

Perspective

Mass Fatality: A Forensic Perspective

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As per definition, a mass fatality incident is an emergency response to identify an incident involving more dead bodies and/ or body parts than that can be located, identified, and processed for final entombment by available resources. Mass fatality incident management is multidisciplinary teamwork, and the role of the forensic doctor is to direct and coordinate postmortem investigations. A mass fatality can happen anytime and anywhere with no warning. A crucial role played by forensic doctors is recovering and identifying human remains and evidence. The law-enforcement investigative information gathering and documentation require a high degree of skill, dedication, and empathy for this demanding work. However, the satisfaction of helping solve the mystery with medical knowledge, getting justice for the corpse, and then returning home can make it all worthwhile. In this paper, we will describe a typical day in the life of a healthcare worker in a mortuary, highlighting the challenges of handling high-profile, news media-focused mass fatality autopsy cases.

Keywords: Mass Fatality, Disaster, Forensic Investigation, Forensic Medicine

Introduction

A mass fatality incident is defined as an emergency response to identify an incident involving more dead bodies and/ or body parts than that can be located, identified, and processed for final entombment by available resources.¹

A mass disaster is a crucial time to handle, which requires a balance between the number of victims and available resources at the incident site and also in other responding areas on the immediate basics at an unexpected place and time. Mass fatality incident management involves multidisciplinary teamwork, and the role of the forensic doctor is to direct and coordinate postmortem investigations² to find the following:

1. Identification of deceased;
2. Time since death and cause of death;
3. Mode and manner of death;

4. Mechanism and type of injury;
5. Crime/ incident scene recreation;
6. Clinical and pathological condition of deceased;
7. Preservation of evidence and documentation of findings.

In general, healthcare workers play a vital role in the functioning of hospitals and society as a whole. They are responsible not only for the care and treatment of patients but also for medicolegal investigations and the administration of justice. Their work requires a high degree of skill, dedication, and empathy. Every day, as a doctor in an autopsy room, we hear the loud cry of a dead body in need of justice. This paper describes a typical day in the life of a healthcare worker in a mortuary, highlighting the challenges of handling high-profile, news media-focused mass fatality autopsy cases.

Mass Fatality: Causes

Several causes have been identified to date and broadly divided into natural, accidental, or intentional. Such hazards are earthquakes, floods, tornadoes, vehicle crashes (airline, train, bus, and car), toxic gases and fumes, chemical exposure or ingestion, terrorist attacks, bomb blasts, fire accidents, lighting, electrocution, and so on. In the majority of cases of mass fatalities, forensic intervention is needed for identification and medicolegal purposes.

Forensic Investigation Overview

Identification of the Deceased

Identification is set forth by getting answers about whether body parts belong to humans or animals, age and sex of the person, race to which he or she belongs, external peculiarities, general development and sexual characteristics, complexion of the person, stature identification from body parts, bone fragments, or anthropometric measurements. Fingerprints, footprints, tooth examination, facial superimposition of the skull with photo graphics, and DNA analysis to match the missing person are carried out.

In a forensic investigation, identification of each case will be done for its own value with a desired purpose, and the method chosen for identification will be considered based on an analysis of cost-benefit and cost-effectiveness. The identification of corpses is necessary in any stage of decomposition or in fresh corpses that may be fragmented or skeletonised, as well as in body parts, the whole body, or sometimes just human remains. Identification becomes a highly challenging task for forensic doctors, particularly in difficult situations such as a mass disaster.³

Time Since Death and Cause of Death

Time since death, or post-mortem interval, is defined as the amount of time that has elapsed since the death of the decedent. Estimation of time since death is a fundamental part of medicolegal investigations to have basic information on the time of the incident and to slender the approach towards suspects, which can be done by assessing various changes in the dead body,⁴ histo-morphological analysis, biochemical assessment, supravital reactions, forensic entomology, and molecular assessment. Time since death has been categorised into three stages: immediate, early, and late,⁵ whereas the cause of death can be a natural disease process, geriatric, asphyxia, cerebral damage or cranial damage, septic shock, spinal shock, haemorrhagic shock, starvation, anaesthesia, or surgery.

