



Pathology Biology Section – 2007

G29 Suicidal Electrocution in Australia

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The goal of this presentation is to describe a series of electrocution suicides in Australia.

This presentation will impact the forensic community and/or humanity by providing details of the typical electrical suicide death scene, autopsy features, and some specific problems associated with suicidal electrocution.

Introduction: While suicide is a worldwide phenomenon, the method that is used frequently has a geographic correlation. For instance, firearm suicides make up 50% of all suicides in the USA, while intentional poisoning with agricultural pesticides is used in up to 80% of cases in some Third World countries. While electrocution is not the most common form of suicide in Australia, compared to most parts of the world it appears to be a relatively frequent mechanism of suicide that warrants further study.

Materials and methods: This retrospective study investigates the trend of suicide by electrocution in the period from 1996 to 2005 examined at the Department of Forensic Medicine, Glebe, Sydney. Reviewed were the common autopsy, histology, and death scene characteristics of individuals who commit suicide via electrocution. A total of 25,675 deaths were investigated at between 1996 and 2005, with definite or probable suicide as the manner of death in 2029 cases. Suicidal electrocution cases were obtained by searching the Department of forensic medicine autopsy text database. All cases in this study had a full autopsy, including toxicology and histology, and a detailed death scene investigation by criminalists and electricians had been performed.

Results: There were 25 cases of definite suicidal electrocution (mean 2.5 cases/annum, 1.2% of all completed suicides), and a further three cases of possible suicidal electrocution in the time period. The latter three cases were not analyzed further. Eighty-one percent of decedents were male, and the mean age was 57 years (range 22 to 90 years). At least 40% of decedents were either currently working or had worked as electricians. Psychological comorbidities, predominantly depression, were observed in 73% of cases.

In 20 of the 25 cases, the mechanism of electrocution was by attachment to a live main electrical power point using electrical flex. The flex was typically tied around the wrists, causing a lethal current to pass through the body. Deep circumferential electrical burn marks on the wrists or other extremities were typical, although there were three cases where the electrical flex had been placed elsewhere (chest or mouth). The remaining five cases had electrocuted themselves by dropping an electrical appliance in the bath. There were histological findings consistent with electrocution in one of these cases. Two showed no signs of electrocution despite the body being found immersed in water with an appliance active or recently turned off, and two others were too badly decomposed for any further assessment.

Toxicology was positive in 17 (68%) cases. These included a single drug in 14 (56%) cases, with alcohol and benzodiazepine use predominating (5 and four cases respectively). Autopsy revealed the presence of significant organic disease in 17 cases, with nine of these presenting with at least two separate pathological processes. Grossly, pulmonary congestion or edema was found in 12 cases. Histologically, morphology consistent with electrocution was found in 11 cases.

In 78% of cases, the mains circuit in the premises was still live, as was the electrical outlet used to cause electrocution. Timers had been used in eight cases, but the remaining 17 bodies were "live" on arrival of witnesses or electricity personnel. In at least one case it was reported that witnesses touched the electrically active body. Notes from the deceased warning of potential electrical hazard from touching the body were found in at least five of the cases. Safety mechanisms were not tripped in any of the cases, and were only tampered with in one case.

Discussion: While suicide by electrocution is typically described as the activation of electrical appliances while immersed in a body of water, cases in Sydney appears to have a high proportion of individuals who attach themselves to power points via exposed wires. In the majority of cases in this study the body was "live" at the time of discovery, presenting a life-threatening risk to initial responders to the death. Investigators and emergency workers should remain vigilant upon discovery of electrical suicides, due to the fact that most bodies remain electrically active long after death.

Electrocution, Suicide, Death Scene Hazards