

Literature Review

Disaster Victim Identification: A Strand that Connects to Forensics

Isha Chauhan*, Pooja Puri and SK ShuklaAmity Institute of Forensic Sciences, Amity University,
Noida, India***Corresponding author:** Isha Chauhan, Amity
Institute of Forensic Sciences, Amity University, Noida,
India**Received:** July 04, 2020; **Accepted:** August 03, 2020;**Published:** August 10, 2020**Abstract****Objective:** To identify the various procedures used during disaster victim identification and the implementation of forensic techniques so as to aid in identification.**Literature Review**

Disaster as said by Dr. Rasha Haddad [1] can be defined as a serious series of events posing a threat and a severe damage to property and infrastructure as well as the residents of that particular area, the one being affected. WHO defines a disaster as an event, which could be either natural or man-made that has such an impact on the people living in the affected area, that only preventive measures can get them back to somewhere equivalent to the situation that was before the disaster. The series of events that led to the destruction can be sudden or even progressive depending on the type of the disaster involved.

A mass disaster is defined as the condition in which the number of deceased that had occurred during the disaster reaches beyond the handling capacity of the local authorities and the jurisdiction, involved in the task of forensic identification and investigation.

INTERPOL released the guidelines on disaster victim identification, whose first publication was released in 1984, that aimed on the proper recommendations and safety guidelines, so as to enable a better security for the victims and any future possibility of disaster.

The beginning of the legal medicine, when traced in history was found the use of technique such as autopsy, finger print identification and odontology. Markus Rothschild said that the very first cases involving forensic investigation in mass disaster and identification of mass disaster victims, was traced in the year 1881 in Austria, at the incident that took place in the fire in the ring at the theatre of Vienna, having around 449 people as victims. The next example of the beginning of DVI was traced in the fire incident that occurred in the bazar de la charite in paris, 1897, having a victim count of 126.

Professor Peter Ellis [2] defined disaster victim identification, as the process of initiation of the related and concerned government authorities in the area of the disaster, may that be criminal act or a natural disaster. The proper organization of the victims, dead or alive and retrieving the information from the victims and knowing about the reason for their death, and then sending the deceased to their family members for further rituals to be conducted. The major task of the DVI is to protect as many victims as possible and to retrieve as much information as available and reduce any further chances of such events.

Introduction

Disaster in the simplest terms could be explained as an unexpected and sudden disruption in the general way of functions that are being conducted in that particular community that further causes loss of assets including all of the ones mentioned below, namely, property, infrastructure and the community of that particular area. Disasters can be of both the types namely, man-made and natural disasters.

Mass disasters, can be said as the catastrophic event, including manmade and natural disasters such as terrorist attacks, wars and earthquake, floods, fires etc. respectively. Going the technical terms, mass disaster can be defined as the condition in which the number of deceased exceeds the handling capacity of that particular jurisdiction which is responsible for medical and forensic investigation.

Identifying the disaster victim becomes most important for the following reasons; first of all it enables us to know about the cause of the disaster that occurred, the number of victims encountered and their identification. DVI enables us to know about the exact loss of the assets and any future consideration of any such type of disaster of that incident.

With the fast-developing technology, methods used in identifying disaster victims should also be modified. The various modified techniques used in identification of the disaster victims, involves the use of anthropological techniques, radioactive isotopic dating methods, dental records for identification. The use of computer tomography has also aided the process of identification. The use of forensic radar technology is also used now a days so as to enable determination of the victim beneath.

Defining a Mass Disaster

The very basic definition of mass disaster [3] constitutes of mass disaster being an event, including airways, waterways, earthquakes and lots more, that results or ultimately as a consequence of which there leads to the production of such a large number of victims, that needs to be spotted by the authorities and are relative of medico legal investigation.

The next definition of mass disaster comprises of the event as being a catastrophic event in which the number of deceased are more than the capacity that could be handled by the local jurisdiction of that particular area. Examples of mass disasters could be "Linate aircraft

accident” that took place on October 8, 2001. The main victims of the disaster included people from northern Europe and Italy.

