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## When DNA is Not Available, Can We Still Identify People? Recommendations for Best Practice\*

**ABSTRACT:** Recommendations of best practice to conduct identifications in settings with large numbers of victims and technological limitations are provided, based on a sample of 116 cases in which positive presumptive identifications were generated using “traditional” techniques, and were later corroborated through DNA testing. Traditional techniques generally consist of combining witness testimony, personal effects and clothing, anthropological and dental data to corroborate or to exclude the identity of an individual. Experts participating in traditional identifications must develop emic categories to transform objective physical features into recognizable categories by the family, or to do very the opposite—to develop an ethic system by which the expert translates the cues given by a family member into objective categories that are usable in standard forensic and legal contexts.

**KEYWORDS:** forensic sciences, disappearance, emic, ethic, forensic anthropology, identification, DNA testing, traditional methods

The widespread application of DNA profiling to identify the victims of mass disasters is of considerable short date but the use of such techniques to victims of war crimes and crimes against humanity is even shorter (1–4). While DNA technology has become more common and the prices of testing have substantially dropped, its use in large-scale projects is primarily dependent on the availability of resources and in turn on the will of political powers to fund such activities. For example, large-scale forensic work in Bosnia i Herzegovina and Kosovo carried out by the International Criminal Tribunal for the Former Yugoslavia (ICTY) invested largely in the recovery of evidence but not in identification means such as DNA testing (5). Paradoxically, in countries where large numbers of victims remain unidentified DNA and forensic laboratories are not readily available, except on a limited scale (i.e., Rwanda, Congo, and Guatemala). Even in the cases where DNA is routinely used for identification of victims from mass graves, the use of “traditional” techniques is generally favored over the more technologically costly methods such as DNA analysis. Traditional techniques generally consist of combining witness testimony, personal effects and clothing, anthropological and dental data to corroborate or to exclude the identity of an individual. This study provides recommendations of best practice to conduct identifications in settings with large numbers of victims and technological limitations.

It is estimated that between 1998 and 1999, several thousand people were killed in Kosovo. In addition, some 2000 people are still unaccounted for and are referred to as missing persons (6). The Office of Missing Persons and Forensics of the United Nations Mission in Kosovo is tasked to determine the whereabouts, whenever possible, of all missing persons. This study presents the results of 116 cases in which positive presumptive identifications were

generated using “traditional” methods and were later corroborated through DNA testing. Further examples of the use of “traditional” methods in Peru are also presented for comparison.

### *Investigation*

Unlike certain mass disasters (i.e., plane, train, or bus accidents), cases of human rights (HHRR) violations and natural disasters tend to constitute open rather than closed systems. If in the former, the event is generally synchronic, circumscribed geographically and with a finite number of people (those who were in the boat, plane, or train), then in the latter the event tends to be diachronic (over a period of time) or synchronic, but over a wider geographic area and the precise number of victims is generally not known. The terrorist attacks of the Twin Towers in September 11, 2001 would be a good example of a synchronic open system while the enforced disappearance of people over a 20-year period during the internal conflict in Peru would be an example of a diachronic open system. Moreover, while mass disasters and HHRR violations may share large numbers of victims but different means of generating those victims, mass disasters have an inherent haphazardous component because they are caused by nature, accidental causes (whether human error or not) and their components and therefore outcome, cannot be controlled. HHRR violations on the other hand, whether small or large scale, are conscious acts with little or major amount of planning to fulfill specific goals.

In addition, the investigation of HHRR violations occurs most often *ex-post facto*, with enough time elapsed between death and recovery to modify cadavers into skeletons or heavily decomposed bodies rendered unrecognizable and requiring the participation of forensic disciplines such as forensic anthropology and archaeology. In general terms, response to natural or other mass disasters such as those caused by an accident, terrorist attacks, or other causes are immediate and as a result the state in which the remains are found also determines the participation of certain disciplines rather than others relying on soft tissues (i.e., fingerprint experts, pathologists, etc.).

