

Determining the Manner of Fatal Cut Throat Injury and its Challenges: A Case Report

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Abstract

Cutthroat wounds, uncommon and complex neck injuries inflicted by sharp objects, often share similar characteristics, which makes it difficult for forensic experts to ascertain the cause of death. This case report presents the autopsy findings of a 19-year-old girl who died of a sharp force injury to the neck. Autopsy revealed a horizontal cutthroat wound at the front of the neck, a deep wound on the left shoulder, several superficial injuries on the face, and extensive bloodstains on the neck, chest, and hands. This report emphasizes the necessity of a thorough and multidisciplinary approach in the postmortem examination of cutthroat injuries, stressing the importance of a detailed evaluation of wound features, associated injuries, and contextual evidence to accurately determine the manner of death.

Keywords: Cutthroat injury, Forensic autopsy, Manner of death

Introduction

Fatal cut-throat injuries, though uncommon, are intricate wounds inflicted by sharp objects on the neck, posing distinct challenges in forensic medicine, especially when determining the cause of death.¹ Such injuries can result from various situations, including murder, suicide, and accidents, and often share similar characteristics.² To ascertain the manner of death in these cases, a thorough examination of

several elements including wound characteristics, evidence from the crime scene, the circumstances surrounding the death, and the medical and psychosocial background of the victim is necessary.³ Fatal cutthroat injuries are infrequent and complex, often sharing similar features, making definitive generalizations difficult.^{4,5} Consequently, each case is unique and demanding, necessitating forensic experts to perform thorough and comprehensive

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postmortem investigations to accurately distinguish them.^{6,7}

This report details the case of a 19-year-old female who was killed by a sharp force wound to the neck, highlighting the challenges in determining the manner of death and emphasizing the need for a multidisciplinary approach in forensic investigations of cutthroat cases, which will enhance current understanding and ultimately aid in the quest for justice.

Case Presentation

The body of a 19-year-old right-handed girl was discovered in a forested area of Rwanda, dressed, and lying on her back, with clothing in disarray and signs of injury to her neck. The deceased was seen alive and in good health just four hours earlier, walking with her former boyfriend around the area where her body was found. She resided with her parents, helped with household tasks, and had no known psychiatric illnesses or other chronic health problems. At the death scene, significant bloodstains on the front and back of her neck, shoulder, and upper chest, as well as on her face and back of her head, were noted, and the ground beneath her head, neck, and shoulder was heavily stained by blood. No sharp weapons were discovered at the scene.

An autopsy was conducted at the Rwanda Forensic Institute one day after she was discovered dead and revealed a female body dressed with upper wear, bra, and panty. Clothing covering the neck, shoulders, and chest was heavily stained with blood (Figure 1). Extensive wet and dried bloodstains were present on the face, front and back of the neck, front of the right and left shoulders, palms and dorsum of the left and right hands, and back of both forearms. A horizontal deep cut wound, measuring 06 cm × 3.5 cm × 02 cm, after apposition of the margins, was detected on the front of the neck, below the thyroid cartilage with neck structures severed to the level of the cervical vertebrae. The wound traversed the midline, was slightly elevated on the left side of the neck, and tailed on the right side of the neck with clean cut edges (Figure 2). A 01 cm × 0.5 cm superficial cut wound was detected on the right end of the cutthroat wound. An ovoid puncture wound, 01 cm in diameter was found on the front of the medial aspect of the left

shoulder, 07 cm lateral to the jugular notch (Figure 2). Additionally, there was a 03 cm × 01 cm abrasion on the left zygomatic area of the face, a 01 cm × 0.5 cm abrasion on the lateral side of the left periorbital area, a 1.5 cm × 01 cm abrasion on the left cheek area of the face, and a 01 cm × 0.5 cm abrasion on the right cheek area of the face. No bloodstain was found over the abdomen or lower limbs.

