Dealing With Human Remains Sampled in Disaster Areas.The Case of the Israelian Embassy Explosion Ocurred in Buenos Aires.

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Introduction:

With the advent of the molecular techniques that allowed the comparison of individual-specific hypervariable DNA sequences (Jeffreys et al., 1985), introducing a dramatical conceptual change in forensic sciencse and so paternity testing, forensic identification of biological stains and human remains have become one of the frequent requirements made by the Justice to DNA typing laboratories in an increasing number of countries all around the world.The evolution of molecular identification techniques paralleled other advances in molecular biology. The Southern blotting approach (Southern, 1975) that allowed minisatellite analysis was more recently complemented by PCR technology (Mullis et al. 1988) which at its time permitted efficient evaluation of HLA alleles, microsatellite variants and mitochondrial DNA sequencing.

The combination of these techniques have made it possible to inditeficate even highly decayed or sever burned human remains at the molecular level. However, the extreme high sensivity of these methodologies require particular care during the collection and handling of samples to avoid all possible exogenous DNA contamination.

The present report evaluates possible causes of discrepancies that arose during the molecular analysis of human remains emerging after the explosion ocurred in the Israelian embassy of Buenos Aires, Argentina, on March 17th, 1992. The aim of this contribution is to propose criteria for evidence manipulation after catastrophes.

Materials and Methods.

Ten samples belonging to not certainly known number of human bodies (possible 8) were sent to our laboratory, two weeks after

the catastrophe. Sampling were taken between one and seven days, and the remains were kept in the morgue at 4°C. Small pieces of tissue of approximatelly 5 ml in volume were stored in polypropylene tubes and inmediately sent to our lab, and be frozen at -70°C. All samples were essayed for radioactivity with a Geiger Müller qualitative counter. DNA was extracted in sample of about 1 ml by means of the proteinase-k/SDS procedure followed by organic solvent extraction, and alcohol precipitation. The molecular characterization of the samples included sex determination by means of Y 3.4 probing *Hae III* digests and by SRY PCR amplification, YNH-24 (D2S44 Loccus) minisatellite typing (Nakamura et al., 1987), ARA, THO-1, FABP RENA4 and CD-4 short tandem repeat typing (Edwards et al., 1991, 1992a, 1992b), HLA DQα oligotyping (Tsuji et al.,1992) and D-Loop mitochondrial DNA (mtDNA) amplification and sequencing (Guinther et al., 1992).

Results and Discussion.

Most samples were burned putrid or both. Some of them exhibited variable degrees of radioactive contamination, but unfortunately we were unable to establish the radiation emitter. Almost complete molecular characterization was attained in 6 samples, 3 were poorly characterized and one impossible to valuate Two samples sayed of taken from the same body exhibited clear differences that were reflected in THO-1 microsatellites and mtDNA D-Loop region I sequence. These results obligated to review different sample collection levels after the catastrophe. The evaluation of photojournalist reports showed that: a) lots of volunteers helped in the rescue procedures. wearing rough non-disposable leather gloves, and b) human remains were placed in inadequate plastic bags. In addition, only ten samples were received for characterization, although more than ten cadavers were recognized. Did the samples we received belong to other cadavers?, did they belong to the already identified ones? These questions will never be responded, nor will the exact number of victims ever be known. Since the current molecular forensic methodologies are highly powerful in terms of their

discriminative potential, they are also highly sensitive to exogenous contaminations. On this basis we suggest some general outlines to be followed in case of disaster:

1- All people involved in rescue operations should wear two pairs of disposable gloves; the external one should be changed after contact with a human remains.

2- Any kind of Human remains should be placed separately in an appropiate eindividual disposable, sterile plastic bag.

3- In the morgue all samples should be washed with tap and distilled water and after blotting, should be frozen at -70°C or, at least, at -20°C.

4- All remains should be sampled for molecular analysis, even those recognized cadavers, wether mutilated or not. An adequate and efficient sampling procedure will allow to know the exact number of victims based on the molecular characterization of the remains.

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