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When studying violations of HHRR and the ensuing humanitarian consequences, it should be pointed out that people simply do not “disappear.” Enforced disappearance is a well-planned practice designed to provoke anguish in the population and relatives of the missing person, as well as a sense of a relentless and unstoppable process. Understanding how people went missing (i.e., who took them, how many victims and how many perpetrators were involved, in what type of vehicle or mode were they taken, at what time, who last saw the victim(s) and where were they seen to be going) may help to establish their whereabouts, as with any homicide or missing investigation. The reconstruction of the event of disappearance, is determining the group of people arrested, detained, or kidnapped in a single occasion and is crucial to determining the composition of the family target group that will need to participate in the identification process. Although generally overlooked in the individual identification of victims of armed conflict, the investigation of the event of disappearance is critical and defines the interactions between victim(s) and perpetrator(s) in a place and time.

The event of disappearance tends to be defined by the number of people missing together from a single incident. The incident generally occurs in a geographically restricted area such as a village, street, or farm field. Criteria vary as to how many people should disappear together as to form an event; a general consensus among HHRR organizations was 5+ or more people.

Vital to any investigation of enforced disappearance is to define the boundaries of the universe of the missing which is to establish a comprehensive listing of those reported missing by the place, date, and his/her family and personal relationships. Special attention was needed when compiling this list so that those who are reporting the missing person should provide evidence of the prior existence of the person, which is any personal documentation and when possible, at least two individuals should provide the same information separately. While this kind of work tends to be carried out by international organizations such as the International Committee of the Red Cross (ICRC) it may happen that prior lists have not been prepared. Increasingly, anthropologists are useful for this type of human rights monitoring or antemortem (AM) data collection as they are specifically trained in ethnographic interview methods and international field experience. Once the universe of the missing has been defined, the investigation can start by formulating the event of disappearance based on that same information or at the request of a prosecutor, family member, or other legal, political, or nongovernmental unit.

During the investigation phase, it is paramount to determine whether AM information of the person reported missing exists. If not, AM data should be collected during the interviews conducted with relatives, witnesses, or other people close to the victim. When collecting AM data, a judgment must be made as to who the person or people are that were closest to the victim and that can therefore provide appropriate information regarding not only his/her biological profile but also his/her clothing at the time of disappearance as well as other investigative information. It is possible that the AM information collected is a combination of data provided by different people. Without such information, not even DNA analysis will be able to give a name to the victim. Consequently, it is well known that the entire process of human identification is contingent on AM data and the availability of family or people who knew the victim. Once the investigation establishes possible links between a number of unidentified remains and the event of disappearance, a clothing exhibition can be organized. The clothing exhibition is an activity designed to expose a group of families (the target group) to a set of clothing items and

personal artifacts for them to trigger memory, a critical step in the identification process.

#### *Collection of Antemortem Data*

The collection of AM should be adapted to the context in which the investigation takes place. There is no “magic system” to collect and record AM data. It is therefore desirable for any system to follow the recommendations of the ICRC report: *The Missing and Their Families* (7) that adapts the items in the checklist to the context where they work. The key to any successful protocol applied across populations and cultures is that it is robust to provide the essential information, the data which was collected was collected in a systematic way allowing for any possible future legal or criminal necessity, and yet remains flexible to meet the changing contexts of such situations. AM forms should be elaborated considering an emic (8) approach, that is, an intuitive and empathic attitude towards the people providing the data. The data must however be susceptible to be transformed into verifiable categories. This is important, if we consider that community defines need to be transformed into ethic defines that make sense to the community of scientists, in this case those that will eventually carry out antemortem–postmortem (AM–PM) data. Therefore, we need to strike a balance between what make sense for the interviewee and for the interviewer; otherwise, the information collected will be simply useless.

#### *Age*

An example of the need for an emic approach is the information we collect regarding the age of a victim if no documents are available. The person giving the information may only refer to an age range or an estimate of the age of the victim, say between 30 and 40 years or around 40 years. It is important then for the interviewer to try to associate an episode of the life of the victim (i.e., birth, puberty) to a specific event that could be accurately dated (i.e., a war, a natural disaster). In turn, the anthropologist using appropriate population-specific standards may be restricted to establishing simple age categories such as young, middle-aged, or old adult attaching to each a specific, albeit flexible, age range.

