

CASE REPORT

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Unusual Suicide with a Chainsaw

ABSTRACT: Described here is a case of suicide with the use of a chainsaw. A female suffering from schizophrenia committed suicide by an ingenious use of a chainsaw that resulted in the transection of her cervical spine and spinal cord. The findings of the resulting investigation are described and the mechanism of suicides with the use of a chainsaw is reviewed. A dry bone study was realized to determine the bone sections, the correlation between anatomic lesions and characteristics of chainsaw. The damage of organs and soft tissues is compared according to the kinds of chainsaw used.

KEYWORDS: forensic science, chainsaw, suicide, autopsy, power tool, psychiatric disorder

A suicide committed with a chainsaw is a rare event. It is an uncommonly reported incident and the forensic literature comprises few case reports of chainsaw suicides (1–6). Obviously, using a chainsaw for suicide is an exception (6,7) and is considered a violent method. Furthermore, women often prefer passive methods, whereas men use more frequently violent methods (8,9). Deaths with injuries caused by a chainsaw are described in occupational accident cases (10). These injuries almost exclusively involve the neck or the head region, leading to lethal central dysregulation and exsanguination. In the present case report, the death scene investigation and pertinent autopsy findings are described. This information is compared to the literature on suicides committed with a chainsaw.

Case Report

Death Scene Findings

A 32-year-old Asiatic woman was found dead in her living room. She worked as an engineer and had a significant medical history of major depression and schizophrenia that had been diagnosed and treated for 10 years. She had received treatments including psychotherapy, antidepressants, tranquilizers and neuroleptics and had multiple hospitalizations in a psychiatric hospital. She was found dead by relatives several days after her death. The deceased lived alone in her apartment and her family had no phone contact with her over a week.

The head was put under a structure composed of pulleys and bags filled with full water bottles in order to weigh down the chainsaw. These heavy blocks, containing the water bottles, were attached to the chainsaw. The chainsaw rested at the upper part of the structure on two horizontal wood boards sandwiched tightly between two other vertical wood boards in order to guide the

chainsaw and avoid vibrations and motion (which could have modified the orientation of the section). The entire structure was approximately 1.5 m high. The chainsaw was allowed to slide slowly due to the pulleys and elastics fixed with clinched nails on the floor (Fig. 1). The whole system was carefully constructed, with evidence of skilled labor. It was clear that measurements had been made to ensure that the joints were square and the beams parallel. An electric command switch on the chainsaw was found in the right hand of the deceased (Fig. 2). It allowed the chainsaw to cut the two horizontal wood planks and slide down the structure in a controlled manner. The deceased laid face down on the floor. Blood stains were located on the floor without splatter on the walls, indicating that the body was not moved after the death.

The chainsaw was an Electrolux Motor™ engine with a power of 1600 W, functioning with 220–240 V, a frequency of 50–60 Hz and weight 3 kg (Fig. 1). The length, including the projecting rim of the chain, was 50 cm. The number of revolutions of the chainsaw was 9.5/sec.

Postmortem Findings

The autopsy was performed on the afternoon after the discovery of the body. The body of the deceased was putrefied. The body corresponded to a young aged Asiatic woman. She was 166 cm tall and weighed 65 kg. She was normally dressed and had no jewelry. A large wound on the posterior side of her neck was documented. The wound extended 7 cm deep into the neck and involved the posterior muscles and the posterior side of the third and fourth cervical vertebrae. Findings were perturbed by putrefaction. The chainsaw stopped between the third (C3) and fourth cervical vertebrae (C4) in front of the intervertebral disc. A complete transection of cervical spinal cord was noted. No other external marks of violence were identified and there were no external signs of natural disease. Toxicological analysis was performed on postmortem venous blood samples and was positive for the normally prescribed medications at therapeutic concentrations. Anthropological analysis was performed.

