

CASE REPORT

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Throat-Cutting of Accidental Origin

ABSTRACT: Incised wounds of the neck can be accidental, homicidal, or suicidal. In this paper, a death case has been presented where a spinning circular saw of a cutting machine in a workshop came off its place and cut the throat of a 30-year-old male who was operating the machine. There was an incision (15 cm × 5 cm) that began in the middle of the neck down the thyroid cartilage, extended horizontally to the left of the neck and ended on the outer part of the neck in the outer left side of m. trapezius. Death occurred because of exsanguination caused by the cutting of carotis artery and jugular vein. In the case we presented, although the cut in the neck initially suggested homicide, it was found to have occurred as a result of an accident after the autopsy and death scene investigation.

KEYWORDS: forensic science, circular saw, throat, wound

Incised wounds of the neck can be accidental, homicidal, or suicidal. Accidental wounds are extremely rare, usually seen only when an individual goes through a sheet of glass or is struck in the neck by a flying fragment of glass or some other sharp-edged projectile (1). In this paper, a death case has been presented where a spinning circular saw of a cutting machine in a workshop came off its place and cut the throat of the person who was operating the machine.

Case

A male, 30 years of age, was reported to have died when his throat was cut as a result of an accident at a polyvinyl chloride (PVC) window factory.

In the investigation made at the site of the accident, the circular saw of the PVC cutting machine was found 2 m away from the machine, with its surface covered in blood (Fig. 1). The circular saw was 27 cm in diameter and 0.2 cm in thickness. The teeth of the saw were 0.5 cm in height, and the separation of the teeth was 1 cm in width. It was observed that the nut holding the circular saw in place came off its proper place and fell on the machine and that there were abrasions on the surface of the nut (Fig. 2). Blood spots were observed starting from the front part of the machine where the accident took place and they continued as far as the blood pond and the deceased 4 m from the machine (Fig. 3). The workers in the same workshop who witnessed the accident reported that the accident took place when the victim was cutting PVC (Fig. 4).

On the left collar of the shirt and flannel of the corpse, there was an incision that corresponded to the recesses and projections on the surface of the saw (Fig. 5). In the external examination, an incision (15 × 5 cm) was observed that began in the middle of the neck down the thyroid cartilage, extended horizontally to the left of the neck and ended on the outer part of the neck in the outer left side of m. trapezius. Although the incision seemed straight-edged initially (Fig. 6), on closer inspection, recesses and projections were observed in the skin especially where it ended (Fig. 7). The beginning of the

wound on the left side of the middle of the neck occurred as a result of the circular saw contacting the neck at a right angle. The spinning saw moved backward, and on the outer left side of m. trapezius the angle between the neck's skin and the circular saw narrowed. The teeth of the circular saw spinning on this region contacted the skin at an acute angle, so there were recesses and projections in the skin that corresponded to the teeth of the circular saw. It was thought that partial marginal abrasions occurred on the lips of the wound, with the edges of the circular saw contacting the skin.

In the internal examination, it was observed that left m. sternocleidomastoideus, nervus vagus, and vena jugularis were cut and left a. carotis communis was totally cut off 5 cm above arcus aorta. An incomplete incision of 2 cm was found on the left side of the esophagus. It was observed that the incision ended forming small fractures on the left side of the sixth cervical vertebrae corpus.

It was decided that death occurred as a result of exsanguination caused by injury of carotis artery and jugular vein.

Discussion

Accidental incised wounds are common and usually tend to be of a minor nature. The home or workshop is the typical scene. Machine tools are much more likely to kill than handtools. The findings at the scene of death should make the matter plain. An obvious task would have been in hand, there will be blood marks on the cutting edge and a trail of blood droplets leading to the body which is likely to lie at a distance from the primary location. The injury is most likely to be to the front of the trunk, head, or neck, but may be in any part of the body where there is a blood vessel large enough to give rise to rapidly fatal bleeding (2).

Adelson stated that among 700 deaths caused by cutting surfaces, those of accidental origin were 2% (3). It is reported that incisions of accidental origin that lead to death usually occur when persons fall on glass materials (glass doors, glass windows, drinking glasses, etc.) that exist where they live (4–9). Prahlow et al. (10) reported in a study in which they presented 22 cases of accidental origin incisions where a victim died in an accident when his neck was cut by the broken window of the car while Fracasso and Karger (11) reported that another person died when his neck was cut upon falling on a broken goblet.