#### *Stature*

Another problem generally encountered is the value of stature in personal identification. Baraybar and Kimmerle (9) argued that the value of stature in personal identification is limited primarily by the differences between reported stature (as told by relatives), reconstructed stature (by measuring the bones), and recorded stature (as in legal documents) (refer also to Kimmerle et al. of this volume for a discussion of stature). Of all three, only recorded stature is that bearing a legal value, but it is generally impossible to verify because of the way in which it is recorded. This means that reconstructed stature even if using population-specific formulae (10) should be regarded as an element with limited weight in the identification process. The use of stature in identifications in Kosovo and Peru has been extremely limited considering the large differences between reported stature by relatives and reconstructed stature from human remains. Further examples regarding this problem are presented. In Peru, for example, stature is recorded as part of an official document at age 17 when young boys are conscripted into the army. As most of the indigenous Peruvian population is shorter than those of European descent, the army recorder may just “eye ball” stature and “homogenize” stature of new recruits. In

other words, if the mean stature of conscripts is 160 cm that may become “the stature” of all recruits and as such it may be recorded in the official document. At age 18, all citizens (both men and women) receive a national identification document (DNI) in which stature as well as eye and hair color is recorded. Yet again no measurements are taken nor data are recorded in a previous document transcribed into the new DNI. Therefore, the “official” stature of the individual is that appearing in an official document and not the one taken with the appropriate care by, for example, a physician during a medical examination. On the other hand, we have the perception on stature by relatives. It seems to be quite a cross-cultural phenomenon that relatives remember their missing in idealized ways: as tall, with white teeth and other similar features that make them almost flawless. When interviewing relatives of the missing, some of the witnesses have themselves been subject to abuse by military or paramilitary groups, and more often than not they cannot provide official documentation for the missing relatives; rather investigators are left only with witness accounts of the characteristics of their loved ones such as stature. In addition, we acknowledge that most reconstructed stature estimates have a 6 or 7 cm deviation on either side of the mean (1 SD), unless we are looking for very short or very tall individuals. Such was the case of the people attending a busy market place in Northern Ethiopia prior to an indiscriminate aerial bombing; the use of stature assisted in separating a sub-group of individuals known to be much taller than the local residents (Baraybar 1994, personal communication). Besides the previous example the impact of stature in the identification process is negligible. Exceptions to the rule may however occur in cases of military personnel for which appropriate records of AM stature do exist and are used effectively in the identification process.

### *Dental Records*

Perhaps one of the most important setbacks in Third-World settings (where most cases of enforced disappearances take place) is that of the lack of dental records. A true AM/PM dental comparison is based on the availability of an AM odontogram, which can only be compared with a PM odontogram and not to a literary reconstruction of someone else’s dentition. This situation poses a number of problems that the dentist must try to circumvent. For example, the dentist is expected to interpret some clues given by the relatives on the characteristics of the teeth of the victim collected during the collection of AM data. Thus, if the family refers to a “bump between the teeth of the upper jaw” this could refer to a supernumerary tooth protruding from the palate or a major tooth rotation among others. In order to minimize interpretations, the interviewer may show photographs of dental conditions that may fit into the witnesses’ description.

### *Data Collection*

The emic approach is necessary at every step of the collection of AM data because the literary description of someone else’s physical characteristics is based on the perception that that person has of “the other.” Therefore, the collection of AM data should be adapted to deal with the complexities of the society that will provide the data. The role of socio-cultural anthropologists or other social scientists at this stage is beneficial.

The forms for the collection of AM data should be produced and tested on a trial and error basis. In other words, it must be ascertained over time whether the information collected in a form reflects the information needed by the scientist and that provided

by the interviewee. This is primarily the case when the interviewers do not speak the same language as the witnesses. It was the case in Kosovo where forms were devised in English in the first place and then translated into Albanian or Serbo-Croat and is the case in many other countries with large numbers of victims such as Peru or Guatemala where the missing were primarily non-Spanish speaking Indians. Beyond the language itself, there is the meaning of terms used to describe characteristics in each language. Some languages may have a combination of terms to describe something that is done with only one word in another language or by the same token, one single word or expression may have different meanings. Bearing in mind the characteristics of mass human rights violations, it is important not to mechanically use forms but to choose the most suitable one according to the recommendations presented above.

