BRIEF REPORT

PK 8303 – A Disaster During Pandemic
"From the Vantage Point of a Forensic Odontologist"

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While running Governor Punjab, University of Health Sciences Telemedicine Center during anti COVID-19 drive as Incharge, I was terribly shocked by the news on 22nd May 2020, that an unfortunate flight, PK 8303 embarked on a fateful voyage that ended up with its crashing in a residential area of Karachi. Rescue and relief teams were on the ground promptly and started the recovery operations. A total of 98 lives were lost.

Aircraft crash victims frequently are not visually identifiable and, in this case, many victims had been burnt beyond recognition. Consequently, upon the request of National Disaster management Authority (NDMA) Pakistan, a Disaster Victim Identification Team was put together by the worthy Vice Chancellor of University of Health Sciences to aid in the identification process of victims. Despite the peak rise in COVID-19 cases and fatalities country-wide at that time, the team with all its spirits and devotion went selflessly to serve the national cause. Identification of the deceased is as important as rescue and relief operations. Regardless of the nature of the disaster, authorities are responsible for identifying human remains which may be relatively intact or decomposed.

The identification of victims of a mass fatality incident is a basic human right. Our society accepts that every individual has an identity which would cease to function if this were not the case. This concept is evident in the United Nations Universal Declaration of Human Rights where Article-6 states

"Everyone has the right to recognition everywhere as a person before the law" (United Nations 1948).

Disaster Victim Identification or DVI is the process through which victims of mass casualty incidents (natural disasters, air crash, bomb blasts) are identified. DVI is an internationally accepted term that refers to a series of well-coordinated multidisciplinary procedures used to recover and identify the victims of mass fatality incidents. Correct identification of victims is necessary due to humanitarian, emotional, administrative and legal purposes.

According to INTERPOL guidelines; there are four steps to identification:

1. Scene examination.
2. Post-mortem or PM data: through, Fingerprinting, Odontology and DNA.
3. Ante-mortem or AM data: recovering dental or medical records, corresponding DNA from personal belongings and family members, fingerprints from victims' homes.
4. Reconciliation: a team of specialists reconciles the two sets of information to identify the victims.

A range of forensic techniques are employed for the correct identification of the deceased. These methods are either standalone independent identifications or serve to back up a visual identification and include:

- Fingerprints.
- Odontology (dental identifications).
- DNA profiling.

Dental Identifications are significantly useful when there is a large-scale disaster as being cost

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effective and is considerably quick when human remains are unidentifiable i.e. burned, decomposed, partial remains, etc. Nevertheless, if the features of a victim are recognizable, identification should be performed based on facial feature or fingerprints. Fingerprints are a reliable means of identification but are of no use in high temperature/industrial disasters and are also difficult in cases where bodies get putrefied/burnt/charred. DNA testing is also very reliable. However, it is a time-consuming process and is relatively expensive especially for a developing nation like Pakistan. Dental identifications are quick, cheap and unique as compared to fingerprints and DNA. Moreover, as dentistry flourished in third world countries many individuals have some form of dental records present. Teeth are the hardest tissue present in the human body and can withstand high pressures and temperatures up to 1200 degrees Celsius.

Dental Identification was employed in the airplane crash of PK 0661 in 2016. For the first time in the history of Pakistan where 14 bodies including Mr. Junaid Jamshed was positively identified by Dental records and about 20 bodies were possibly identified. One body was identified by Fingerprinting.

In the case of PK 8303, 23 Dental autopsies were conducted where 13 positive identifications were achieved along with one exclusion case due to discrepancy in DNA results. The team under my supervision worked day and night despite the fear and chaos caused by COVID-19 pandemic.

Disaster Victim Identification (DVI) Unit in Pakistan

Pakistan has for long been at the receiving end of a vicious cycle of violence, terrorism and natural disasters with two plane crashes in less than 4 years. In most countries, a Mass Casualty Plan is to be implemented in the event of any mass disaster.

Unfortunately, despite being prone to a mass casualty influx into hospitals at a relatively short period of time, Pakistan continues to lack in the following:

1. Emergency medical response
2. Training provided to medical and paramedical staff in case of disasters
3. Mass casualty management
4. Sufficient resources to accommodate and identify casualty corpses
5. Dental means of identification – cheap, quick, very reliable.

These factors make disaster victim identification quite difficult. The Formation of a DVI Unit in Pakistan will provide a platform for a multidisciplinary approach towards the identification of victims and relief towards their loved ones in their time of agony while lessening the pressure and burden on the exchequer and governance.

Proposals for Disaster Victim Identification (DVI) Unit in Pakistan

1. Mobile Mortuaries

Identification of the deceased can take a few hours, few days or even few weeks. Corpses need to be kept in a constantly refrigerated environment to stop the process of decomposition. Mobile Mortuaries at Provincial level will ease the Identification process and enhance the local capacity of the storage.

2. Development of human resources

- Training and periodic drills must be carried out at university levels to ensure enough preparation of medical and paramedic staff when faced with a mass fatality incident
- Disaster Management must be a part of Public Health and Health Administration curriculum.
- Capacity building for professionals by institutionalization of the Departments.
- Support staff capacity building.
- Trained First Responders can make the job easy - Paramedic staff, EMTs and LHV's can be trained to do so.

3. Training of Forensic Odontology

Dental identification has proven to be cheap, quick and effective on many occasions. Odontology is a stand-alone procedure in

identification cases & cheapest of all scientific ID method with less limitations. Forensic Dentistry/Odontology is part of BDS curriculum for ages it needs to be revamped and reallocated. PM&DC Level III Postgraduate training can be initiated with available human resource in the country.

4. Ensuring that Dental Data is Collected and Stored

Health infrastructure has the capability to collect dental data across the nation. However, it has never been utilized. A Dental Data Registry is deemed to be established which can provide accredited data for research and for DVI purposes in cases of disaster.

5. International Collaborations in Training and Service Delivery

Disaster Victim identification can be very difficult especially if a country has insufficient resources. Collaborations with international organizations can significantly speed up the identification process thus bringing closure to victims' families.

Dr. Humayoun Temoor Baig [BDS (PAK), PG Dip. Implants (DE), MFOdont (UK)] enjoys the honour of being the first Forensic Odontologist of Pakistan. He was the Incharge of Dental Identification operations of PK 661 and nominated as a Team lead dental identification PK8303 air crashes by National Disaster Management Agency of Pakistan. Being Forensic Odontologist Punjab during 09 years of service, he has conducted numerous Medicolegal inquiries and remained a part of Provincial Standing Medical Board. Sharing the responsibilities with Counter Terrorism Department team, he was involved in various cases of fascial reconstruction at King Edward Medical University (Forensic Medicine Department). He is active consultant for Kenyon Emergency Response Unit (US), Board member Association of Forensic Odontology for Human Rights (Italy). He is also nominated as a Contact for INTERPOL DVI subcommittee on Forensic odontology.