



Short communication

Suicide by a circular saw

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ABSTRACT

The case of a suicide of a 32-year-old female using an electric circular saw is herein described. The decedent was suffering from depression and was found dead in her room. Beside her right hand was lying a circular saw, which was not running. The autopsy revealed a large gaping wound measuring 15.5 cm in length on the right side of her neck. The right external carotid artery, the right internal jugular vein, and the right internal carotid artery were cut and the injury reached to the cervical vertebra. Therefore, the cause of death was exsanguination. An individual who commits suicide with an electric saw, such as a chain saw, band saw, and circular saw is rare; in particular females rarely select this method as the means of suicide. However, we herein report the case of a female patient with a psychiatric disease who successfully committed suicide with a circular saw.

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1. Introduction

A person committing suicide with an electric saw is rare, and only a few such cases have been reported in the literature [1–7]. Generally, suicidal self-infliction by such power tools is associated with psychiatric disease and alcohol/drug abuse, and most of the decedents are male. We herein describe an unusual case of suicide using a portable circular saw.

2. Case report

A 32-year-old female was found dead by her mother in her room in the house in which she lived with her parents. She was found lying on blue plastic bags spread on a tatami floor in a dorsal position with abduction of both arms and flexion of both elbow joints to a right angle (Fig. 1). There was a large pool of blood around her head and dried blood droplets were over the face, hands, and neck. Moreover, we found the wound covered with bloody froth (Fig. 2). A circular saw which was not running, with its switch in the “OFF” position, was lying beside her right hand. She wore pajamas and had blood stuck around the collar but no tear was found in the clothes including the collar. She had suffered from depression for 10 years and had been hospitalized several times in the past, the most recent time being 4 months prior to her death. She did not have a history of any previous suicide attempt.

Although a suicide note was not found, she was troubled with marital problems and had complained of feeling depressed.

The circular saw used in the present case is shown in Fig. 3. It has a weight of 3.1 kg and a blade of 16 cm in diameter. According to the instructions manual, the maximum number of revolutions is 4700 per minute without load and the maximum depth of cutting is 5.5 cm. The saw runs only when the throttle of the hand switch is gripped, so with a release of the force on the grip, the blade of the saw would stop.

3. Autopsy findings

A deep gaping wound measuring 15.5 cm in length and up to 3.5 cm in width was encountered on the right side of the neck from the center of the front of her neck to her right ear. The wound edges were generally smooth but partly, in particular in the upper part of the wound, were torn with a saw tooth appearance. The lower/anterior wound angle was notched, the upper/posterior one was pointed; however, the upper/posterior wound edge encompassed a notch-like ledge (Fig. 4). No other injuries, including hesitation injury, were noted externally. In the subcutaneous tissues there were cuts of the right omohyoid muscle, right thyrohyoid muscle, and the right greater horn of the hyoid bone. The pharynx exhibited a cut involving the internal aspect on the right side, measuring 3.5 cm × 1.5 cm, which was corresponding to the location between the hyoid bone and the thyroid cartilage. The right external carotid artery, the right internal carotid artery, and the right internal jugular vein were cut (Fig. 5). There was a superficial incision on the front side of the third cervical vertebra and the right longus cervicis muscle, assumed to be the deepest

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Fig. 1. The situation of the decedent at the time of police arrival. She was lying in a dorsal position on blue plastic bags spread on a tatami floor. There was a large pool of blood around her head and dried blood droplets were over her face, hands, and neck.

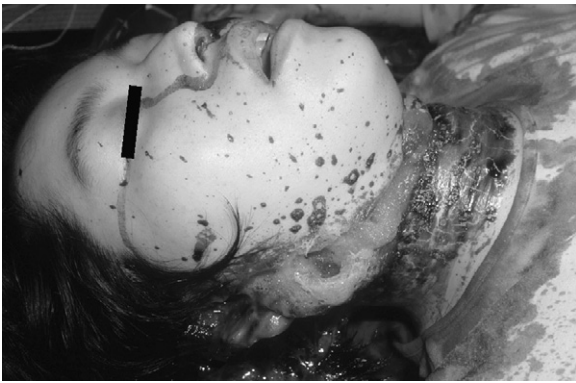


Fig. 2. The wound was covered with a bloody froth. There was no clothing injury in the collar area.

point of the wound. A large quantity of bloody and frothy fluid was found in the trachea and bronchi, and the finding of aspiration of blood into the lung was observed. No alcohol was detected in either her blood or urine.