Mode and Manner of Death

Mode of death can be failure in the nervous system (coma), circulation (syncope), or respiration (asphyxia), whereas manner of death can be natural due to disease processes or other than disease, such as accidental, homicidal, or suicidal.

Mechanism and Type of Injury

The medical classification of injuries is as follows: mechanical, thermal, chemical, electrical, lighting, radiation, explosions, and blast injuries.

Crime/ Incident Scene Recreation

It is an attempt to solve a crime from a general to a more specific event that begins with the creation of a theory on how it occurred, and deductive reasoning with logical thinking is then used to clarify the gaps and check that theory.

Clinical and Pathological Condition of the Deceased

To find the cause of death and understand the clinical and pathological condition of the deceased is mandatory for the forensic physician, and that can be correlated with gross external and internal findings of the corpus during autopsy surgery.

Preservation of Evidence and Documentation of Findings

Evidence can be physical, chemical, or biological (DNA sampling). Physical evidence is often termed the "silent witness". Effective evidence preservation includes appropriate packaging with correct and consistent information on labelling and procedural documentation for all items, along with sealing of the evidence.

Discussion

Several deceased bodies, sometimes from the same family, caused by a single overnight or blink-of-an-eye incident and waiting for an autopsy, are pitiful. As we know, most autopsies are conducted in mortuaries for medical and legal purposes and to administer justice. Hence, errors of any form, human, technical, or even clerical, create huge issues.

Regarding mass fatality cases, there is similarity in injury, post-mortem findings, identifiers, relatives, and also the same investigation officer from a single police station, so there will be a high chance of error in the identification of the body, handover of the body after an autopsy, or clerical error with the post-mortem number and even post-mortem findings. Usually, mass fatality cases are highly interesting to the news media and the public, and as always, there should be extra caution needed to safeguard individual and institutional reputations. Hence, each case is allotted on the basis of a single case for a single doctor and one case at a time. Even doctors not on duty can be called to attend emergency duty on these days, and all procedures, including autopsy, are carried out with a high level of consciousness and confidentiality maintained regarding clinical and forensic details.

As routine, all deceased bodies of mass fatalities should be preserved in deep cold storage. The investigation officer of the concerned police station should give a request for

an autopsy with all other attached documents, and then the bodies should be received for an autopsy one by one. The body should be identified by police and relatives, and verified with the MLC number and history collected by doctors in the department of forensic medicine. The autopsy for each deceased should be carried out by an individual doctor under the supervision of other senior residents, assistant professors, professors, faculty members, and the head of the department. The duration of each autopsy may take about one to one and a half hours. After the autopsy, individual cause of death certificates are issued to carry the body to the home town by the individual doctor who did the postmortem investigation.

Recommendation

Mass fatalities can be handled in any mortuary even with limited resources if there are standard operational procedures, a standard set of guidelines, clarity in the role and responsibility of each member, a do and don't checklist, a potential source of hazards and risk identification, a periodic mock drill, continuous medical education, refreshment courses, and most importantly, experienced faculty and staff members.

Conclusion

In forensic medicine, one of the most difficult tasks is the identification of a large number of people involved in a mass disaster, closely related to their position in the environment at the time an unexpected event occurs and the need to make hypotheses reconstructive.⁶

A mass fatality can happen anytime and anywhere with no warning. A crucial role played by forensic doctors is recovering and identifying human remains and evidence. Thus, working as a healthcare worker in an autopsy room can be both challenging and rewarding. The law-enforcement investigative information gathering and documentation require a high degree of skill, dedication, and empathy for this demanding work. However, the satisfaction of helping solve the mystery with medical knowledge, getting justice for the corpse, and then returning home can make it all worthwhile.

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Ethical Clearance: It was obtained as per our college guidelines.

Conflict of Interest: None

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