Forensic Science International 280 (2017) 139–146

Contents lists available at ScienceDirect

Forensic Science International

journal homepage: www.elsevier.com/locate/forsciint

A potential contribution to human identification using peri-mortem trauma: An example from Peru

Jose P. Baraybar

Regional Forensic Coordinator, International Committee of the Red Cross, 10 Bis Passage d'Enfer, 75014 Paris, France

ARTICLE INFO

Article history:
Available online 21 September 2017

ABSTRACT

This is an exploratory study into the need for additional lines of forensic evidence in humanitarian cases using applied research. One hundred and twenty four, still unidentified terrorism inmates, were killed after surrendering to the Peruvian Army once it took control of the San Pedro-Lurigancho prison in Lima, Peru in 1986. Two questions are put forward: first, to what extent mechanism of injury (gunshot, blunt, sharp force) and bodily distribution of those injuries allow us to classify individuals into discrete sub-groups of people? The second question is to what respect can such a classification become an additional line of evidence assisting in generating hypotheses of identity regarding those individuals?

The analysis of the 109 recovered bodies and their associated evidence show a sub group of four individuals differentiated from the rest based on the combination of injuries (gunshot and blunt force trauma), opposing trajectories and weapons. While the results do not constitute *per se* proof of identity, they suggest that such a small group of people could have been singled out from the crowd and treated differently. Such information constitutes an additional line of evidence to formulate hypotheses of identity for certain individuals that could have been ring leaders/cadres of the Shining Path, a Maoist movement that started the Internal Armed Conflict (1980–2000) in Peru.

Any approach to the issue of persons whose identities were lost due to mass disasters, situations of internal or international armed conflict or other situations of violence should focus on their identification using every possible scientific mean; such an approach (humanitarian forensic action) is necessary to enforce the right to know of surviving relatives and dignify their memory as human beings [1–3].

The identification of remains is a comparative process in which one or more variables pertaining to an individual while alive is matched with those recorded in the remains being examined. While the identification process integrates all possible lines of evidence, the techniques themselves can be primary or secondary. Primary techniques consist of fingerprints, dental comparison and DNA testing [4–6]; secondary techniques assist on the other hand to establish the provenance placing an individual within a geographical area (i.e. isotopes) or a haplogroup [7–9]; the use of the context in which the remains were found is also useful to include or exclude an individual into or from. The combination of primary and secondary techniques at large is indispensable for any integrated approach to identify since specific techniques on their own may corroborate individual identity but not used alone identify an individual [10,11]. While recommendations of best practice to work in contexts with financial and technological limitations [12] have been proposed, it is a fact however that further research is necessary for providing elements to assist in the identification process under those conditions. More often than not, humanitarian forensic action occurs in contexts characterized by demands from surviving family members to identify their missing relatives and marred by multiple constraints including but not limited to, little or non-existent resources, absence of records and sometimes little contextual information. Considering that such situation is the norm rather than the exception [13], it is necessary to develop means derived from applied research to generate multiple lines of evidence (identifiers) that used in combination may shed light on the identity of the missing. In that respect "closed" cases, synchronic or context-specific events, where the group but not individual identity of the dead is known, could benefit from hypotheses based on such "identifiers". The present study points out the usefulness of these additional identifiers towards the identification of human remains. This exploratory study puts forward two rather unusual questions: first, to what extent mechanism of injury (gunshot, blunt, sharp force) and bodily distribution of those injuries allow us to classify individuals into discrete sub-groups of people? Second, to what respect can such a classification become an additional line of evidence

E-mail addresses: jpbaraybar@icrc.org, baraybarjp@gmail.com (J.P. Baraybar).

http://dx.doi.org/10.1016/j.forsciint.2017.08.034
0379-0738/

assisting in generating hypotheses of identity regarding those individuals?

1. A brief introduction to the historical context

The internal armed conflict in Peru lasted for twenty years and was formally initiated by the so-called Partido Comunista del Peru-Sendero Luminoso (Communist Party of Peru-Shining Path), a Maoist group that started the Internal Armed Conflict in Peru [14] in 1980. A couple of years later another insurgent group, Movimiento Revolucionario Tupac Amaru (MRTA) entered the scene [14]. The estimated toll of the conflict is over 60,000 people [14]. While the contemporary history of the Peruvian Internal Armed Conflict is too vast to go into much detail, the context for the case reviewed is established so that the interpretations are meaningful and clear. On June 18th 1986 during the meeting of the 3rd International Socialist Organization in Lima, Peru, inmates accused of terrorism in three prisons in the capital organized a simultaneous mutiny. Most of the inmates belonged to the "Shining Path" (SL), being also known however that among this population many were imprisoned without a formal trial [14]. On June 19th in an attempt to stop a Shining Path international media stunt, President Alan Garcia gave control of the three prisons to the armed forces (the Navy took control of the island prison of El Fronton, the Army of Lurigancho and the Air Force of Santa Barbara). The toll of the operation was 245 inmates dead (124 at Lurigancho, 119 at El Fronton and 2 at Santa Barbara; CVR [14]).