In Kosovo, all AM data was collected prior to the Office of Missing Persons and Forensics being established. The collection system used was the Disaster Victim Identification (DVI) from Interpol where the underlying assumption is that the remains of the victims are fresh enough to visualize scars, tattoos, and the like and their provenance is somewhat “urban,” assuming therefore that dental and/or hospital records may also be available. With time, it became clear that the system was inadequate to deal with large numbers of mostly skeletonized remains.

A similar example to Kosovo is Peru where an estimated 13,000 persons went missing during the internal conflict (1980–2000). The Peruvian Forensic Anthropology Team has been collecting AM information from relatives of the missing in order to assist identification work whenever remains of alleged missing persons from a specific site are exhumed. Over 5 years, the form has undergone three sets of changes primarily in the way the questions were asked to the relatives. While the form is written in Spanish, the interview takes place in Quechua, the mother tongue of most relatives of missing persons. The form is composed of three major parts: (i) information regarding the interviewee and his/her relationship with the victim, (ii) the circumstances of disappearance, and (iii) the AM data. The first and second aspects are primarily composed of information necessary to establish the link between the informant and the missing person (whether a relative, friend, or witness) and then about the circumstances of disappearance of the victim. When recording the clothing that the missing persons was wearing when last seen, the data protocol uses a booklet to show the witness classes of garments, as well as a basic color scale for them to point at, thereby avoiding culturally-influenced descriptions of type of garments, textiles, or colors (Fig. 1).

### *Organizing a Clothing Exhibition*

A clothing exhibition is a cathartic activity; the family members or relatives that participate in it feel as included in a proactive manner in the identification process. This empowerment is important in as much as it provides the community involved in the activity with a sense of responsibility in the process of identifying their own dead. In many respects, this process could constitute almost an early mourning or grief period where the realization of death and grief occur. To organize a clothing exhibition, investigators may use either an open or closed space depending on the climatic conditions. A soccer field, a factory hangar, a school, or a public building are suitable places and have been used throughout the Balkans and Peru. The organization of a clothing exhibition depends on the systematic and thorough recovery of the clothes and personal effects of the dead. During exhumation, all personal artifacts associated with the dead should be carefully recorded.

