted to answer the ringing cell phone, the charger exploded while pressing "yes" key.

In general, people do not believe a charger to be hazardous, so they frequently leave the phone turn on while it is charging. The cellular phone should be turn off before being left to charge and unblocked before answering an external call or

making a call.^[4] People need more formal education regarding the inherent dangers of the use of dry-cell batteries.^[3]

In conclusion, we recommend that cell phones and battery chargers, which are important links to the devices of our age, should be used carefully. In addition, people should be more educated about taking the necessary safety precautions during handling of these devices. Even though cellular phone explosion is a rare and extraordinary event, the inevitability of cellular phones is associated with well-being risk. Increasing awareness of the potential hazards and taking extra precautions can decrease cellular phone-related hazards.

Conflict of Interest

The authors declare that there is no potential conflicts of interest.

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