



# Electric Shock and Injuries That Can Emerge

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**B**EWARE all electricians. For the past eight years, I have handled numerous electric shock injuries and after a while they seem like a garden variety type of injury in the electrical trade, notwithstanding the critical incidents that we all know about.

Some time ago, a new member brought me a claim involving an electric shock injury that also resulted in a fall from a ladder. His injury occurred while he was in the non-union sector, prior to being organized. The worker reported the following accident history:

**"I was going to wire a light, my foreman went down and turned off the breaker, he came up and told me it was off and to go ahead. I grabbed the wire burned my hand, it held me there for a few seconds and I fell off the ladder about four steps."**

The worker sustained burns and contusions from the fall from the ladder. He also developed a very unique problem, that being several bothersome pimples on his gums. On subsequent dental examination the worker was diagnosed with Tori which is a form of benign bone eruption. After a detailed investigation and review of prior dental records, it was determined he never had this condition which only emerged after these electric shock. The WSIB denied his dental injuries being related to the electric shock accident.

**I**n preparing the case for appeal, I referred the member to the Occupational Health Clinics for Ontario Workers and Dr. Kerin provided an opinion that the bone fragments were likely the result of either two scenario's. There was trauma when the worker fell to the ground from the 4<sup>th</sup> ladder rung with evidence of other dental damage ie., chipped tooth.

The other reason why the worker may have sustained these Tori (bone fragments erupting from jaw), was the unique physiological response when the body is electrocuted. While the WSIB medical consultant ruled there was no medical connection between a burned left hand and the dental injuries, Dr. Kerin's opinion addressed the causal relationship much more convincingly:

**[Mr. Electrician] was involved in a serious electrocution injury when he sustained significant burn injuries to his left upper limb, especially left hand, and also dental injuries as per dental history including eruption of a bone spicule immediately following the electrocution injury.**

**Electrocution injuries cause skeletal muscle contractures of varying degree including muscles of mastication which cause severe clenching of the teeth. Whether it was the clenching of teeth or as a result of trauma from falling from a ladder, probably 6 feet up in the air, is unclear.**

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**I**n support of this appeal, the union tabled a study, Overlooked Diagnoses in Chronic Pain: Analysis of Survivors of Electric Shock and Lightning Strike. This peer reviewed research study addressed two central causative mechanisms of injury after electrocution. At page 893, the research study highlights the effects of electrocution:

**...Like wise, variability of the symptoms after electric shock injury has been found in neuropsychological and psychological, orthopedic fractures, neurological, ophthalmological, gastrointestinal, endocrine systems, and muscle contractions caused by electrical shock so severe that the spasms broke bones, even at low voltages. Massive muscle contractions caused by nerve stimulation or direct triggering of striated muscles can cause ruptures, ligamentous tears, fractures, and joint dislocations.**

**The findings of this article show that disc disruptions occur in a significant number of lightning strike and electric shock survivors. The proposed mechanisms for the cause of these disrupted disc are the severe muscle contractions, which can cause broken or dislocated bones and can also cause hyperextension type injuries. Additional proposed mechanisms are the secondary injuries that occur when a patient is propelled from the injury site by lightning, or electric shock or trauma from falls from a ladder or other elevation as the result of losing consciousness, or being dislodged by the lightning strike or electric shock...**

**M**y message is very simple. From now on, if you are involved in a electric shock incident, be on guard that the full extent of your injuries may have been overlooked by you and your doctor. Pay attention to nerve function (numbness & tingling), vision, internal organ irregularity, and particularly aches and pains in your body. The medical research indicates that in addition to burns, electric current does produce a violent physiological response that in itself is quite traumatic and can cause injuries in the absence of a traumatic fall.



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