Mass disasters, when taken into account can be divided into “Open” and “Closed” systems respectively, depending upon the passengers or the victim information available in hand at the time of the disaster. It is seen that a closed system is much more easier to manage as compared to an open system, as in this case there is a requirement for the authorities to wait for the missing victims and the information collection could not be done pre-hand as in the case of a closed system, where prior information relative of the event is known by the authorities.

Importance of Identifying the Disaster Victims

A. Identification of disaster victims [4] is an important aspect as it even enables the investigators to know about the modus operandi in case of man-made disasters.

B. Establishing the personal identity of victim by matching the post and the peri mortem records enables us to know the true identity of the individual and then to know about the probable reason for the disaster to have had occurred in certain cases.

C. Reconstruction of the scene of occurrence could be done, by knowing the identity of the victim, the injuries when identified as to be ante mortem or post mortem or to be the probable reason for death, the impact of the disaster could have been known and with which the intensity of an explosion or eruption or earthquake could be known, enabling reconstruction of the scene of occurrence.

D. The objective revolves around knowing the number of casualties that had been occurred and listing the number of missing persons.

E. The next concern revolves around the knowing the extent of loss that has occurred to the assets, including property.

Things to be Taken Care of while Investigating the Scene of Disaster

a) The very first thing that needs to be considered as soon as entering the scene of occurrence is restricting the movement of unauthorized people in the scene of occurrence, as they can tamper with the evidences or can even get injured, as in case of post blast analysis there can be unburnt or partially burnt chemicals.

b) Maintaining a proper record about the time relative to entry and exit of the authorized authorities is a must.

c) The condition of the bodies of deceased recovered from the scene and the remains encountered from the scene should be preserved accordingly and as soon as possible.

d) Though the basic process for investigating would remain same, but the division and number of specialists involved varies as per the scene of occurrence and the extent of damage caused.

Phases of Disaster Victim Identification

Stage 1: Visit to the Scene of Occurrence

After the occurrence of disaster [5] the very first thing is the visit to the scene of occurrence. The scene of disaster should be handled with care and the exhibits and human remains should be carried carefully.

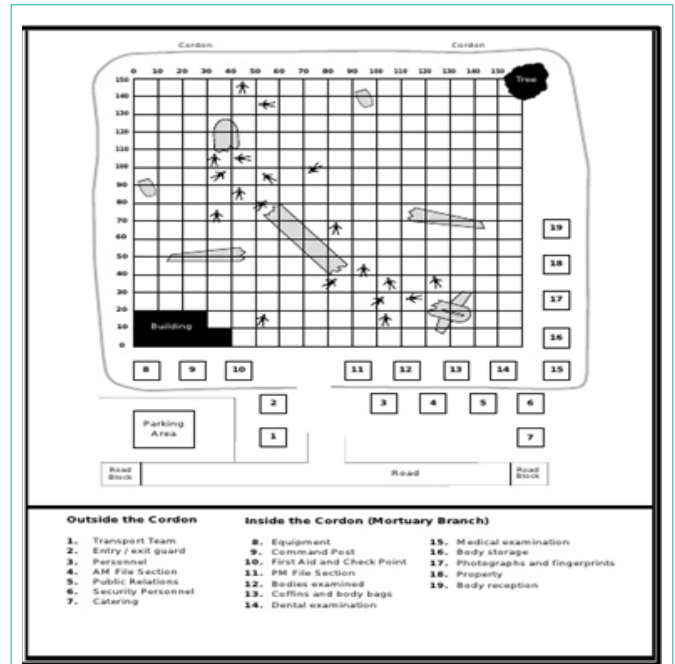


Figure 1: Aircraft Disaster Shown Using Grid Method [22].

A proper method for searching should be taken into consideration. Mostly in cases, such as aircraft disaster, grid method is used for searching. The place if a post blast analysis is to be done, the unburnt samples can be present and so care should be taken accordingly. The capturing of the crime scene should be done; photographs of the scene should be taken before any change in the disaster site. Injured victims should be directed to the hospitals as soon as encountered. The remains encountered should be checked of for as whether human or not. Numbering of each and every aspect should be done so as to ease the investigation (Figure 1).

Proper methods are to use by the scene coordinator so as to preserve, handle and transport the evidences and the human remains and the damage caused to property as soon as possible, with a proper log for the same. Labeling of the post mortem records should also be done to ease with the investigation.