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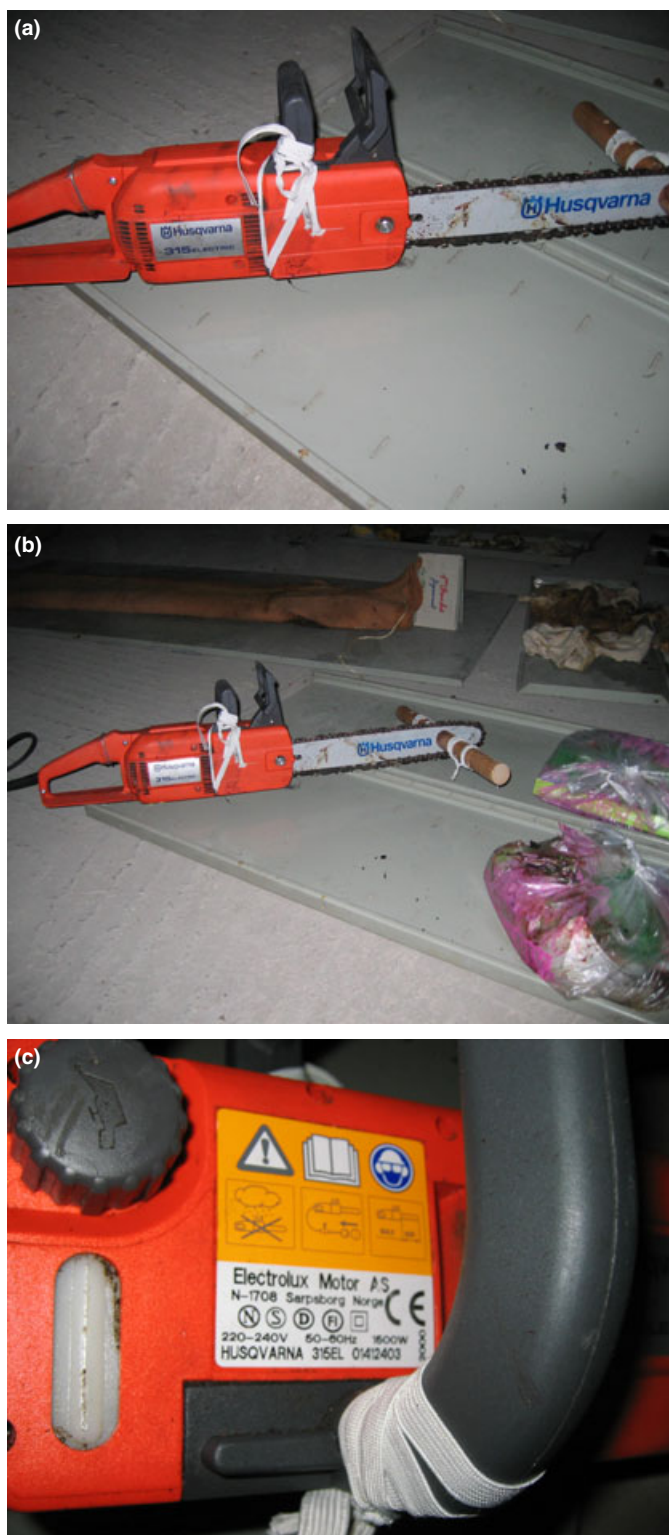


FIG. 1—View of the electric chainsaw. Characteristics of the chainsaw: 220–240 V, 50–60 Hz, 1600 W. A part of elastic is attached on the chainsaw. (a) chainsaw; (b) chainsaw and bags with bottles and books; (c) characteristics of chainsaw.

Dry Bone Study

Defects are located on C3 and C4 (Fig. 3). The section plane is inclined from the back to the front, from the left to the right and from the bottom to the top. The slice of section affects vertebrae in

coronal plane. The width is 47 mm and 6 mm height. The edges of transection are sharp and regular. The anterior part of the transection is uniform and smooth and the anterior limit of the slice is within the vertebral foramen.

On the right side, cuts of many parts (described in brackets) of vertebrae are noted on C4 (superior edge of the laminae and posterior part of the superior articular process) and C3 (inferior edge of the laminae, posterior part of the inferior articular process, posterior part of the spinous process).

On the left side, only C4 is affected with a sub-complete postero-anterior section of the inferior articular process.

Bone injuries are compatible with the use of a large width cutting edge instrument as a chainsaw. The edges are regular with no observable hesitation lesions.

Discussion

Suicides or suicidal attempts with saws are rare, but always particular due to the unusual patterns of injury and death scene investigation. Case reports of death due to the use of band saws, circular saws, or chainsaws exist in the forensic literature (1–4). The injuries almost exclusively involve the head or the neck, but in the case of Segerberg-Konttinen, visceral and tissue damages associated with strong vibrations of a chainsaw directed to the body (3–5). In the series of Betz, wounds inflicted to the head or the neck were identified in three cases out of four. The fourth case was a multiple two-fold amputation of the left forearm resulting in exsanguination. These self-inflicted patterns of injury are observed in individuals suffering from psychiatric disorders. In this case, the young woman had documented psychiatric disorders and organized a complicated, sophisticated scene of suicide. The wounds inflicted to the neck confirm the observations of other authors (1,2).

