



### H6 Lichtenberg Figures in Electrocution Deaths by Evaporative Cooler

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**Learning Overview:** After attending this presentation, attendees will understand that Lichtenberg figures, until now synonymous with lightning strikes, can also occur in electrocution caused by electrical instruments, such as evaporative coolers. This presentation will discuss the possible mechanism of causation of Lichtenberg figures in conditions other than lightning strikes.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by showing the occurrence of Lichtenberg figures after electrocution by an evaporative cooler.

In a bizarre accident, three persons of the same family were found electrocuted by the evaporative cooler at their home. The incident happened when a young lady in her 30s, the daughter of an elderly couple, was replacing water in an evaporative cooler. Incidentally, the evaporative cooler was kept running while she was filling it with water. As the water flowed into the evaporative cooler, some spilled on the floor. Though initially everything went smoothly, when the water was spilled on the ground, the lady suddenly screamed for help. Hearing her scream, her mother and father rushed near the evaporative water cooler where their daughter was found lying on the ground and screaming for help. Without any hesitation, the couple went to pull her up, but they also stepped in the pool of water on the floor and started to scream. In the meantime, the neighbors sensed trouble. When the neighbors reached them, they found all three people lying in the pool of water, with the evaporative cooler fallen on one side. The neighbors carefully switched off the mains of the electric source of building, then tried to wake them. However, nobody dared go over the wet floor in fear of themselves being electrocuted too. Someone called the police, who came after some time and found the victims already dead.

The bodies were subjected to a medicolegal autopsy. It was observed that the young lady received superficial burns over her entire back, with blackening and peeling of the skin. There were also abrasions over her chin, right cheek, the right side of her mandible, and the left side of her forehead. There was flattening of the lateral aspect of the left heel, a pattern of reddening tree branching/Lichtenberg figures over the left sole, and the right sole was completely pale. There was cyanosis of the fingernail beds and the internal organs also showed multiple petechial hemorrhages in the lungs and heart.

Interestingly, barring mechanical injuries, there were similar Lichtenberg figure patterns over the soles of the two other victims. Such types of Lichtenberg patterns are common in deaths or accidents by lightning strikes. However, a Lichtenberg figures pattern in electrocution deaths other than lightning is not known per this study's research.

#### **Lichtenberg Figures, Evaporative Cooler, Electrocution**