Stage 2: Post-Mortem Stage

The corpse and victim recovered from the scene of occurrence are taken to the mortuary for further examination. There is a need to maintain a proper record and to pen down each and every detail found in the autopsy and the visual examination [6]. As the major part of the physical evidences and the circumstantial evidences could be found at this stage, so there is a need to have a strong observation in order to have all the evidences in hand. The physical evidences that can be encountered include the medical and dental evidences and the finding of the laboratory regarding the traces of alcohol, drugs or chemicals such as carbon monoxide. The general external examination such as, fingerprint examination and injury examination.

Fingerprint of the victim is taken as to identify the victim from ante mortem records. Radiology plays an important role, as it enables the correct diagnosis of the severity of injuries and the age of the victim can be identified by radiological analysis. Odontology [7] also

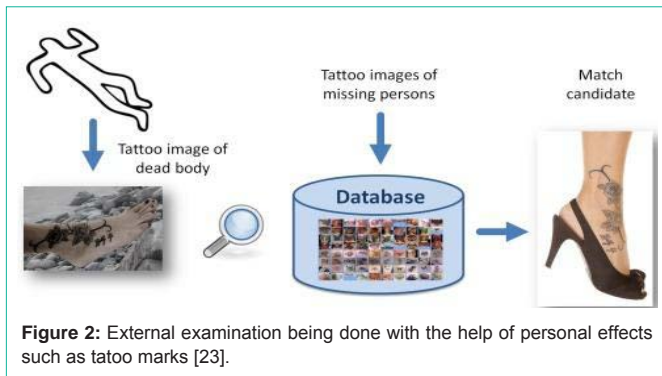


Figure 2: External examination being done with the help of personal effects such as tato marks [23].

- In carbon monoxide poisoning - **cherry red.**
- In hydrocyanic poisoning - **bright red,**
- In poisoning by nitrites, potassium chlorate, nitrobenzene, aniline (causing methaemoglobinaemia) the colour is **red brown or brown.**
- In Pottasium Cyanide Poisoning - **Deep Blue.**
- In Clostridium perfringens infection - **Bronze colour.**
- Hypothermia – **Bright pink**
- Opium - **Black color**

Figure 3: The Colour Changes Observed in Case of Chemical Toxicity Involving Disasters [23].

plays an important role in disaster victim identification, as in cases where facial features and fingerprints are impossible to be collected, such as in arson, it is the calcified tissues of human dentition that enable identification due to their high durability. The identification could be done, on the basis of certain dental anomaly or previous dental records.

Visual recognition: Visual recognition though valid but not in all the cases where face of the victim is not visible or where mutilated body is involved. Though applicability of visual recognition can be considered in certain cases but it is said that it alone can't serve as the basis of identification due to its inaccuracy.

The very first thing to be considered should be the clothing of the victim. The contents in the pocket should also be checked as they can serve as a method for identification. There is one thing to be considered that if an object is attached loosely to the body it might be of someone else, because of the impact of the scene of occurrence and that is the reason why personal effects are considered as circumstantial evidences [8] and so they need to be corroborated with other evidences, so as to reach a conclusion.

External examination: The very first thing to be done as soon as the victim reaches the mortuary is to photograph the body and look out for the injuries and personal marks on the victim [9], including moles, birthmarks, tattoo marks, scar marks that can enable identification. The injuries should be noted carefully as it enables us to distinguish them as ante and post mortem injuries and can also give a clue about the cause of death. Features such as eye and hair colour can enable identification (Figure 2).

In cases of poisoning the colour change in the face and the body can be an indication of the causative agent used, so as to ease the investigation. Fingerprint experts take the ridge prints as of the

Sex Determination From Teeth

- Determining the sex of unknown human remains is the second step in building a dental profile.
- Gender can be determined based on data from---
 - Cranio-facial morphology and dimensions
 - Sex differences in tooth dimensions
 - Tooth morphology
 - Sex determination by DNA analysis
- Amelogenin (AMEL) is one of the major matrix proteins secreted by the ameloblasts of the enamel.
- The AMEL gene, coding for a highly conserved protein, is located on X- and Y chromosomes in humans.
- Thus the females (XX) have two identical AMEL genes but the males (XY) have two non identical genes.
- Preparing DNA from teeth by ultra sonification, and subsequent PCR amplification, 100% success in determining the sex of the individual has been obtained by some scientists.