4. Discussion

Although an individual committing suicide with a power saw, such as a chain saw [1–3], band saw [4,5], and circular saw [5–7] is

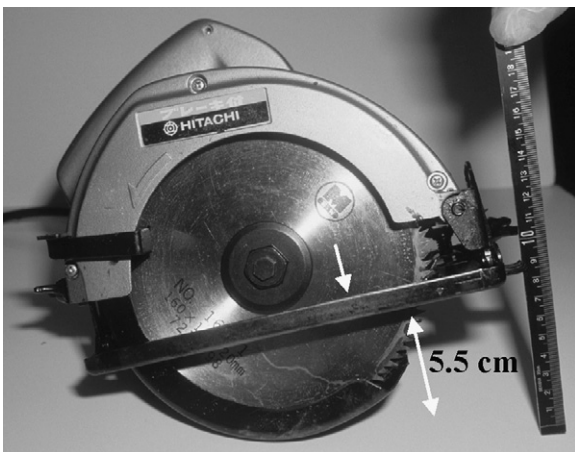


Fig. 3. The circular saw used in the present case. It has a weight of 3.1 kg and a blade measuring 16 cm in diameter, and it has the structure not to cut more deeply than the maximum depth (arrow) of 5.5 cm.

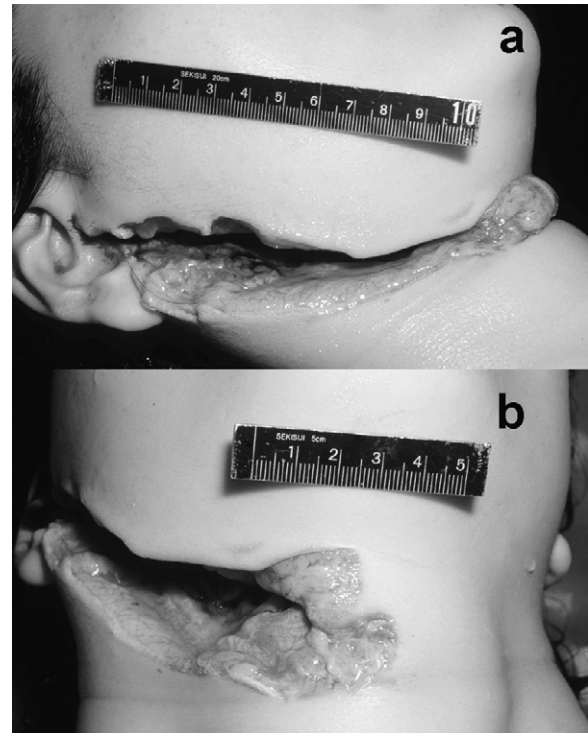


Fig. 4. The incised wound in the neck, inflicted by a circular saw. The edges were generally smooth. The upper/posterior angle was pointed, however, the upper/posterior wound edge encompassed a notch-like ledge (a). The lower/anterior wound angle was notched (b).

rare, in the forensic literature cases of suicide by a chain saw have been reported and the autopsy findings described in detail [1–3]. However, either suicide or attempted suicide by a circular saw has only been described in four cases, as shown in Table 1 in the English medical literature [5–7]. In these cases, the details of the wound and the case history were not precisely presented. We herein report a case of suicide committed with a circular saw, and first demonstrated the findings of the death investigation.

In our case, the wound was inflicted to the neck and it extended deep to involve the vertebra. Her death was attributed to exsanguination due to the incisions of the right internal and external carotid arteries. Generally speaking, a circular saw is

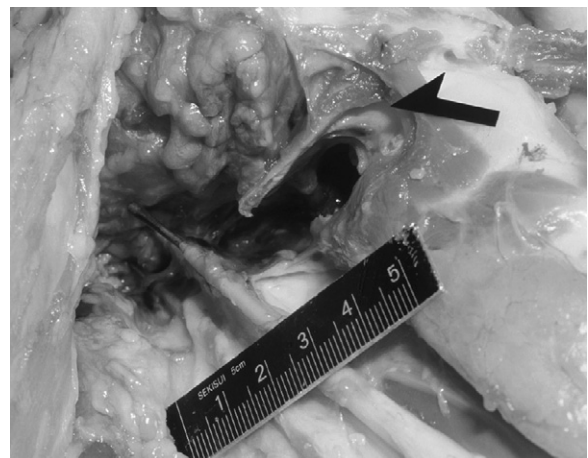


Fig. 5. The right greater horn of the hyoid bone (arrow), the right internal carotid artery, and the right internal jugular vein were incised.

