



G3 Unusual Work-Related Fatality: Importance of Scene Investigation Combined With Autopsy Findings

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After attending this presentation, attendees will understand the importance of the reconstruction of an unusual, fatal occupational accident by a detailed workplace investigation, combined with the evaluation of circumstantial, radiological, surgical, and, most of all, autopsy findings. The definition of a fatal accident at work adopted by the European Statistics of Accidents at Work project is "accidents at work leading to the death of the victim within a year (after the day) of the accident." In Italy, the main source of information about occupational injuries is the Institute of Insurance for Occupational Illness and Injury (Istituto Nazionale per l'Assicurazione degli Infortuni sul Lavoro; INAIL). According to INAIL, in 2011, 920 Italian workers died from work-related injuries. The majority of the accidental deaths occur either immediately at the time of the accident, or within a few days or a few weeks after the accident.

This presentation will impact the forensic science community by emphasizing how autopsy can play a key role about the reconstruction of the dynamics involved in the occupational event, allowing the identification of any legal responsibilities of the worker or the employers.

A case is presented of a 44-year-old man who was working in a building site, driving a tractor with a rear-mounted flail mower. While he was mowing grass close to a crane, he was struck in his left eye by something propelled by the mower's blades. The victim was rescued by his coworkers and brought to a local emergency department in a comatose state. At the hospital, a CAT scan of his brain revealed a metallic foreign object in the left occipital area, which had penetrated the left eyelid and orbital bone, making a channel into the left fronto-temporo-parietal region. Despite early craniotomy and intensive care, the victim died four days later and organ donation was authorized. Trying to understand the dynamics of the event, a medicolegal autopsy was performed. The external examination of the body showed a 0.6cm wound on the left superior eyelid. A 0.6cm keyhole wound on the superior wall of the orbital bone was also found. During gross examination of the brain, left hemisphere findings included a subdural hematoma, subarachnoid hemorrhage, and intra-axial hematoma. In the occipital lobe, a fragment of a frayed copper cable segment was found which was 4cm in length and 0.3cm in diameter. No alcohol or drugs of abuse were found in the blood, and urine collected at autopsy. The cause of death was identified as diffuse brain damage due to a penetrating head injury.

The workplace investigation showed the presence of a severed electrical cable, partially buried, protruding from the ground, just beneath the mower. The cable revealed the same characteristics as the fragment found in the brain. Therefore, it was thought that, as the man was driving the tractor, the moving mower blade hooked the electrical cable, pulling it out from the ground and severing it. A piece of that cable was projected forward striking the victim's head as he turned to investigate the obstacle interfering with his mowing.

In the case presented, the pre-autopsy reconstruction of the work-related fatality was incomplete because of the lack of detailed information concerning the accident scenario. In fact, it is known that there are many potential contributing factors to work-related accidents including: the nature and duration of the work; type of equipment, tools, or machinery used; the environmental conditions; and, the behavior of the worker. In the majority of cases, the information provided to inspectors and the police by coworkers facilitate a reasonable reconstruction of the occupational accident, but sometimes only the autopsy may detect the real cause of the death and what actually happened to the victim at the scene.

Brain Injury, Occupational Fatality, Workplace Investigation