



Forensic Pathology

Homicides with marginal injuries, a case series in Zambia

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ARTICLE INFO

Keywords:

Homicidal violence

Autopsy

Medicolegal death investigations

ABSTRACT

Homicides are usually apparent before an autopsy is conducted in the majority of cases. However, those that reveal minimal injuries pose a challenge in the determination of the cause of death. Occasionally, pathologists are faced with cases where the history and circumstances surrounding the death indicate violence, while autopsy findings show marginal or no trauma. We report five cases composed of three males and two females with ages ranging from late teens to the late eighties. All the male cases were autopsied after a long burial period after being killed on suspicion of witchcraft and theft. The females were autopsied a few days after been discovered in hostile environments. The autopsy findings in all the cases showed marginal or no injuries and did not elucidate a specific mechanism of death. The cause of death opinion was determined as homicidal violence in all the cases. Homicidal violence is a descriptive cause of death based on the history and totality of the circumstances surrounding the death. In conclusion, the cause of death opinion "homicidal violence" has a place in medicolegal death investigations.

Introduction

Homicide is the killing of one individual by the act, procurement, or omission of another, and the term applies to all killings, whether criminal or not. It describes the act and is not necessarily binding in the adjudication of criminal matters [1–3]. The grave implications of homicide make its investigation and verdict important to the community as the law demands that the assailant be identified, arrested, tried, and sentenced if found guilty [4,5].

Homicides are usually apparent before an autopsy is conducted in the majority of cases. However, some do not show physical injuries [1,6,7]. These cases pose a challenge in the determination of the cause of death [1]. The pathologist is faced with cases where the circumstances surrounding death indicate violence, while the autopsy reveals marginal injuries and fails to elucidate a specific death mechanism. These cases are signed out descriptively as homicidal violence in Medical Examiner Systems after a thorough death investigation [8,9]. A failure to assign the manner of death as homicide due to a lack of injuries at autopsy may close the police investigation and lead to miscarriage of justice [1].

The approach to Medicolegal Death Investigations (MLDI) includes an investigation of the circumstances leading up to and surrounding the death, the autopsy, and ancillary studies' performance [2]. Forensic pathology is essential to establish and objectively recognise, recover, preserve, transmit evidentiary material found on the body, document the cause and manner of death, and offer impartial testimony in court [1,10].

A general misconception in MLDI is the notion that the cause of death in a homicide is always revealed by autopsy. Notably, death is a functional rather than an anatomical event; hence the pathologist who searches for autopsy findings alone to determine the cause of death is prone to error. Thus a pathologist must reason like a physician and not as a morbid anatomist [3]. The autopsy helps to establish a reasonable degree of medical certainty in the cause and manner of death opinion cases of homicides with marginal injury [1,3].

We report a case series of homicides with marginal trauma at autopsy. The objective was to show that circumstances are more important than autopsy findings in cases of homicides with marginal injury and that a descriptive cause of death, "homicidal violence," has a place in MLDI.

Materials and methods

The cases were obtained from the Office of the State Forensic Pathologists' records. Cases that were homicides but revealed marginal trauma on autopsy were selected. The authors conducted all the selected cases. The Office of the State Forensic Pathologist granted permission to write a case series.

In this case series, the mental processes involved in determining the cause of death involved evaluating the terminal circumstances surrounding the death supported by the background information. When enough data was available, an autopsy was then performed that focused on a formulated hypothesis for an MLDI of the case in question. After the autopsy, one theory was confirmed, and a cause of death was determined. In these cases, the theory was refuted, and so further background

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information was obtained. There was a dynamic feedback loop in which the history and circumstances were tested against the autopsy findings and the autopsy findings against the historical and circumstantial data. This is why we attended the scene or reviewed scene photographs, and the police detectives attended the autopsy [3].

Results

Case 1

A girl in her teens went missing from her parents' house for four days. During the same period, her body was found in a drainage, seven kilometers from her parents' house. The police were informed and the forensic pathologist was called to the scene.

Scene examination revealed a dead female packed in a sack.

At autopsy, the external examination revealed a decomposed female tied up with hands and legs to her back, but without injuries. A standard internal examination showed no injuries. Special dissections, including; musculocutaneous dissection of the anterior torso, layered dissection of the neck and face in an avascular field, posterior neck dissection, and musculocutaneous dissection of the posterior torso, musculocutaneous dissection of the extremities, and removal of the cervical spinal cord were unremarkable.

Overall, considering the history, circumstances surrounding the death, review of the crime scene, and autopsy findings, the cause of death was homicidal violence.

Case 2

A bar lady in her early thirties was found dead in an unfinished house in a high-density area one kilometre away from her residence after working late. On the scene, a torn female underpants was located within the unfinished house. Her skirt was noted to be pulled towards the chest by the crime scene police officers.

The autopsy revealed a clothed adult woman without underpants. A vaginal swab and nail clippings were obtained and sent to the forensic science laboratory. There was no semen found on the vaginal swab. Other samples were stored pending DNA analysis.

The examination showed abrasions on the chest, abdomen, and thighs, and a patterned abrasion on the back. The internal examination was unremarkable. There were no injuries on the anogenital region. Special dissections, including; musculocutaneous dissection of the anterior torso, layered dissection of the neck and face in an avascular field, posterior neck dissection, musculocutaneous dissection of the posterior torso, musculocutaneous dissection of the extremities, and removal of the cervical spinal cord was unremarkable. Blood for toxicology was non-revealing for drugs and alcohol. Histology was non-revealing.