The human body reacts in various ways to vibrations depending on their amplitudes, frequencies, durations, and the parts of the body that are subjected to them. At low vibration frequencies, below 100 Hz, the human body can be described as one mechanical system. At higher frequencies, up to some 100 kHz, the vibration energy proceeds like waves and at even higher frequencies (100 kHz to MHz) the compression waves dominate. These waves proceed through the medium in a manner that is similar to radiation (4). In our case, cervical lesions are compatible with vibration frequencies of the chainsaw used (50–60 Hz). Furthermore, in the case we report, the vibrations were controlled by the disposition of wood planks, which stopped the movement of the chain saw and avoided the modification of its trajectory. The findings of the scene of death were very important to understand the mechanism of the material used. No typical hesitation injuries were observed in the neck. This finding was compatible with the situation of the cadaver under the structure. The dry bone study confirmed the regular and sharp limits of the bone injuries. This is in contrast to other authors who described hesitation injuries in the cases of hand-held chainsaws (3,5).

Another important aspect of our case report is that the deceased was a woman who showed no particular or apparent relation to power tools, in connection with neither her hobbies nor her job. Nevertheless, she was an engineer and consequently able to invent an efficient and complex deadly system (2–5,11,12).

Psychiatric pathology (documented history of schizophrenia) was an important investigative element to support the suicidal character of our decedent (8,11,12).