Figure 4: Determination of sex of an individual by teeth [24].

Age Determination in children and adolescents

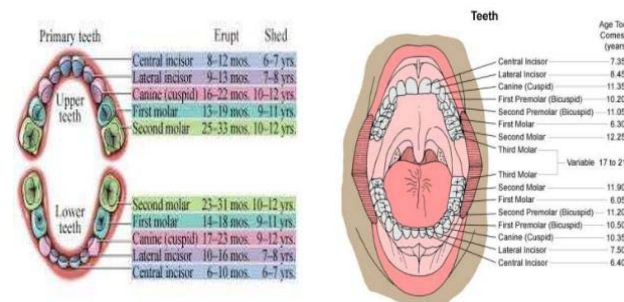


Figure 5: Age Determination with the Help of Teeth [24].

victims so as to promote identification. Even till date if both ante and post mortem ridge prints are present they are considered as the safest method that is used for identification (Figure 2).

Internal examination: In certain countries, it is only the external examination [10] that is considered conclusive of identifying the victim but in cases where identification could not be established by external examination such as in cases where ante mortem fingerprints are not present or the personal effects are not able to identify the victim it is the autopsy that is done to in order to establish identification.

Identifying the victim is an important aspect of investigating the mass disaster. In cases where chemical disasters are involved, serological and toxicological analysis is required to be done of the victim so as to know about the chemical that acted as the causative agent in disaster.

Identification can also be established by finding out any previous fracture [11] or surgery history or any missing organ, or, any history of implant. Anthropological department plays an important in identifying and checking for the important details regarding the victim. By seeing the suture formation and bone fusion, the age of the victim can be estimated, by having a close examination of characteristic features sex, race determination could be done. It is also the role of the anthropological department to check whether the remain encountered is human or not (Figure 4).

Dental examination [12] plays a very important role as being a method of positive identification. With the help of the radiographs,

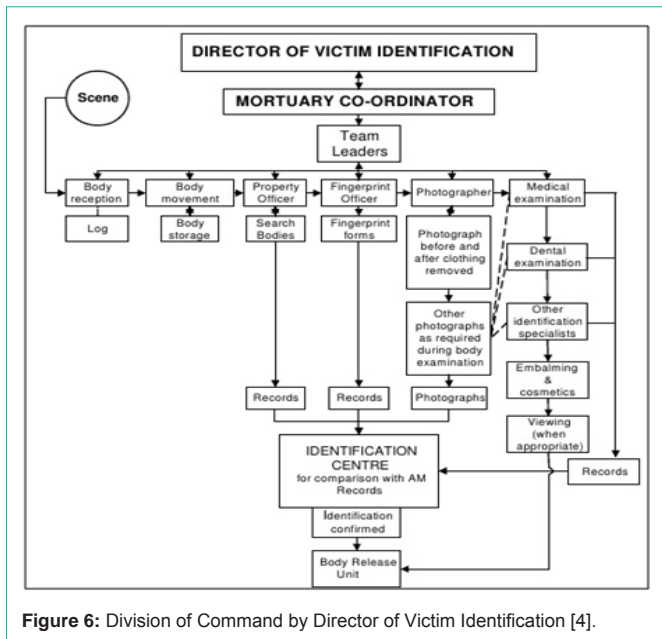


Figure 6: Division of Command by Director of Victim Identification [4].

age estimation by teeth can also be done, as teeth are the hardest substance in the human body as so can resist damage more as compared to the other organs (Figure 5).

DNA profiling and genetic identification plays the role next, it is used to show a genetic linkage with a suspected family member and also finding the body parts and giving a decision that the body parts belong to the same individual, in case of mutilated bodies. In the “Spitsbergen civil aircraft disaster case, august 1996”, the identification of the victims was done through DNA profiling of the victim and suspected relatives. As in the disaster mutilated organs of 257 individuals was found, 141 were identified with the help of DNA profiling with their relatives. Physical indications, including tattoo marks, scars, and surgical implants play an important role in the identification. Forensic anthropologists play a significant role in identifying the disaster victim as they enable detailed mapping of the bodies and body parts and as it enables identification on the basis of ossification of the bones, more prominently in cases of fragmented body parts. The next important area of concern of an anthropologist is to determine whether a particular fragment is a human remain or not.