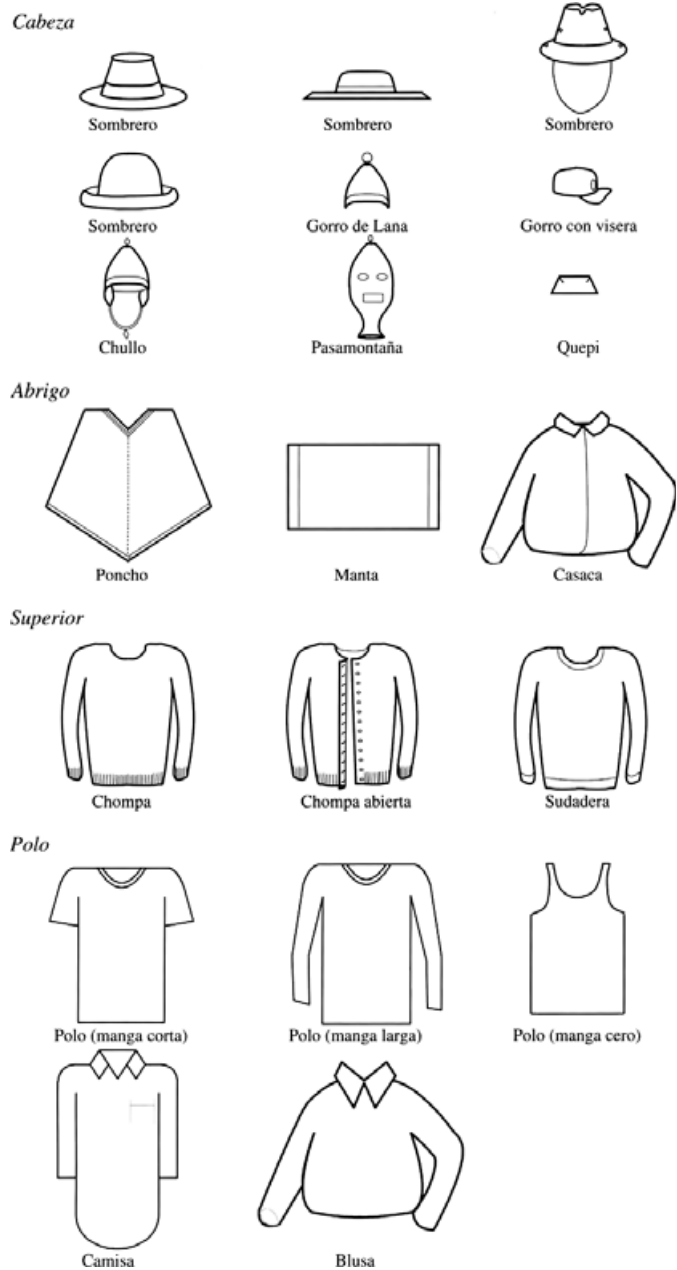


FIG. 1—Garment section of antemortem form (Peruvian Forensic Anthropology Team).

Those artifacts that are not in direct association with a specific body should not be artificially associated to it (i.e., to be linked to the body because of a case number or other investigatory reasons) because it may confuse the family members or alter witness recollection. This is especially a common problem in the investigations into mass graves where during the disposal of the bodies, artifacts may fall off of the bodies, become commingled, have been stripped prior to being killed and put in the grave, or have had personal artifacts found away from the bodies or simply intermingled with them. If personal effects were recovered in such contexts, they should also be shown through exhibition, but separately for any particular body.

Attention must be placed during recovery at keeping the integrity of the clothes. It is important to stress that during recovery or post-mortem examination, the clothes should be carefully removed from



FIG. 2—Clothes are washed or cleaned and arranged for display (Peruvian Forensic Anthropology Team).

the body and no alteration by cutting or tearing them from the body should happen. The identification value of the clothing rests on its integrity.

Once removed, the clothes should then be carefully washed, dried, and photographed in an anatomical position against a neutral surface. Personal artifacts are also cleaned and photographed in the same manner. The clothes are arranged on the floor, on some kind of tarpaulin or even colored surface, in a roughly anatomical position (Fig. 2).

Once the family target group is defined, the relatives are selected. A priority is given to next of kin relatives to the missing person. Friends and more distant relatives could participate at a later stage. An AM form is filled from each relevant relative prior to participating in the clothing exhibition. Each family member or group of family members from one single missing person is accompanied to look at the display (Fig. 3). One or two relatives are given latex gloves and a mask in case they may want to touch or feel the clothes or artifacts. No pressure is exerted over the relatives, they are allowed to take their time and observe the display. Once a recognition is made, the family is encouraged to see the artifacts if any. The family is not showed any specific set of artifacts or told which ones were found with the clothing.

#### Antemortem/Postmortem Comparison

Once the possible identity of a person has been matched (Fig. 4), both the PM and AM files of the person are pulled out and the family is taken to an interview area. The following people





FIG. 3—Clothing exhibition; Kosovo (OMPF).



FIG. 4—Clothing is recognized; Kosovo (OMPF).

typically participate during the interview: one police officer specialized in identifications, one anthropologist, one dentist, and one pathologist that remain on call for any specific information that may be required as well as to discuss with the team once the interview is finished. Each specialist asks their questions separately: (i) regarding the clothing and artifacts such as the make, materials used, whether it was purchased or homemade, any anecdotic events associated to them; (ii) regarding the biological profile of the victim (i.e., age, sex, stature, AM injuries); and (iii) regarding the teeth (i.e., the dentist expects some basic clues regarding basic features such as tooth rotations, extractions, prostheses, bridges or repairs, occlusion, etc.). Each specialist scores the responses collected on a scale of 1–3 as bad, medium, and good. Caution has to be taken however when scoring the correspondence between AM and PM data for, as has been discussed already, relatives may provide clues that may be interpreted not as one but as multiple indicators. For example, while anthropological determinations are a factor of the techniques used (i.e., age, stature), a dental comparison is dependent on the availability of an AM odontogram which can only be compared with another odontogram and not with a literary reconstruction of someone else's dentition. Despite those limitations, odontology tends to be a good discriminator between positive and negative matches. At this stage, it is important to

underline the necessity to use population-specific standards for age determination, because the age given to a set of remains will primarily reflect the appropriateness of the age standards for the population in question as well as the knowledge of the anthropologist in applying them.

