



Pathology/Biology Section - 2013

G77 Circular Saw: No Enigma?

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The goal of this presentation is to present a fatal case with a sharp injury on the neck due to a rotating saw blade in a man with occupational experience with power saws. A detailed crime scene investigation, and a complete postmortem examination established the cause of death and excluded homicide and suicide.

This presentation will impact the forensic science community by emphasizing the importance of a careful crime scene investigation in order to differ between accidental, suicidal, or homicidal events when investigating injuries of the neck in cases involving a circular saw.

Fatal cases involving the use of power saws (band saws, circular saws, or chain saws) are rarely reported in literature. The injuries are 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. Incised wounds of the neck can be accidental, homicidal, or suicidal. Accidental incised wounds are common and usually tend to be of a minor nature; hand injuries and distal fingertip amputations appear to be common among those using powered cutting equipment. Conversely, accidental fatalities due to working power tools are exceptionally rare. Suicidal incised wounds of the neck are typically multiple, often accompanied by a number of preliminary trial cuts (hesitation marks) and nearly all persons choosing this unusual manner of suicide suffer from psychosis or depression. In homicides the incision is single, extremely deep, and extends completely to the vertebral column. The scene of crime is suggestive of a struggle between victim and aggressor with disarray and blood everywhere.

The case presented concerns a 48-year-old man who was found dead in his own garage. The prosecutor's office was immediately alerted and a forensic pathology was involved in the crime scene investigation. The corpse was lying on the floor, and bloody stains were found everywhere around the cadaver. A circular saw with a smooth blade, 0.3cm thickness and 19.5cm diameter, was found on the cadaver and collected for examination. Evidence of a struggle in the garage was excluded as well as psychiatric disorders or unsuccessful suicide attempts in the past. A complete postmortem examination was performed a few days after death. At external examination, a wide, deep incised wound with regular margins was described crossing the anterior to the posterior side of the neck over and up the cervical bone's plane. Two superficial incised wounds were observed at the jaw and at the flexor surface of right forearm. Mild cerebral oedema was recorded at gross internal examination. Gross examination of the neck revealed massive hemorrhages in the subcutaneous tissues and muscles; left jugular vein, left common carotid artery, and left vagus nerve were isolated one by one and sectioned. A beautiful series of forensic autopsys pictures applied to the study of the face and the neck will be presented. The left thyroid lobe and left side of trachea showed lacerations. The paracervical muscles were hemorrhagic and a partial laceration of the fifth and sixth cervical vertebra was also detected. Examination of the heart and other organs was unremarkable except for a mild, white foam detected on the main bronchi. Small and big vessels were poor of blood. A complete histopathological study with Haematoxylin-Eosin (H&E) stain was performed. Hemorrhagic shock from transection of the left carotid artery and jugular vein was indicated as the cause of death.

The crime scene investigation and the distribution of lesions led us to conclude a rare case of accidental fatal injuries with circular saw. The peculiar technique used at autopsy to investigate injuries of the neck documented photographically will impact the forensic community and emphasize the importance of a careful crime scene investigation in order to differ between accidental, suicidal, or homicidal events.

Power Saw's Injuries, Crime Scene Investigation, Autopsy Technique