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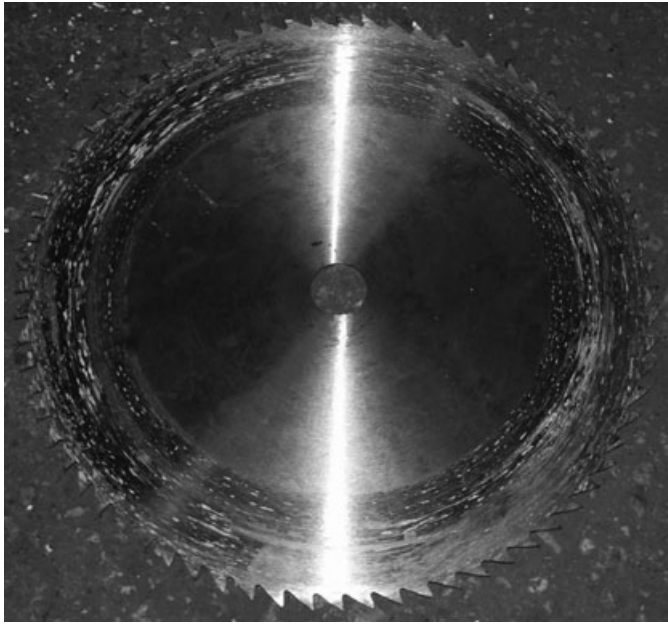


FIG. 1—Circular saw that cut the neck.

Suicidal incised wounds of the neck are typically multiple, often being characterized by a number of preliminary trial cuts called “tentative incisions.” The classical description of the cut throat is of incisions starting high on the left side of the neck below the angle of the jaw, which pass obliquely across the front of the neck to end at a lower level on the right. This assumes that the victim is right-handed, the obliquity being reversed in a left-handed person (12). Incisions that occur in homicides are deeper and sometimes cut across the larynx. It is sometimes possible to see a large number of superficial incisions in homicides but they are unlike the regular tentative incisions that are seen in self-inflicted injuries (13). In our case, too, there was a single and deep incision on the left side of the neck that reminded homicide. The existence of recesses and projections observed in the lips of the scars that corresponded to the cutting surface of the circular saw seemed to support the accidental origin of the case.

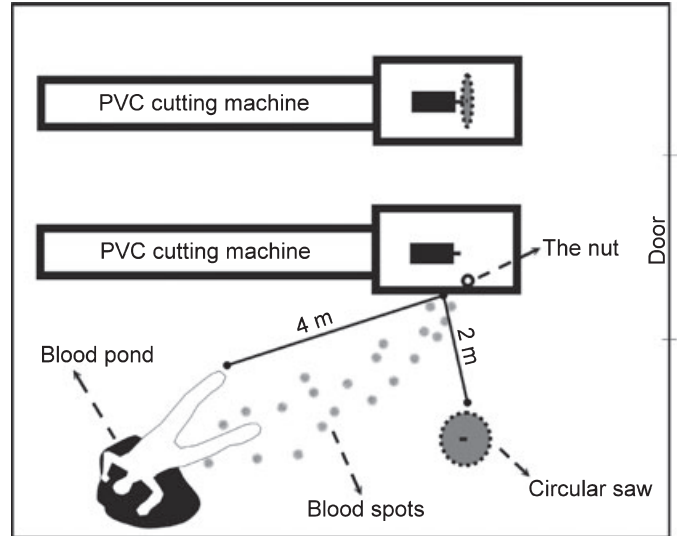


FIG. 3—A schematic of the accident scene where the victim was cutting polyvinyl chloride.

Death from a cut throat depends on the nature and extent of local damage to the neck. Severe haemorrhage from the jugular vein, or less often the carotid arteries may lead to death from exsanguination. If the larynx or trachea is opened, then even relatively minor haemorrhage from local vessels may cause blockage of the airways by blood and clot, though many slashed air-passage victims survive. A rare cause of death is air embolism caused by aspiration into cut jugular veins while standing or sitting with the neck at a higher level than the thorax (3). In our case, death occurred because of exsanguination caused by the cutting of carotis artery and jugular vein.

Karger et al. (14) reported that a person whose carotis and vertebral arteries were cut was able to walk for 10 m after sustaining the injury. In our case, too, it was found from the examination of the death scene that the victim moved 4 m from where the incident occurred.