Once the interview has finished, the experts that participated in the interview separately discuss each case. Generally, after such discussion, cases are classified on a scale of 1–3 as good, medium, or bad match. Identifications are carried out by consensus and the pathologist is the only person who may accept or reject an identification. The latter also means that despite the scoring system of 1–3, there can only be good or bad matches. While in general terms, biological data are favored over clothes and personal effects, the preliminary investigation that leads to choosing a target family group is of the utmost importance and will determine their usefulness in personal identification. If for example, the investigation suggests that the people that disappeared in an event were confined in one location over a period of time and may have exchanged clothes or been given other clothes, automatically the value of the identification will be almost virtually dependent on biological data. In this case, however, while clothes may not be attributed to an individual they still play an important role in confirming that the individual to which they belonged was in the group. Two practical examples are provided.

First, Mr. X reports the disappearance of his father from location “the city” on April 5, 1999. His father was 56 years of age and when he was seen last he was wearing a red parka, sweater, long johns, and black shoes. In addition, he had fallen off a tree when he was younger and they thought he had some broken bones. Mr. X had a little “window” between his upper, central teeth and may have had some extractions or fillings.

After the examination of a set of unidentified human remains, it was concluded that they belonged to an adult male between 50 and 70 years of age at death, 159.7 cm ( $\pm 7$ cm) of height, and had old fractures in right ribs 3 and 5 as well as a healed undisplaced fracture of the right femur. The individual showed a clear diastema between upper central incisors, as well as some extractions, fillings, and a metal crown. Following the identification of the garments and a watch (note that these were not mentioned in the AM interview and shown separate from the clothing; Fig. 5), a comparison of AM and PM data was carried out and it was declared as a

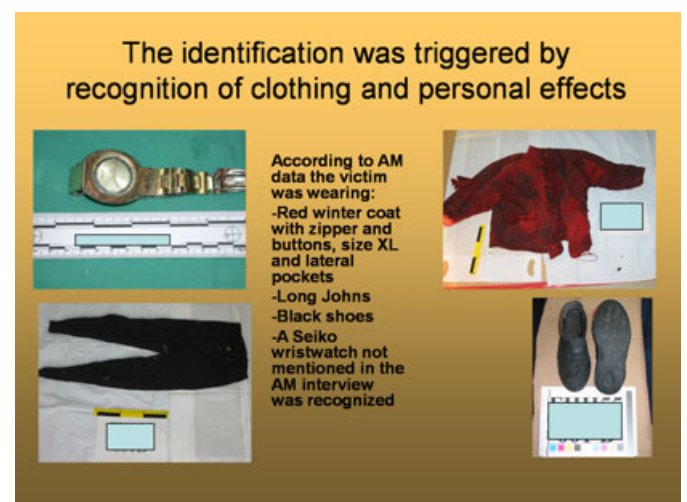


FIG. 5 Antemortem–postmortem comparison.

positive match (score 1). Corroboration of the results was obtained through DNA.

The second case is that of a body illegally exhumed by its family convinced they were the remains of their father. The remains were taken to the mortuary to verify the identity and, if positive, return the remains to the family. The sons of the missing person were invited to an interview to collect further AM data.

The missing person was 69 years old at the time of disappearance, had no broken bones, and all his teeth were complete. The sons did not know what he was wearing when last seen.

When showed the clothing associated to the remains, they did not identify any garment. When comparing the AM and PM data, it was clear that there were major inconsistencies. The remains were those of an adult male between 43 and 60 years of age at death and edentulous in the lower jaw. Based on the fact that there were no elements of correspondence besides the sex of the individual the case was declared as a negative match (score 3) and the remains were not returned to the family.

In the cases described above, comparisons are done manually. Because the DVI format was used in the first place, interfaces were generated to narrow down certain searches but not to carry out comparisons on multiple variables at the same time. When working with “events,” the sample is already reduced in number allowing manual and detailed comparisons of small data sets. Searches carried out in the database developed by the Peruvian Forensic Anthropology Team (EPAF) dwell heavily on the circumstances of disappearance or the event and progress into proper unmistakable biological characteristics such as age and sex. Further more general criteria are used then to narrow down the search and they refer to AM injuries such as fractures and dental characteristics. While in