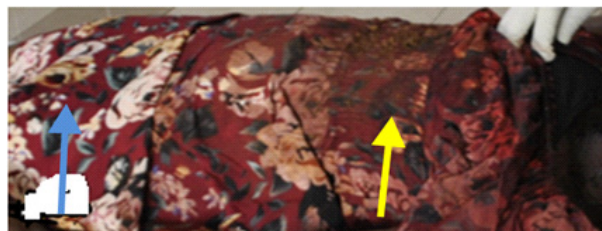


Figure 1: Body of the homicide cutthroat victim on the autopsy table showing clothing covering the neck, shoulders, and chest showing extensive blood stains (yellow arrow) with scanty blood stains over the pelvic area and lower extremities (blue arrow).

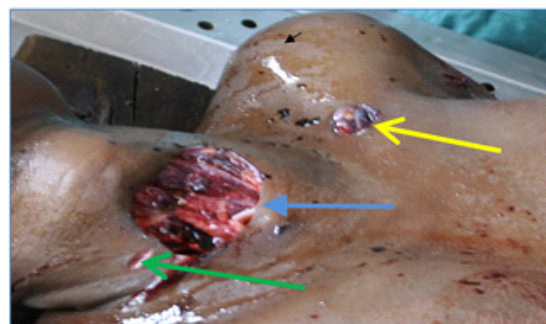


Figure 2: The body in supine position in the autopsy table showing horizontal cutthroat wound located on the lower third of the neck severing the front neck structures deep to the cervical bone (blue arrow) with an associated punctured stab wound on front of the left shoulder (yellow arrow) and a dissection artefact (green arrow).

The external genitalia showed no signs of trauma and samples were collected from representative vaginal sites to test for spermatozoa and other seminal contents, which yielded negative results. The blood, urine, and bile samples collected for toxicological analysis showed no positive findings. Other external and internal autopsy examinations revealed no injuries or abnormalities. The autopsy report revealed that sharp force neck injury was the cause of death, and the manner of death was classified

as a homicide. The investigation report on the crime showed that it identified six people, including her ex-boyfriend who was seen walking with her, as suspects, and they collectively confessed murdering her by inflicting a severe neck wound with a sharp object inflicting from behind and they were found guilty and handed down the sentences.

Discussion

Fatal cutthroat wounds, categorized as accidental, suicidal, or homicidal, are uncommon and complex and often share a variety of similar characteristics posing significant challenge to differentiate them.^{4,8} Consequently, each case is unique and intricate, necessitating comprehensive and multidisciplinary forensic approach.^{7,9} The few reported homicidal cutthroat injuries also show variations in wound characteristics, indicating the challenging nature of these injuries.^{10,11} This study discusses the case of a young girl who was killed by a cutthroat wound accompanied by a puncture wound and several abrasion injuries.

A case of homicidal cutthroat injury reported by Vidanapathirana et al. described an oblique cutthroat wound that started just below the left ear and ended at the middle third of the right side of the neck, with extensive blood spurting reaching the abdomen and no associated injuries.¹² This contrasts with our study, which found a horizontal cutthroat wound on the lower third of the neck accompanied by a superficial cut at the right end of the cutthroat wound and associated injuries to the face and the left shoulder. The notable differences between these two studies, particularly in the location and lay of the cutthroat wound patterns and the presence of associated injuries and hesitation cut, are likely due to physical dynamics during infliction of the injury. Thus, generalizing cutthroat wound characteristics is challenging and tailored case-specific examinations and analyses are recommended. However, two of these studies revealed similarities in that no weapon was found at the scene, the cutthroat injuries were deep severing the trachea and esophagus, toxicology results were negative, and suspects who confessed to the murder were identified, which also shows the variable and multidisciplinary nature of fatal cutthroat injury investigation.

Homicidal cutthroat wounds typically feature a single deep incision that can reach the neck bones without any shallow cuts. In contrast, suicidal cut injuries often include hesitation marks alongside the final, deeper cut, primarily to gauge pain tolerance, and these injuries usually do not penetrate deeply into vertebral bones. Nevertheless, some homicidal cutthroat injuries may exhibit superficial cuts at the ends of the final incision, and suicidal cutthroat injuries can occur without hesitation marks.^{9,13} In this particular case, the cutthroat wound penetrated deeply into the vertebral bones with a superficial cut at its right end, a situation unlikely to be self-inflicted due to its depth. Additionally, the status of clothing alignment and associated injuries can provide insights into the context and intent behind cutthroat wounds. The associated injuries are typically superficial and within the victim's reach in suicidal cases, whereas it is deeper in homicide cases, usually with disturbance of clothing.¹⁴ In this instance, the presence of disarrayed clothing, deep puncture wounds, multiple abrasions on the face, and superficial cuts indicate a struggle or additional violence during the attack, which is consistent with homicide.