Table 1
Suicide or attempted suicide by a circular saw in the English literature.

Reference	Age	Sex	Localization of injuries	Injuries	Hesitation injuries	Psychiatric history	Cause of death	Outcome
Betz and Eisenmenger [5]	45	Female	Left hand, left forearm	Twofold amputation of the left hand/forearm	–	Schizophrenic	Exsanguination	Died
Betz and Eisenmenger [5]	33	Female	Left neck	Severance of the left jugular vein and the carotids, laceration of 5th vertebra	Multiple incisions of left forearm caused by a knife	Depression	Exsanguination	Died
Rainov and Burkert [6]	55	Male	Head	Deep cut of frontal cranium lacerating right frontal lobe	A wound in the head; frontal bone is injured without brain penetration	Depression	–	Survived
Karger et al. [7]	63	Female	Neck, both shoulders, both femurs	Incisions of both shoulder blades, transection of both femoral heads, the esophagus, trachea, and one carotid artery and jugular vein	–	Depression	Not mentioned	Died

difficult to fix a blade to a cutting surface without moving slightly, so that it seems to make multiple or concomitant wounds. However, our decedent has only one wound with a small abrasion, and its edges were generally sharp and smooth. No hesitation injury was noted. These findings are consistent with the description that the decedent who commits suicide with a power saw generally has only one large wound [3].

Rainov and Burkert [6] reported the suicidal attempt of a 55-year-old male who sustained self-inflicted head injuries from a circular saw but his life was saved by immediate surgery. They stated that the production of very deep injuries with a circular saw is impossible, unlike a band or chain saw. We interpret this to imply that a circular saw has a structure such that it cannot cut more deeply than the maximum depth allowed by the saw. The saw and cutting depth limiting structure is shown in Fig. 5 by an arrow, and the limitation of the cutting depth was 5.5 cm; in our case it was sufficient to reach the vertebra. Betz and Eisenmenger [5] presented four suicidal cases by electric saws and two of them were suicide with a circular saw; one case inflicted a deep neck injury, very similar to our case, whereas the other was a twofold amputation of the left forearm. We showed that a circular saw was able to make deep injuries, which resulted in a lethal wound.

Because there was no witness of the death event, from the medico-legal aspect a homicide, suicide, or accident is problematic. Classically in suicide by self-cutting or stabbing, a clothing injury is absent [8] and perforation of the clothing covering the wound has been interpreted as an indication for homicide [9]. In our case, there was no clothing injury and the decedent prepared plastic bags to prevent the floor from being blood stained. Although a suicide note was not left, the victim had psychological factors such as a long history of chronic depression and suicidal ideation. These findings supported the mode of death as a suicide. Accidental chain saw injuries have been reviewed [10] and one of them involved a patient with face and neck injuries, the so-called kickback injury inflicted to the internal jugular vein, carotid artery, and trachea. However, in our case an accidental death seemed unlikely, according to the death scene investigation.

Someone may doubt whether a relatively young female would select the circular saw as the means of suicide. However,

suicides with power tools committed by a female has been reported [5], even though it was described in the literature up to now that they were exclusively committed by males. Similar to the case presented by Betz and Eisenmenger [5], our case is a suicide committed by a female with a history of depression who has no relation to a circular saw, either through her hobbies or job. The circular saw used in our case was a portable saw which was not very heavy or large, and was readily available in a do-it-yourself shop, so that it could be easily handled by a female without any professional skills. Our findings show that a female is therefore capable of committing suicide with a circular saw.

In conclusion, we herein described a rare case of self-inflicted neck injury from a circular saw and there is no doubt that the mode of death was suicide from the death scene investigation and the information of her psychiatric history, as well as the autopsy findings. Particularly, when the decedent had a history of psychiatric problems, suicide by the use of a power saw is a possibility, even for females.

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