other contexts these features would be individuating features, the way they may be referred to in the AM form may vary. For example, a common statement would be “he fell off a horse and hit the side; he had chest pain and difficulties to breathe; he applied pressure by tightening a piece of cloth around the chest.” The clinical correlates for such a statement are multiple; however, in skeletal terms they most likely would indicate rib fracture(s) on the side of impact. Likewise, dental descriptions also pose problems. It has been noticed that upon the first contact, the interviewee tends to idealized the missing relative by saying that “he/she had all their teeth and they were big and white”; this is generally a stark contrast with the state of teeth of victims that were never exposed to dental treatment or prophylaxis. Therefore, while the interview progresses the interviewer asks more specific questions regarding teeth and/or prostheses. A common question to introduce the subject would be “did he have teeth like a rabbit?” to indicate large central upper incisors or “did he have a hole between the upper teeth?” to indicate a diastema in the central upper incisors. Similar questions are used to introduce the subject of prostheses, “did he remove something from his mouth at some point of the day, during the evening perhaps?”; a positive answer would likely indicate a



FIG. 6—Fracture of nasal bone (Peruvian Forensic Anthropology Team).



FIG. 7—Supernumerary tooth (Peruvian Forensic Anthropology Team).



FIG. 8—Crowding and rotation (Peruvian Forensic Anthropology Team).





although it was not definite. The third individual has cluttered teeth, with some "overlapping" of teeth when the mouth was opened.

Upon analysis, the following equivalences were found. One individual had a depressed fracture of the left nasal bone with a visible deviation of the nasal septum (Fig. 6); the other had a supernumerary, impacted incisor, located lingually (Fig. 7), and the third had indeed some crowding of his upper and lower anterior teeth, with a central incisor clearly rotated (Fig. 8).

#### *Assessing Results: Clothing Exhibition versus DNA*

A set of 116 cases from Kosovo was presented in order to quantify clothing/artifact recognition through clothing exhibitions and DNA outcome. The cases represent a total of 53 "events." Number of victims varies between 1 and 14 per event. From a total of 116 cases, clothing/artifacts were identified in 84 (72.4%) of the cases. The same number of cases was corroborated through DNA testing. In 12 (10.34%) cases, clothing was not recognized but victims were identified through random DNA matching; in 16 (13.79%) cases, DNA disproved the presumptive identity of the victim; and in four cases (3.4%), identity was corroborated by DNA despite the lack of recognition of clothing from relatives (Table 1).

From a cross-cultural perspective, these patterns demonstrate that unidentified decedents are identified, even from a few pieces of clothing, long after death. The fact that these textiles had deteriorated did not inhibit witnesses from recognizing the items. The use of clothing to trigger the identification process was precluded in cases in which there was the possibility that clothing may have been exchanged while in detention. In those cases, recognition of clothes will assist us in including an individual in a pool of victims even if for the time being, we do not know who that person may be.

#### **Discussion and Conclusion**

While dental records, fingerprints, and DNA are favored over "traditional" methods, their use becomes negligible when there are no dental records and fingerprints with which to compare. As discussed, DNA testing is a commodity that not all countries can afford. A good example was presented by Petju et al. (11), in Thailand where 67.0% of foreign tsunami victims were identified through dental records while only 2.0% of Thai victims were identified using the same means. The latter was caused by the unavailability of AM dental records for Thai victims. Experts participating in traditional identifications must develop emic categories to transform objective physical features into recognizable categories by the family, or to do the opposite, to develop a system by which the expert translates the clues given by a family member into objective categories (ethic categories). The use of "traditional" techniques of identification has been used in the Balkans and elsewhere for over 10 years (12,13); its cost compared with DNA testing is negligible. By using some of the recommendations presented herein, it is possible to improve the quality of the identification process as well as reducing the margin error. DNA will however be a complement to doubtful cases or for those in which other information is available. This experience also points to the expanding role of forensic scientists (especially forensic anthropologists) in the different areas of the identification process, be this in the investigation into the event of disappearance or in the analysis of skeletal remains. This is

especially true in Third-World settings where there is a shortage of forensic personnel and resources to use more sophisticated technology.

While most of the results presented herein were obtained by the work carried out by the Office on Missing Persons and Forensics, the concept of operation can be adapted to other settings with similar or more severe technological limitations.

#### **Disclaimer**

This paper does not represent in whole or in part the views or opinions of the United Nations as a whole.

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