Fatal cutthroat injuries can also be distinguished on the basis of their location and direction. Homicidal cutthroat injuries inflicted from behind begin below either ear, depending on the assailant's handedness, and traverse the midline horizontally or obliquely below the thyroid cartilage, whereas they are located above the thyroid cartilage and directed upward from their starting point in suicidal cases.¹⁵ In our case, the wound was horizontal, with a slightly elevated left end crossing the midline on the lower third of the neck, indicating a homicidal attack from behind. However, homicidal cutthroat injuries inflicted from the front can mimic self-inflicted wounds, and accidental cutthroat injuries can exhibit varied wound patterns, resulting in unusual wound characteristics. Consequently, thorough and multidisciplinary postmortem investigation is crucial to corroborate evidence and address any atypical circumstances.¹⁶

Bloodstain patterns can offer crucial insights into the characteristics of cutthroat injuries. In instances where the wounds are self-inflicted, blood may flow downward from the neck, particularly if the individual is standing or seated during or after the

incident, or it may be splattered on nearby mirrors, as victims often use mirrors to ensure precision. Conversely, in homicide scenarios, blood typically splatters on the back and front of the neck, shoulders, and upper chest if the victim is placed on the back.^{17,18} Our study found extensive bloodstains on the back and front of the head, neck, upper chest, and both hands, indicating that she was attacked from behind and pulled to lie on her back. Furthermore, the prominent bloodstains on both hands suggest that she attempted to defend herself with her hands.

Another key factor in determining the nature of a cutthroat injury is examining the psychosocial background of the deceased, the circumstances surrounding death, and the scene of death.^{15,19} In this instance, the victim, a girl with no history of psychiatric issues, was last observed walking with her ex-boyfriend, who, along with his friends, admitted to killing her, and no sharp weapon material was detected at the death scene examination, all of which support the conclusion of homicide.

In summary, when fatal cutthroat injuries occur without witnesses, they can arouse significant suspicion among family members or investigators, potentially resulting in social unrest and injustice if not handled properly.^{1,15,20} Furthermore, the patterns of cutthroat injuries are complex requiring meticulous and through postmortem examinations.^{7,21,22} In this study, we used patterns of the cutthroat wound and associated injuries, circumstantial and crime scene evidences, patterns of the blood stains to classify it as homicidal cutthroat injury.

Conclusion

This case report describes a tragic event involving a homicidal cut-throat injury that resulted in the death of a 19-year-old girl, emphasizing the vital need for thorough investigation. A meticulous assessment of the wound's characteristics, related injuries, bloodstain patterns, and death scene, along with circumstantial evidence and personal history, is essential for accurately determining the nature of fatal cutthroat injuries. This report highlights the necessity for forensic experts to perform comprehensive autopsies and collaborate with other specialists to accurately determine the manner of death in cases involving sharp-force neck injuries. Additionally, the

successful prosecution of perpetrators underscores the significance of extensive forensic evidence for achieving justice in such complex cases. This report serves as a reminder of the devastating effects of violent crimes, and the ongoing need for effective preventive measures and support systems within communities.

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Statements and declarations:

Ethical approval: The outlined study protocol for this case report obtained ethical approval from the research project committees operating within the Rwanda Forensic Institute (RFI).

Informed consent: This study is a case report and informed consent for the study was obtained from the family of the deceased.

Compliance with ethical standards: The study was carried out following the ethical standards of the Declaration of Helsinki (Finland).

Conflict of interest: Payment/services info: no financial support was received from any organization for this study.

Financial relationships: there is no financial relationships at present or within the previous three years with any organizations that might have an interest in this study.

Other relationships: there is no other relationships or activities that could appear to have influenced this study.

Data availability: Not applicable.

Clinical trial number: Not applicable.

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