

# Torture by administration of electric shocks: The case of PG

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## Introduction to the Reader

In this case study, a survivor of torture describes a history of electrical torture with a rod-like object and the subsequent neurological symptoms and keloid scars that developed afterwards. Electrical injuries can be difficult for a clinician to identify on exam as they do not often leave any physical scars on the skin. However, survivors of electrical injuries do describe a constellation of acute sensations and ensuing neurologic and musculoskeletal symptoms that can be recognised by taking a detailed history. Though rare, our case aims to describe physical scars left by electrical torture in addition to the more common symptoms. Familiarity with the mechanism of these injuries and their common acute and subacute symptoms can assist a forensic examiner in evaluating consistency in these cases.

## Background

PG is an approximately 40-year-old male seeking asylum in the United States. In his home country in North Africa, PG worked in the military as a scientist, though he secretly opposed the government regime there. When a popular uprising against the government broke out, he attempted to join the rebel

forces but was intercepted, arrested, and subsequently tortured by the regime.

PG was detained in a military prison, where he was interrogated and tortured for two months. PG recalled being repeatedly electrocuted with what he believes was a rod on his back, chest, legs, and arms. As he was blindfolded at the time, he was unable to visualize the instrument used. The shocks were described as powerful and painful, and initially left small circular wounds where the rod contacted his skin.

Later, revolutionary forces freed political prisoners, including PG. About six months after he was freed, PG traveled to Europe and sought medical care for his injuries. At this time, PG described tingling over the areas where he was electrocuted, like an “ant crawling sensation,” with associated pain and numbness. He received treatment with acupuncture and the symptoms ultimately resolved. PG did not have documentation of his European medical records or acupuncture treatment so this aforementioned information was obtained via verbal history. PG eventually came to study and seek asylum in the United States. He was examined by a physician several years later as a part of his legal case for asylum.

## Ethical considerations

Written consent was obtained from the patient for de-identified information and photographs to be used in research and case reports.

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**Figure 1.** An example of a scar present on the client's back after his described electrical torture. The arrow points to a raised, circular, hyperpigmented lesion approximately 10mm in diameter. There were many other similar scars present across the client's back.



### Physical Signs and Symptoms

On physical exam, PG had numerous scars and injuries resulting from his torture. He had multiple circular, raised, hyperpigmented scars scattered throughout his back. These scars were 1cm in diameter on average (Figure 1).

### Interpretation and Conclusion

The history and physical exam of PG are highly consistent with the mechanism of injury he described. PG's account of electrical shocks (both the acute pain and subsequent months of paresthesias) is typical of being shocked by the tip of a rod, such as a cattle prod or shock

baton. The multiple circular, raised, hyperpigmented scars on his back are consistent with keloid scars as a result of these shock injuries. It should be noted that there are other hyperpigmented, round, raised scars present on the client's back. As he was shocked repeatedly, these scars could be from the electrical injury he described but could have an alternative etiology such as local inflammation or infection.

### Discussion

#### *Mechanism and Physiology*

Numerous low-lethality electric shock weapons have been commercially developed that can be used as weapons against humans. These include stun guns, TASERS, shock batons, and cattle prods. Such devices deliver an electrical charge through two points of contact, or electrodes. Stun guns, which are incapacitating devices, deliver multiple high-voltage (50,000V) shocks in quick succession. The electrical shocks are able to pass throughout the skin and skeletal muscle without penetrating internal organs, triggering immense pain and involuntary muscle contractions (Becour, 2013). Depending on the total duration of shock, the effects can range from being briefly unable to stand to being immobilized, incapacitated, and weak for around fifteen minutes (Robinson et al., 1990).

Shock batons and cattle prods operate in a similar fashion, with the two electrodes positioned at the end of a stick. These devices tend to deliver a lower, non-incapacitating voltage; the electrical current mainly passes between the two electrodes, with limited current in the rest of the body. This results in pain and localized contraction of the underlying skeletal muscle (Robinson et al., 1990). Importantly, a modified version of the cattle prod, called a 'picana', has been made specifically for use in electrical torture (Robinson et al., 1990).

The electricity generated by these devices will follow the path of least resistance in the body and can travel through nerves, muscles, and bone. The resulting current releases thermal energy impacting high resistance tissues, such as bones, fat, and tendons, receive more damage (Dhaniwala et al., 2019). Therefore, victims of electrical torture may have numerous, nonspecific injuries that result from the electrical current on bodily tissues, the conversion of electrical energy into thermal energy resulting in burns, and the physical trauma resulting from muscle contraction and fall (Becour, 2013).

#### *Evaluating Victims of Electrical Torture*

While the use of electrical torture has been reported since World War II, it can be challenging to clinically evaluate its victims because many of the resulting lesions heal with insignificant scarring (Danielsen, 2002). As such, a detailed history and description of the electrical torture is one of the most crucial components of the clinical evaluation.

In this case report, PG recalled that the shocks were very powerful and painful, causing his entire body to jump. This is consistent with reports from other survivors of electric torture who describe severe pain, loss of muscle control, convulsions, fainting, and involuntary defecation and urination (Amnesty International, 1997; Danielsen, 2002; Danielsen & Rasmussen, 2006). These “jumps” and involuntary contractions are consistent with the impact of electrical current on the neuromuscular junction.

Acutely after electrical torture, victims may experience pain and weakness in their muscles due to extended periods of forced tetany. Transient neurologic symptoms have also been described, such as seizures, motor weakness, decreased sensation, and even hemiparesis (Grube et al., 1990). Hematuria may

occur in the days following electric torture due to myoglobin released by the damaged tissues (Danielsen, 2002). There may be acute lesions on the skin from electric torture, although many will eventually heal with insignificant or no scarring at all.

The scars on PG’s back are non-specific, and could have been caused by inflammation or local infection. However, the 1-2 cm scars seen on PG could be similar to acute skin injuries described in victims of ‘picana’ torture. Following ‘picana’, well-demarcated lesions covered by red-brown crusts and sometimes surrounded by a broad erythematous zone consisting of indistinct and irregular edges have been described (Danielsen et al., 1991; Danielsen & Rasmussen, 2006).

Long-term sequelae of electrical torture can include musculoskeletal stiffness, neuropathies, impotence, scarring, and post-traumatic stress disorder (Amnesty International, 1997; Dhaniwala et al., 2019). Other neurological manifestations following electrical injury, such as epilepsy, peripheral nerve lesions, delayed motor neuron disease, and ischemic necrosis of nerves surrounding the electrical exit site have been reported (Addante et al., 1991; Andrews & Reisner, 2017). Even in the case of low-voltage electric shocks, peripheral neuropathy and reflex sympathetic dystrophy have been reported (Kim et al., 2013). These neuropathies may offer a clue of electrical torture when other physical symptoms such as scarring are absent.

In PG’s case, he reported a crawling sensation and tingling in the areas where he had been electrocuted, with associated pain and numbness. Eventually, with care and acupuncture, these symptoms subsided. PG’s description of his symptoms is highly consistent with other reports in the literature as summarized above.

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In summary, identifying survivors of electrical torture can be challenging, especially since electrical injuries often do not leave physical scars. In PG's case, his clear description of the electrical injury along with his subsequent neurologic symptoms strongly support his account of trauma.

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