At Lurigancho inmates were housed in the so-called "industrial" block where they had entrenched themselves, reinforcing walls and sealing off windows; inmates were in possession of improvised weapons, such as slings, spear-throwers and sharp objects (Figs. 1–3). After negotiations failed to release the only hostage (a corrections officer), the Republican Guard (Guardia Republicana in charge at the time of the perimeter security of correctional facilities) and army commandoes blasted craters into the walls, entered the building and after a brief skirmish suffocated the mutiny. On the evening of June 19th the first official account of the events indicated that the death of the inmates occurred due to their unwillingness to leave the cellblock resulting in asphyxia and burns [14]. Shortly after the facts there was no mention of "crimes" but "excesses" (*excesos*). Conceptually the word is a euphemism referring to something that exceeds a tolerated amount; hence

Fig. 2. Dart thrower. Photo ©EPAF.

while during the operation to take the control of the prisons, it was expected that force would be used and as a consequence life could be loss. However the fact that at Lurigancho all the inmates in the pavilion died, exceeded the loss of life "expected" in such situation. Further investigations demonstrated however that upon taking control of the pavilion security personnel took inmates to the yard, forced them to lay face down, shot and killed them [14,15]. Ticona was "buried" in the cemetery of Puente Piedra (Lima) with death certificate number 398. While laying on the courtyard Ticona posed as dead after his fellow inmate was shot next to him; he got covered with blood and awaited until the Guardia Republicana

Fig. 1. Darts in pouch for dart-thrower. Photo ©EPAF.

Fig. 3. Sling. Photo ©EPAF.

(GR) left the area. When the trucks entered the prison to collect the bodies he managed to return to the still smoldering Industrial pavilion. He later managed to enter another pavilion for ordinary inmates. Ticona was released and arrested a few more times until his acquittal in 2010 [16], also see Ref. [15].

After the operation was over, the bodies were secretly buried in local cemeteries with names that in some cases belonged to the victims of the event, but not necessarily to the body being buried. A judgment of the Constitutional Court of Peru provided the legal basis to identify the remains of the Lurigancho inmates [17]. The Peruvian Forensic Anthropology Team (EPAF) was appointed as expert on behalf of the families of the deceased.

Based on the the analysis of the remainsthe present paper highlights the value of "unusual" identifiers, answering the following questions: first, to what extent mechanism of injury (gunshot, blunt, sharp force) and bodily distribution of those injuries allow us to classify individuals into discrete sub-groups of people? Second, in what respect can such a classification become an additional line of evidence assisting in generating hypotheses of identity regarding those individuals?

2. Materials and methods

2.1. The sample

The sample consists of 109 individuals; while the total death toll at the Lurigancho prison was 124, the remaining 15 bodies were not located. During the last two weeks of July 2013, the Prosecutor's Office carried out the exhumation of the remains. After the event the bodies and their associated artefacts were collected from the scene and put into coffins without any further manipulation (Fig. 1). No crime scene investigation followed the event, and bodies at the time of initial recovery from the prison grounds were not subject to medico-legal examination. The coffins were placed in cement niches in various cemeteries in and around Lima. The niches were sealed with a cement slab and a name was written on it. After an investigation prompted by a judgement from the Constitutional Court (2004) the remains were located and exhumed by the Prosecutor's office by breaking the cement slab sealing the niches and extracting the coffins. Once opened the remains were extracted and processed.

2.2. Conditions of the remains

Average temperature and humidity in Lima is 20 °C and 84% respectively. The hottest weather (22–26 °C) occurs between January and March and the coldest (15–20 °C) from June through October [18].

Such weather characteristics and the conditions of burial caused different states of preservation of the remains ranging from skeletonised to partially mummified, whereby dehydrated soft tissues covered some body parts (head, hands).