In the case we presented, although the cut in the neck initially suggested homicide, it was found to have occurred as a result of an

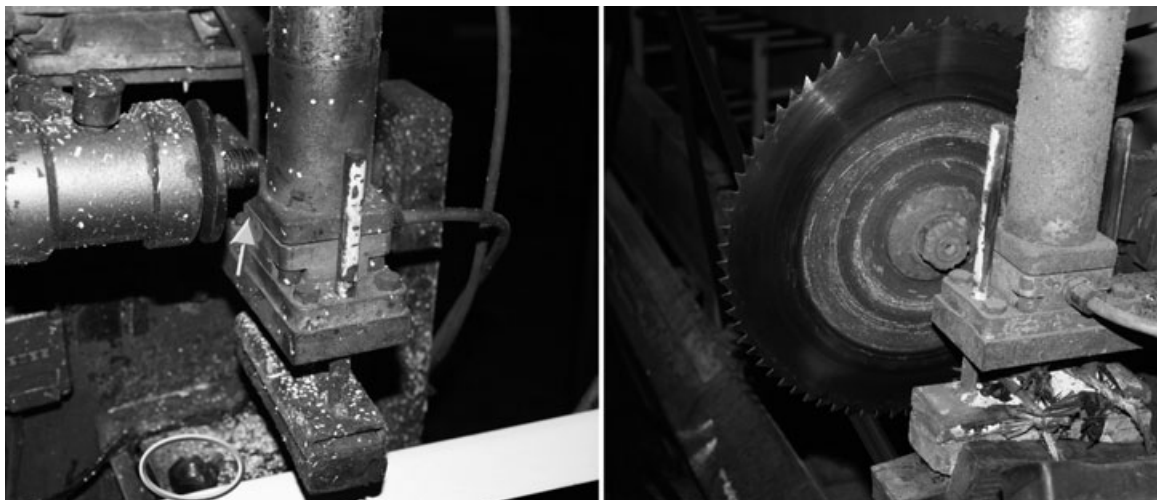


FIG. 2—It is seen that the nut that held in place the circular saw of the machine on the left where the accident took place came off its place. The arrow points toward the spindle on which the blade was mounted and a circle has been drawn around the nut that fell off the spindle releasing the saw blade. On the right side is another machine at the same workshop which is functional.

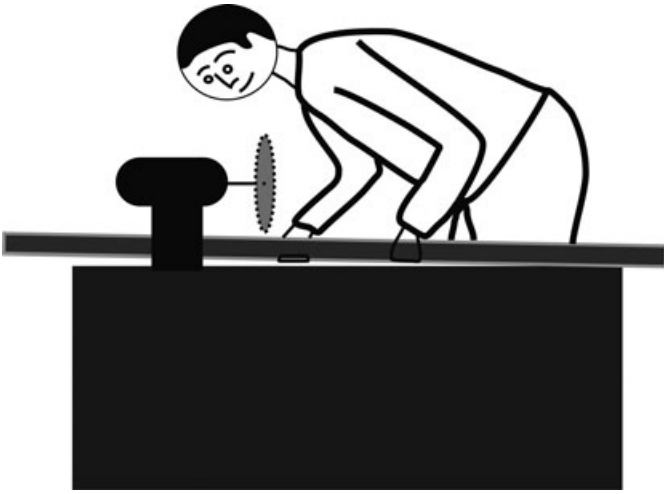


FIG. 4—A schematic of the position of the victim according to the declarations of the workers who witnessed the accident.

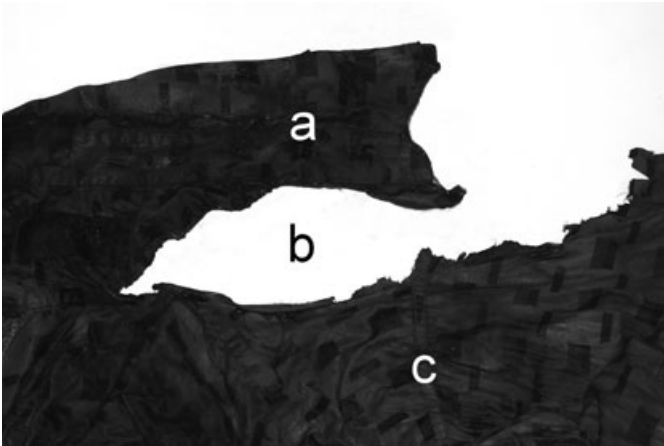


FIG. 5—Incision of the shirt of the victim. (a) Collar of the shirt, (b) defect that corresponded to the recesses and projections on the surface of the saw, (c) left shoulder of the shirt.



FIG. 6—Incision on the left side of the neck vertical to the axis of the neck.



FIG. 7—More intensive recesses and projections on the lips of the wound where the incision ended.

accident after the autopsy and death scene investigation. This circumstance emphasizes the importance of the examination of incident scene and autopsy in determining the origin. Moreover, we believe that to prevent injuries and death such as this, it would be useful to install a saw-protective lid on the parts other than those parts of the spinning saw that will do the cutting and offer education on the use of the machine.

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