Stage 3: Ante- Mortem Data Collection

There are two lists prepared based on the identification, namely, the data on bodies and the data on missing persons. As per INTERPOL [12], the pink forms are post mortem forms having the information related to the body and the yellow form collects information regarding the missing person.

The basic ways for collection of ante-mortem data includes, interviewing the relatives, checking the medical records of the victim [13], checking for the insurance and personal identity related documents of the victim. It should be noted that the number of missing persons should be carefully calculated because there are various past cases involving variability in the number of missing noted and the actual missing individuals.

If information about the missing or deceased is encountered, then the information about the where-about of the victim should be informed to his family as soon as possible. A missing persons unit should be of significant importance as it enables the communication between the relative of the victim and the concerned authorities.

Duties of ante-mortem unit: The basic work of the ante-mortem unit revolves around the collection of the information relative of the victim, about his daily life, his identity. Ante-mortem images of the victim should be collected for the ease of identification (if available). There should be a proper coordination between both the teams so as to enable identification procedure in a better manner.

There should be proper evidences so as to establish the identity of the victim. Once the evidences are collected in a proper manner up to a considerable amount, the reports should be sent to the reconciliation department for further examination [14], so as to match ante and post mortem records. The main responsibility of the ante-mortem coordinator is the compilation of the missing person list and to maintain the dead victim list in proper order with serial numbers each.

Stage 4: Reconciliation Procedure

The director of victim identification has further sub divided as, the missing persons unit [15], AM record unit, identification files unit, mortuary record unit. All the work mentioned above is in coordination with each other so as to identify the victim and for the release of the body. The procedure followed before the release of the body of the victim is, as such:

- Records from the mortuary branch, including medical, dental, photographs, x-rays, fingerprint are collected.
- Records from the missing persons unit and the Ante mortem record unit are also taken.
- Master diagrams of all the records are made on compilation from post mortem records.
- Reconciliation sessions are conducted, involving discussion and rejection or acceptance about the identity of the victim.
- On confirmation of identity, the final identification diagrams are made.
- If the victim is dead, death certificate is prepared and the body is released from the mortuary.

Identification [16] centre plays a significant role in the reconciliation procedure as it contains the files and information from both the ante-mortem and the post-mortem units and the missing unit is also a subdivision of the same, so it enables the investigation to be done faster. The files should be sub divided on the basis of certain criteria; they can be the race of victims or their age or their sex, so as to ease searching and identification procedure. The identification photography should not only collect the images from post mortem records but also from the ante-mortem records of the victim.

The fingerprint identification section should have a separate section [17], such as in cases where both ante and post mortem fingerprints are present for identification. As even of today, fingerprints are considered as one of the most reliable methods of

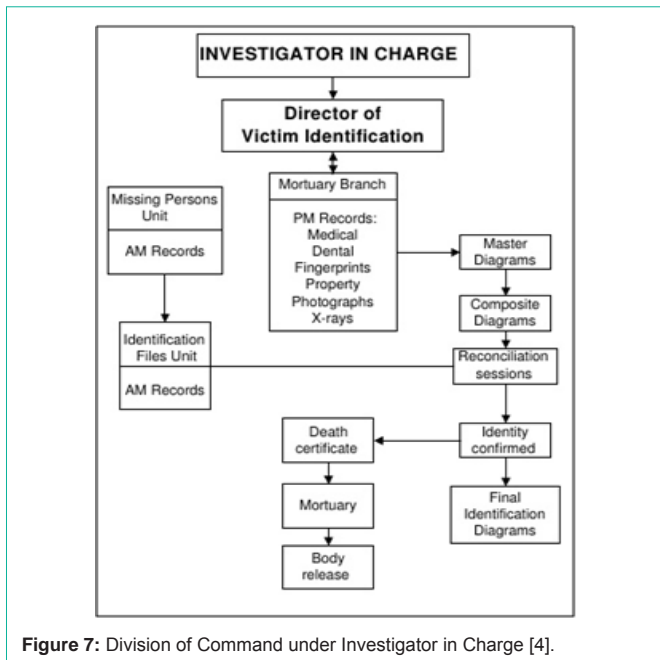


Figure 7: Division of Command under Investigator in Charge [4].

identification.

