

Forensic Anthropology– A Lead to a Speedy Identification of Disaster Victims

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Abstract

Identification of victims is one of the most significant concerns while investigating the scene of occurrence but due to the delay in time of identification it becomes difficult for the authorities to enable identification. The use of modern forensic techniques including the knowledge from disciplines like forensic anthropology, toxicology, post blast residue analysts, forensic odontologists so as to speed up the investigation. The paper reviews the role of a forensic anthropologist in the Disaster victim identification, on and off site. The use of radiographic techniques in order to know the biological profile of the deceased as well to assist relocation in case of a fragmented body. In the current scenario, the forensic involvement of experts though has been increased in identifying the victims, but still there needs to be more deployment at ground zero in order to increase proper investigation. Disaster victim identification is a multidisciplinary approach and so collaboration from all the disciplines is needed so as to render justice.

Keywords: Disaster victim identification • Forensic anthropology • Radiography

Introduction

A disaster [1] could be defined as “a series of events that lead to dis continuity in the normal functioning of societal resources to such an extent that the ability to cope has been left far behind.” Disaster could be differentiated as natural or human made disasters. The next type of classification that could be done is on the basis of crime scene involved as “open disaster [2]” and “closed disaster”. Identification becomes a significant concern while investigating the scene of occurrence as it not only enables us to proceed further in the investigation, but also is a confirmation for the living relative of the deceased.

Development of significant procedures so as to speed up the process is of supreme concern, especially in the case involving mass disasters, where the number of deceased exceeds the local handling capacity of the concerned authorities. Identification of the deceased in cases of mass disasters, can also enable the authorities to know about the mode and manner of death, aiding the criminal proceeding that follow.

INTERPOL [3] has developed guidelines for the investigation of mass -disaster cases involving the directions beginning from the very start of identification till the reconciliation of the evidences thus enabling justice being rendered not only to the living but also the deceased.

The process of investigation used by DVI [4] has been broadly described in literature. The basic description of each of the stage could be given as:

- **Visit to the scene of occurrence:** The very first step of investigation involving the visit to scene of occurrence, making it sure that all exhibits having evidential value are collected from the scene of occurrence.
- **PM data collection:** the stage involves external and internal examination of the deceased in the mortuary. The basic aims being to find out the cause of death and the identifying features of the deceased.

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- **AM data collection:** finding out the past information of the deceased so as aid identification. It involves collection of personal information including security documents, interviewing the suspected family. The main aim lies around knowing about the ante mortem information of the deceased.
- **Reconciliation:** The stage involves comparison on the basis of the information collected so far from the ante and post mortem analysis. Reaching to a conclusion of positive identification of the deceased.
- **Debriefing:** This is done after the identification that involves contacting the family of the deceased and handing them the corpse as per laws and policies of the disaster victim under INTERPOL.

Ante-mortem [5] data collection has been studied vividly in the literature. Dealing with the establishment of mobile mortuaries at the site of occurrence so as to deal with the problem that may be caused due to the delay between the transport of victims from the crime scene to the mortuary; creating a proper plan of approach for identification; proper preservation of the evidences encountered remains the most significant concerns of the investigators.

Successful disaster victim identification can only be possible when various disciplines such as forensic pathologist, forensic odontologists, radiologists and the comparatively new field of forensic anthropologist [6] work hand- in -hand.

Literature Review

Forensic anthropology though being used from over a century but still there lies limitations to the approach used in current DVI identification. The lack of specificity of anthropology has led to tampering of evidences. The historical development of forensic anthropology could be traced back from identification of the war victims during the Korean War in 1950. The Boxing Day Tsunami 2004 was recognized to be successfully investigated with the help of the forensic anthropological techniques. But even with the increasing utilization of anthropology in investigation of disaster, the protocol still remains limited. Anthropology being an emerging field is being incorporated in the INTERPOL PASWG [7] as one of the sub working groups, giving detailed roles so as to make the identification process faster.

The article aims to provide an overview about the forensic anthropology being involved in the investigating the mass disaster site.

At the site of disaster occurrence

Forensic anthropologists being in close proximation with archeologists are able a probable location where there are most chances of evidence to be found, helping the reduction in the time taken to investigate the crime scene. Hinkes-et al. [8] recognized the use of anthropology in finding fragmented bone fragments present on the crime scene, which could had been left ignored otherwise. The preservation of evidences on the scene of occurrence involving the complete recording of the remains found.

Anthropologists can help in help reducing the superflos [9] in the data related to the evidences found on the crime scene, as they can ensure the evidence is of value or not- by identifying as osseous or non-osseous in nature. Further reducing the chances of re-visiting the crime scene to look for the left evidences.

The use of electron mapping technique [10] enables us to get the idea of terrain, further helping to find body parts in cases of fragmented evidences. The list of evidences recovered are to be linked with PLASS DATA so as to reduce further burden.

In the mortuary

Forensic anthropologists play a significant role in identification of the disaster victims. The functions performed by them ranging from on site to of site identification. The separation of the osseous from the non-osseous [11] material requires anthropological knowledge.

The conformation of a human or an animal specimen is done if left earlier by measuring the bone density and the index. The separation of the fragments thus encountered as identifiable or not.

The next role of an anthropologist revolves identifying the commingled remains, involving their identification and re-association. The biological profile of the individual giving the complete idea about the age, sex, race, stature and the area belonged. History of any previous bone injury along with the identification of injuries as peri and post mortem. Assistance in reconstruction of the cause of death and injury identification so as to conclude the trajectory, impact and the mode that caused death are assisted by a forensic anthropologist.

The biological profile thus obtained serves as the snapshot of the person. Detailed information about structural and bone anomaly serves as one of the most significant features for identification of the mass disaster victim.

PMCT [12] proves to be a golden standard in re-examination of the victims. It helps us to know about various individualizing characters including any peri-mortem trauma identification and any surgical implants carried out to enable identification. Imaging techniques are also found to be helpful in knowing the biological profile of the deceased. Analysis on the basis of 3D reconstruction is also prevalent. The combination of radiological techniques along with forensic anthropology serves to be a golden standard for identification.

Discussion and Conclusion

In cases such as 2002 Bali bombing, the identification of the disrupted victim remains was done on the basis of anthropological analysis enabling to know about the site from where DNA is to be analyzed due to the close proximity of the victims to the seat of explosion. Thus helping identification. Latur earthquake, 1933, the next case that led forensic anthropology gain further importance as a forensic analysis technique.

The role of forensic anthropologists evolving each day with the increment in the techniques used. Identifying a victim is the major concern during a mass fatality disaster is a cumber some process which can only be made successful by using various interdisciplinary approaches having anthropology as one of the major assets.

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