Based on the history, circumstances surrounding the death, review of the crime scene photos, and autopsy findings, the cause of death was homicidal violence.

Case 3

A man in his early fifties was accused of practicing witchcraft in a village. He was assaulted by a group of known people in his village. In the process, his hands were tied to a motorbike that hauled him on the ground for approximately five kilometres to the village headman's house for a traditional court session. He died a few hours after arrival at the village headman's house. The body was buried for eighteen (18) months, pending an autopsy by a forensic pathologist.

On review of police investigative information, the motorbike rider confessed to hauling the deceased. The village headman's statement confirmed that the deceased was brought to his house by known people in his village. The known people confessed to beating the deceased because he was believed to be a wizard.

On exhumation, the body showed adipocere formation. There was no evidence of trauma on skeletal system examination.

Based on the history, circumstances surrounding the death, and autopsy findings, the cause of death was homicidal violence.

Case 4

A man in his eighties was accused of practicing sorcery. When brought to the village headman for a traditional court, a traditional-doctor made him and three others suspected of practicing witchcraft drink herbal medication to determine the sorcerer. The traditional-doctor stated that the individual who would die among the suspected sorcerers would be judged as the sorcerer. The deceased and three other persons suffered from diarrhoea after drinking herbal medicine and died. He died three days later after the incident while the other persons survived.

The deceased's relatives reported to the police. The police advised burial in a marked grave pending an autopsy by a forensic pathologist.

On review of police investigative information, statements from the eyewitness, relatives, the accused confirm the ordeal.

The body showed decomposition on autopsy, and the bones examined did not show any evidence of trauma.

Overall, considering the history, circumstances, and autopsy findings, the cause of death was homicidal violence.

Case 5

A man in his early fifties was assaulted by a mob on suspicion of being a thief in the presence of several eyewitnesses in the village. The police were called and tried to rescue him from the crowd but were impeded. The man was buried for four months in a marked grave, awaiting an autopsy by a forensic pathologist.

Scene photographs from the police show the victim with a swollen face on the fateful day. A retrospective scene visit was performed.

The body showed decomposition on the exhumation, and the bones examined did not show any evidence of trauma.

On the basis of the history, circumstances surrounding the death, and autopsy findings, the cause of death was homicidal violence.

Discussion

Homicidal violence is a descriptive cause of death based on the history and totality of the circumstances of death. In these cases, the autopsy findings show marginal or no injuries and do not elucidate a specific mechanism of death [9]. The descriptive cause of death, "homicidal violence," in our experience is useful in operational terms because it allows the police investigators to continue with the criminal investigation in clear and violent circumstances. Simultaneously, we make it clear to the police investigators and judicial officers that our determination is based on the history and totality of the circumstances of death and not solely on autopsy findings. The cases described in this case series all have a common theme-marginal injuries at autopsy to account for the deaths. It may be argued that cases 1 and 2 may be asphyxial deaths, but there was no evidence of trauma to the neck on examination. Availability of forensic imaging, forensic chemistry, and neuropathological consultation would have been useful in further refining the immediate cause of death in case 2. Investigation beyond the autopsy was essential in all cases to determine the source, existence of violence, and cause of death.

We note that others may sign out cases with similar history and circumstances as undetermined based on marginal or lack of injuries at autopsy. This case series shows that the potential of history and circumstances over injuries at autopsy is greater in some cases of homicide. We are comfortable with this model because we view the autopsy as one of the many tools of MLDI. Its utility in isolation is inadequate for a thorough MLDI. The autopsy, by revealing marginal or no injuries, serves to exclude reasonably other causes of death. Paradoxically as it may seem, this increases the degree of certainty in our descriptive diagnosis of homicidal violence [11]. The history and circumstances were then considered, and the autopsy findings were

interpreted within the context of the case, thereby forming part of the corpus delicti [12].

Cases 3–5 were exhumations. These are a common occurrence in our setting because of a lack of forensic pathologists. However, they pose challenges in documenting injuries due to decomposition. To opine on the cause of death in cases of exhumations, we stick to the basics of MLDI, which do not require high-tech equipment, but patience in seeking investigative information. Instead, we incorporate relevant procedures such as scene visits, review of scene photographs, eyewitness statements, and the accused person's statements [11]. Others, including pathologists and legal counsel, criticise the use of this external data, especially the accused persons' statements, as evidence of "cognitive bias" in our determinations. We believe that forensic pathology should utilise the principles of medicine by integrating history and circumstances with autopsy findings and ancillary tests. To dismiss the significance of eyewitness and the accused persons' statements as "cognitive bias" represents a misunderstanding of the inferential processes in forensic pathology [13].

To ensure adequate MLDI in exhumations, our acquisition of data on the history and circumstances is based on witness statements, the history of the victim, and the environment in which the terminal events took place, making the autopsy add more data to an existing diagnostic database [3,12].

Conclusion

This case series has shown that homicidal violence as a descriptive cause of death has a place in MLDI. Circumstantial data is more important than autopsy data in some cases of homicide.

Declaration of Competing Interest

The authors report no declarations of interest.

CRedit authorship contribution statement

Luchenga Mucheleng'anga: Conceptualization, Methodology, Validation, Formal analysis, Investigation, Resources, Data curation, Writing

- original draft, Writing - review & editing, Visualization, Project administration. **Cordilia Himwaze:** Conceptualization, Methodology, Validation, Formal analysis, Investigation, Resources, Data curation, Writing - original draft, Writing - review & editing, Visualization, Project administration.

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