Methods of identification of the victims: The methods by which the identification of the victim is done, is primarily divided into two groups, namely the primary identification and secondary identification.

Primary identification in the most basic terms, involves the identification of victim based on the finding of the various disciplines involved and the findings are usually found as the effect of the disaster on the victim. Primary evidences are factor governed, such as the time since incidence took place, the extent or level of damage caused to the victim, the changes in the condition of corpse with the delay in investigation time. Mostly DNA fingerprinting, analysis of dental records and ridge analysis are found to be the most reliable alternatives for identification.

Secondary identification basically involves the personal effects and belongings, tattoo marks, scar marks, description of the victim's clothing and the jewellery worn, medical records. All these can corroborate with the information gathered from the primary identification of the victim but can't stand alone as an individual evidence for identifying the victim. Identification through photographs although can serve the purpose but it can't be that it is errorless as cases with false information collected their means is seen.

Both the secondary [18] and the primary data of significant value and concerned area of interest should be found. The quality of the ante-mortem and the post-mortem data collected needs to be scrutinized carefully so as to obtain a reliable result.

Identification centers:

a) The identification centre property section is concerned with the collection and recording of the property of the victim. They basically document each and every item collected from the victim in the form of photographs and registering them in the victim's

property log book. The items not only encountered on the victim but also on the crime scene are to be documented and photographed and to be placed in "E" numbered bags, this responsibility is also of the property section.

b) Identification centre medical section contains the responsibility of comparison of physical features of the victim based on the AM and PM records. The basic anatomical structure is considered in case of re arrangement of the victim, when mutilated victims are found. Once the general observations, the matching of the body parts should be done as to their belongingness to the same individual.

c) The next department includes the department of dental section that basically involves the estimation of age, habits of the individual, search for anomaly and aids in investigation. If an ante-mortem x-ray or dental record is present both the records can be matched and identification of the victim could be done easily.

d) The DNA analysis department plays a major role in identifying of the individual as it can be searched for with the relatives of the victim with his relatives and identification could be done. Protective gloves should be worn so that contamination need not be done. It should be of significant concern that the sample should be collected from the least affected area, so that investigation isn't affected.

e) Body release section is in accordance with mortuary section. The work of the body release is not only related to just release the body but before the release victim's family needs to answer certain questions as per the guidelines of INTERPOL, such as, the place where the body needs to be sent, if the body is to be cremated locally, should the belonging be sent to the family and in cases where approval for local burial of the body is given, is there any of the belonging of the victim to be buried along.

Summarizing the Phases of Identifying the Disaster Victim

The basic procedure followed while identifying a victim of a mass disaster could be explained as under:

- The body of the victim when found on the scene of occurrence is collected and sent to the mortuary branch for further examination.
- The body received is entered in the dead log book with a unique serial number for each and every body in order to aid identification.
- The victim's body is then stored under suitable conditions so as to aid its preservation for further examination.
- The property officer meanwhile searches for the personal effects of the victim that constitutes to the secondary identification method, used to corroborate with the primary identification methods available.
- The records from the dental examination, medical examination, photography unit are collected along with the AM unit for comparison in the reconciliation center.
- Once the identification is done the body is sent to the body release unit for further procedure.

Management of the Victims Encountered at the Scene of Occurrence

The management of the victims [19] found on crime scene is similar although there are slight differences as per each of crime scene progression. The way and the procedure involved to be followed in the management of the victims depend on the number of victims involved in that scene of occurrence.

The human remains found at the scene of occurrence depending upon the nature of the mass disaster involved; such as a man-made disaster or a natural disaster. If criminal activities are involved then investigation in that manner has to be done otherwise criminal investigation can be ignored. It should be noted that evidences found on the crime scene as well as on the victim could be hampered if proper methods are not used.

A proper record including the chain of custody and all the other records are to be mentioned in order to maintain future investigation procedures to go errorless. Mutilated bodies need to be handled carefully and should be marked properly.