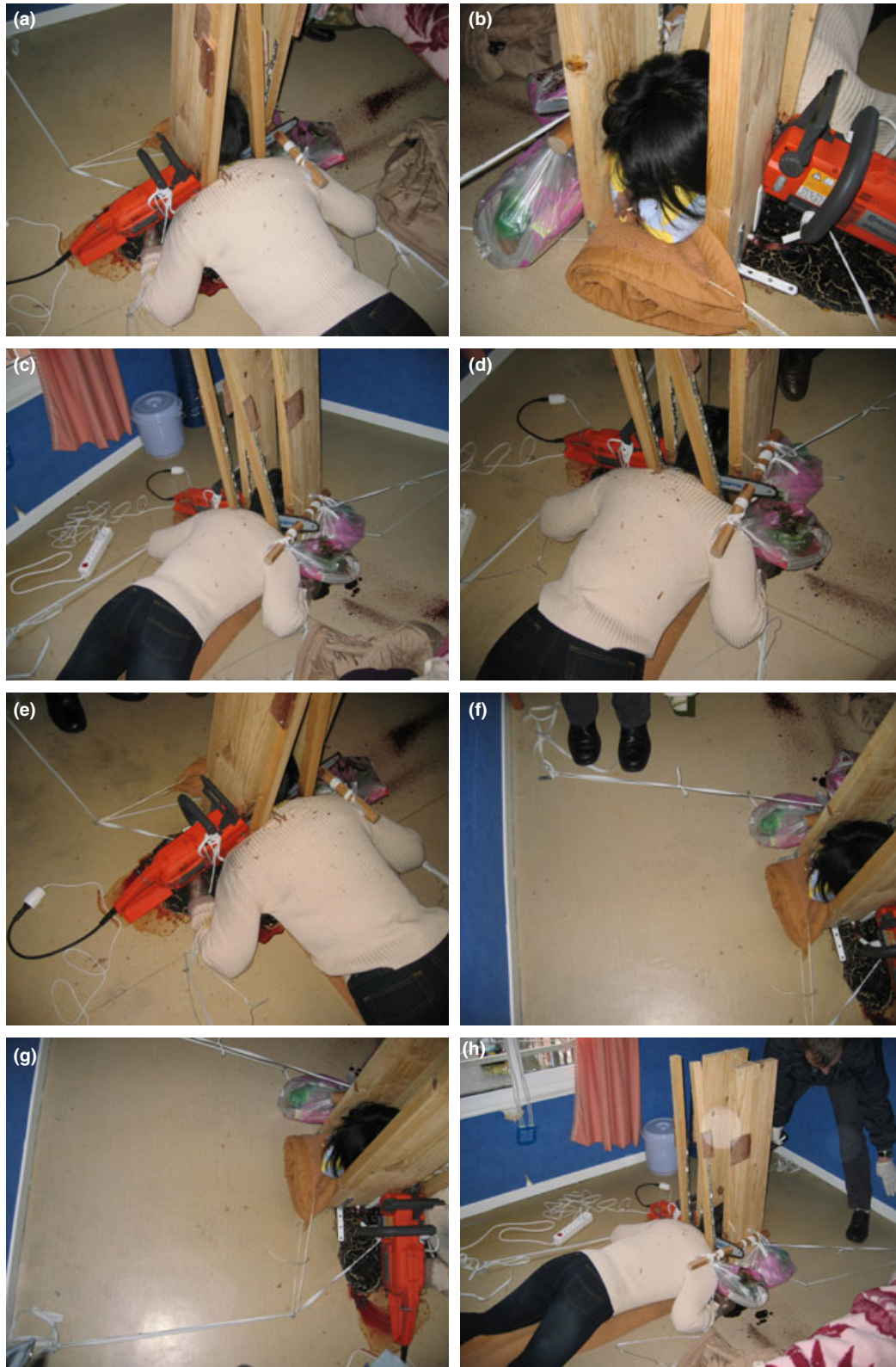


FIG. 2—Description of the death scene. Body of the female lay on the floor (a, b, c, h). The chainsaw was held between two vertical parallel planks of wood (d, e). Bags containing water bottles were used to counterbalance the chainsaw (f, g). Stains of blood are located exclusively on the floor (c, d).

Conclusion

Autopsy findings identified on this putrefied body were not obvious and sufficient to characterize the bone injuries due to the

chainsaw. A dry bone analysis was necessary to understand the mechanism and physiopathology of the death. Indeed, in this amazing case report, the major objective of the forensic pathologist was to determine the reality of the suicidal behavior. The analysis of

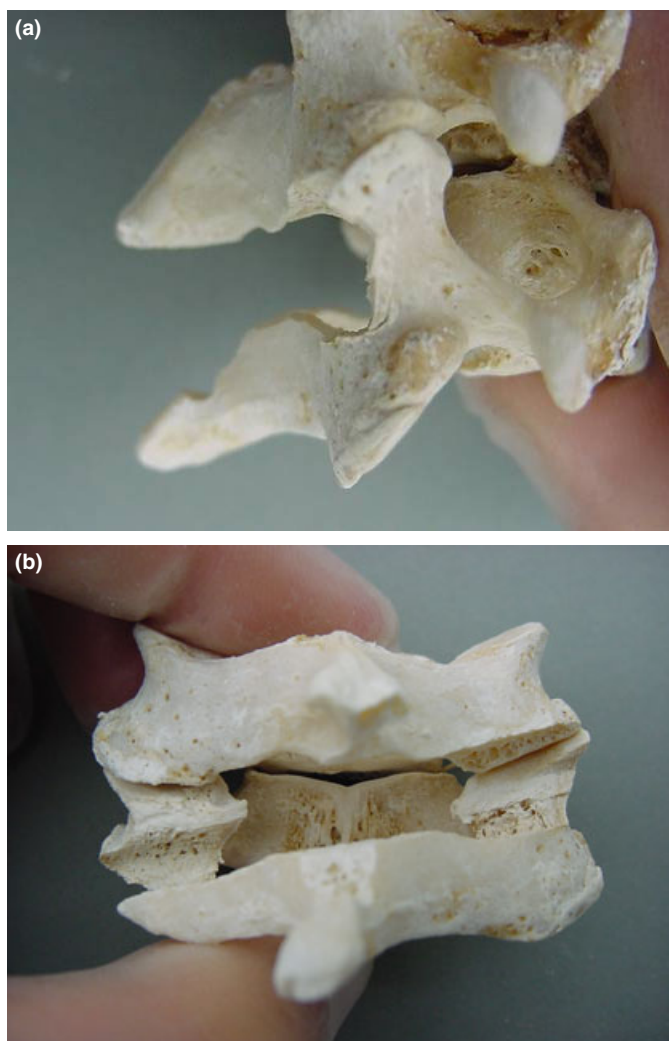


FIG. 3—Dry bone study: (a) lateral view of cervical bone transaction; (b) posterior view of cervical bone transaction.

the death scene, the autopsy, and the dry bone study enabled the pathologist to certify the manner of death as suicide.

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