



Disaster dentistry

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This article gives a brief glimpse of some of the issues involved with dental identification of fatalities in disaster situations. It is based on the personal views and experiences of the author as a forensic dentist in the aftermath of the Asian tsunami and the Sharm el Sheikh bombings.

It is hard to believe that it is over two years ago that many thousands of people from around the world lost their lives in the Asian tsunami (Fig. 1); over 18 months since lives were lost in the London and Sharm el Sheikh bombings, and Hurricane Katrina caused chaos in and around New Orleans. Families and friends were devastated, livelihoods lost and homes and belongings destroyed. The disaster situation is complex, global, and may be man-made or natural in origin; and it is not a question of 'what if this happens again' – but 'what shall we do when this happens again?'

It is important to speedily organise body recovery, collection of evidence/personal effects/fragments (Fig. 2), identification, and to return the deceased to their loved ones. Many families interviewed post-tsunami said how important it was and how much it had helped them knowing that their sister/mother/father/friend had been found and identified.

A systematic, efficient and caring team approach is essential to assist with the identification process and to assess the situation and help restore the safety and damaged infrastructure of the affected areas. Forensic dentistry has played a major role in the above disasters. It is well known that visual identification by friends or relatives is unreliable (particularly when there is decomposition or trauma) and that a more scientific method is needed whether this is from dentistry (Fig. 3), DNA or fingerprints (with support from personal descriptions and belongings).

Forensic dental identification

The success of forensic dental identification is dependant on the accuracy and availability of antemortem dental records. The identification process involves the summarisation of all existing antemortem dental information to compare with the post-mortem dental findings: detail must match or discrepancies should be explainable.

In the real world the antemortem records do not usually match the post-mortem findings in all respects – a certain amount of experience and judgement is needed with the interpretation. Remember that the record includes not

only the written notes, charting and radiographs, but also any study models, intra-oral clinical photographs, referral letters, fee notes, and any other useful bits of information. We need to know the time frame – when was the patient last seen? Will this explain discrepancies?

The value of a good quality radiograph should never be underestimated – it can show tooth-coloured restorations that may otherwise be overlooked in the mortuary examination, root canal treatments, root morphology and much more 'hidden' dental information. Where there is minimal dental intervention and no antemortem radiography, particularly in the young victim, post-mortem dental radiographs are essential for age at death estimation. A good quality antemortem smiling photograph (showing teeth) may prove useful for the comparison process or as an aid via dental superimposition.

However, there are potential problems associated with the antemortem record:

- Interpretation of different charting systems used in different parts of the world – the FDI notation was introduced as a means of standardisation, but it is not universally used
- Incompleteness of the record
- Inaccuracies – can they be explained?
- Fraudulent entries – surely not!

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Fig. 1 Devastation at a local resort after the tsunami



Fig. 2 Deciduous tooth found at crime scene



Fig. 3 Numerous dental clues to identity

A team approach

Imagine the scene on Boxing Day 2004 after the tsunami – where does one start to restore order and identify and repatriate loved ones? Where do refrigerated storage containers come from over the holiday period? Who is available with appropriate training and experience to help? The team approach is needed, combining the expertise of many different disciplines with regular training and communication, and ready to deploy wherever and

whenever they are needed. It is estimated that thirty countries sent disaster victim identification (DVI) teams, or their equivalent, to assist the Thai Government, rotating around 600 personnel. Different nationalities working side by side need standardised and comprehensive protocols (Interpol forms are commonly used) that can be ‘tweaked’ to suit the situation. When there are large numbers of fatalities, computer technology enables time-efficient comparisons of antemortem and

post-mortem data, but the final decision rests with a person.

Whether dealing with the single deceased or the mass fatality situation, access to dental post-mortem information may prove difficult. Problems range from coping with different jurisdictions, cultures and temporary mortuaries to rigor mortis, fragmentation, commingling of remains and decomposition (to name but a few). Gathering antemortem dental information needs to be swift and transferable around the world. It would be helpful if every new patient had a complete dental chart recorded – what should the minimum standard be? There may be emotional and procedural difficulties for the dental team, therefore appropriate forensic dental training and experience is essential – a case may go before the courts.

The initial disaster response in the United Kingdom is managed at a local level by the coroner and police. If extra assistance is needed the Police National Information and Coordination Centre (PNICC) is contacted and will organise a police and non-police response as necessary. Odontologists are listed with the Centre for International Forensic Assistance (CIFA). Should a disaster occur overseas requiring UK help, our Foreign Office will notify the UK DVI Commander who will arrange the necessary help. Emergency companies also play a large role in the identification and repatriation work, often supplying equipment as well as personnel.

It is reassuring to know that there are individuals and teams prepared to rearrange their lives at short notice to assist with this work – the loss of life is tragic, uncertainty devastating. Keep searching, find the answers.

Dr Hinchliffe will be speaking on this subject on Saturday 26 May at the 2007 British Dental Conference and Exhibition, held at the Harrogate International Centre.