The Rules used for Management and Transportation of Body

There are certain rules and regulations involved in the transportation of body and preservation of the corpse are as mentioned below. There are in total 17 articles that give the guidelines related to the transport and preservation of corpse, in order to aid investigation and so as to maintain a proper decorum with the transportation and to maintain the dignity of the dead.

1. The first articles allow a let-pass to be made for the corpse as per the conditions and the requirements of the corpse and the international relations. The language for the laissez-passier should be of that used by the international border.
2. The second article says that there is no other document required and the laws of transportation are not applicable and the body must be transported in a coffin as per the proper guidelines of the arrangement.
3. The third article states that the corpse should be in a coffin of metal and should be covered with an absorbent and an antiseptic substance and the coffin needs to be soldered properly so as to avoid contamination and tampering of evidences (if any).
4. The persons who died as a result of plague, cholera, typhus should be kept in the same country till a year. The authorities should not allow for the same.
5. Article 5 is relative of the transportation of the corpse by rail, and then there shouldn't be any other material along with the coffin and each state that the corpse crosses should have a specified time limit to be followed.
6. Article 6 revolves around transportation of the corpse by motor transport, article seven tells the guidelines about transportation by air and article 8 suggests the guidelines of transportation by sea.
7. Article 9 revolves around transportation by sea and then burial of the corpse relative of the rules given in article 3 and 2.
8. Article 11 tells about the involvement of ashes in the laws

mentioned above.

The Disasters Where the Disaster Victim Identification Team Played a Major Role in Reducing the Impact and Aftermath

Case Study 1: 2004 Tsunami

Date of incidence: 26 December 2004

Time of incidence: 07:58 am

Estimated casualty: 227,898

Most commonly known as "boxing day tsunami" [20], whose epicentre was found out to be the west coast of northern Sumatra. The magnitude of the earthquake was 9.1-9.3 on the seismic magnitude scale making one of most-deadliest earthquakes. The earthquake was a reason of rupturing with the fault between Burma plate and Indian plate.

The waves reached a height of 30 m after the seismic reached its maximum intensity, and the effect lasted in the provinces, including the areas Aceh, Sri Lanka, Tamil Nadu, India and Khao Lak. The maximum damage was in Aceh.

The study conducted estimated that hypocentre was estimated to be 160 km off the western coast of northern Sumatra. The research said that the earthquake that came in Sumatra in the year 2002 was the foreshock to the earthquake on date, which was followed by many earthquakes for consecutive days.

The early signs of the earthquake were almost nil as it had the epicenter deep in the sea. There is one more phenomenon rarely present in any other earthquakes; "disappearing sea effect" was seen in this one.

The identification of disaster victims and their management began in the next 24 hours after the disaster took place. The records given by INTERPOL as per the rescue mission and the DVI procedure conducted the major identification of the victims was done by dental records, 35% were identified through fingerprint identification and 20% were identified by DNA analysis of the victims with the suspected family members. It was discovered during identification that majority of the victims are of Thai origin. After the work of the concerned authorities was done the remains that were earlier stored at Mail khao Cemetery were shifted to Thai Tsunami Repatriation Centre at Bang Maruan for final reconciliation process and once the process was done, the bodies to be released to the concerned family members.

Case Study 2: Uttarakhand Disaster

Date of incidence: 17 June 2013-26 June 2013

Estimated Casualty: 5748 dead, 4120 missing

Most prominently known as "Dev Bhoomi", Uttarakhand [21] is a well visited place by the pilgrims as well as tourist due to its hilly terrain. From 17 June to 26 June 2013, there had been heavy rainfall in the region and the cloud burst on 17 June 2013, intensified the disaster and the water level in the region resulting in a flooding condition, far beyond the capacity of the area. The flow of the water reached up till Mandakini and Alaknanda river, posing a threat to the pilgrims there.

The rescue mission began in around 24 hours, with the help of

the authorities from the other states and with the help of NDMA as per the guidelines of INTERPOL. The first list that was released of the victims included, a missing list of 4120 people that included around 92 foreigners, due to the intensity of the disaster all of the victims were presumed to be dead.

Help from army, navy and ITBP was also taken to intensify the rescue response so as to enable fast identification. Rescue mission conducted by IAF saved around 18424 people till 30 June, 2013 and around 33009 pilgrims in corresponding 15 days.

The response team had the task of collection of DNA samples and the removal and cremation of the dead bodies found on the scene of crime and to reduce any further chances of future encounter of such event. Each and every body encountered on the scene of occurrence was given a specific identification number so as to aid management and ease identification.

Case Study 3: Haiti Earthquake

Date of incidence: 12 January 2010

Time of incidence: 02:33 am

Estimated casualty: 220000

Earthquake having a measure of 7.0 hit the coast of Haiti east causing a major loss to assets both including life and property on 12 January 2010. The estimated loss of life is considered to be around 220000 people. The damage caused due to the earthquake that left around 1000000 people homeless. The UN facilities in Port-Au-Prince were also damaged.

The rescue mission began in 24 hours after the incidence occurred. The deceased were transported to the refrigeration units within 2 days. Chain of custody was prepared involving all the evidences present on the scene of occurrence. The identification of the deceased was done through comparison of dental records, DNA analysis and fingerprint records. Personal effects were also collected to aid identification.

Most of the deceased except 51 victims were identified. The rest of the deceased were buried as per the guidelines given by INTERPOL.

Conclusion

By using a proper protocol and the modern identification techniques and all the disciplines related to investigating the scene of occurrence the chances of speedy investigation could be enhanced. The use of forensic techniques such as radiographs used in dental examination and by anthropologists can speed up the investigation procedure. DNA fingerprinting of the victim and the suspected relatives can enable identification. In post blast residue analysis, forensic analysts can enable the exact location of the blasting material involved and the type of explosive used by looking on to the intensity

of the explosion. Anthropological analysis cannot only enable us to know the age, sex, and community of the victim but also tells us about the living style of the victim so as to ease investigation. Thus, in order to make a speedy investigation and reduce the chances of further disasters in that area, pairing of the disaster victim identification team and the forensic analysis team can be a golden standard mark to enhance the investigating capacity and to provide justice to the deceased as well as the living victims of the disaster.

References

1. Ginther C, Issel-Tarver L & King M. Identifying individuals by sequencing mitochondrial DNA from teeth. *Nat Genet.* 1992; 2: 135-138.
2. Kolude U, B F Adeyemi, J O Taiwo, O F Sigbeku, U O Eze. The Role of Forensic Dentist Following Mass Disaster. 2010; 8: 111-117.
3. Jain N. Ante Mortem Dental Records and Forensic Significance. 2013; 7: 42-44.
4. Andi E. Disaster Victim Identification. 2006; 2: 203-207.
5. Catnoe C, Angelis, D and Grandi M. Mass Disaster. 2010.
6. Interpol.int. Disaster Victim Identification (DVI). 2020.
7. Taylor & Francis. The Role of Forensic Anthropology in Disaster Victim Identification (DVI): Recent Developments and Future Prospects. 2020.
8. Anzpa.org.au. Disaster Victim Identification - ANZPAA Website. 2020.
9. Australian Federal Police. Explaining the Disaster Victim Identification Process. 2020.
10. App.college.police.uk. Disaster Victim Identification. 2020.
11. Icmp.int. ICMP Disaster Victim Identification. 2020.
12. Ellis P. Modern Advances in Disaster Victim Identification. 2020.
13. Kenyoninternational.com. Disaster Victim Identification. 2020.
14. Interpol.int. Disaster Victim Identification (DVI). 2020.
15. Valk e & pol j. Mass disaster victim identification. 2020.
16. 25 yrs on, an earthquake still feels like clear & present danger in Latur villages | India News - Times of India. 2020.
17. Kumar p. Recent Seismological Investigations in India. 2020.
18. Indian Ocean tsunami of 2004 | Facts & Death Toll. 2020.
19. Akpan o and yakubu t. Review of earthquake occurrences in nigeria. 2020.
20. Shamaan a. Nigeria authorities dispel earthquake fears after Abuja tremors | Africa news. 2020.
21. Rothschild m & Lessig r. International standards in cases of mass disaster victim identification. 2020.
22. Disaster Victim Identification. 2020.
23. Identification and Methods Utilized | Forensic Dentistry | CE Course | dentalcare.com. 2020.
24. Forensic Odontology. 2020.