2.3. Determination of biological profile

Between July and October 2014 the Peruvian Forensic Anthropology Team (EPAF) carried out the anthropological analysis of the remains; age, sex, stature and individuating characteristics were recorded based standard anthropological techniques [19–22].

2.4. Trauma analysis and clothing

Examination of skeletal injuries and associated clothing was carried out as recommended by Kimmerle and Baraybar [23]. After general examination all fractured elements were reconstructed allowing determination of mechanism of injury. Gunshot injuries and blunt force trauma were determined by the existence of typical stigmata (Kimmerle and Baraybar [23]; Figs. 5 and 6). Clothing was cleaned with a soft brush and then extended on a table to detect any defects or features relevant to trauma interpretation. Specifically in cases of gunshot wounds, bony injuries where matched with clothing defects whenever possible to corroborate bodily trajectory.

3. Results

3.1. AM data

At Lurigancho official ante mortem records pertaining to the time inmates entered the correctional facility are absent; while physical examinations of prisoners was mandatory it rarely occurred. Penitentiary authorities did not have a record of how many inmates were in the "industrial" cellblock since they did not have access to it; deteriorating conditions of the prison environment caused severe changes to the prisoner's appearance such as decaying dental health and various types of ailments. Ante mortem information obtained by EPAF from family members is rather sketchy since it does not take into account the effects of their time in prison; the description of clothing and/or personal artefacts is also of limited use because of wear and tear as well as the exchange that could have occurred among inmates.

3.2. Age and sex

All individuals were young to middle aged adult males; 51% (n = 56) between 26–40 years of age at death, 32% above 40 years of age (n = 35) and 13% below 25 (n = 18; Fig. 4).

3.3. Trauma

Recorded trauma was caused by high and low velocity gunshot (100%, n = 109); and blunt force (37%, n = 40).

Blunt force trauma consisted primarily of direct impacts to the lateral aspects of the head while in the thorax multiple rib fractures caused by diffuse anterior compression of the chest or direct impact fractures along the paravertebral line or in the extremities (Fig. 6).

All individuals show at least one gunshot injury per anatomical segment and the number of injuries ranges from 1 to 14 per individual; in addition forty individuals show blunt force trauma, 22 on the head/neck and 18 on the thorax/abdomen segments.

The frequency and distribution of gunshot and blunt force trauma is presented in Figs. 7 and 8. In decreasing order gunshot wounds affect the head (90%), thorax/abdomen (59%), arms (41%)

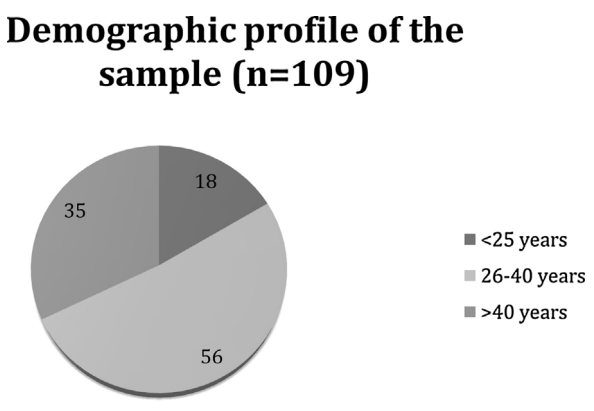

Fig. 4. Demographic distribution of the sample.

Fig. 5. Stigmata of gunshot wounds: entrance defects. Photo ©EPAF.

Fig. 6. Rib fractures caused by blunt force trauma to the antero-lateral side of the chest. Photo ©EPAF.

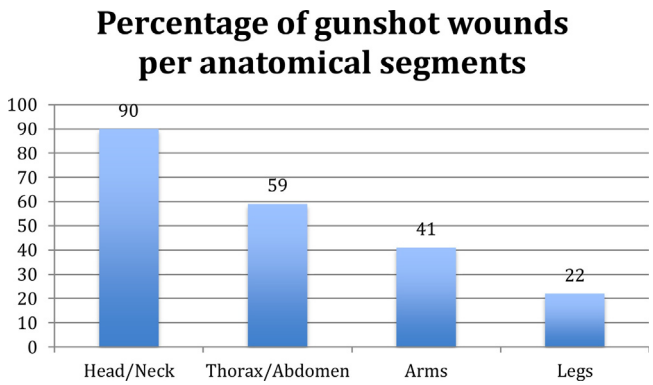

Fig. 7. Percentage of gunshot wounds per anatomical area.

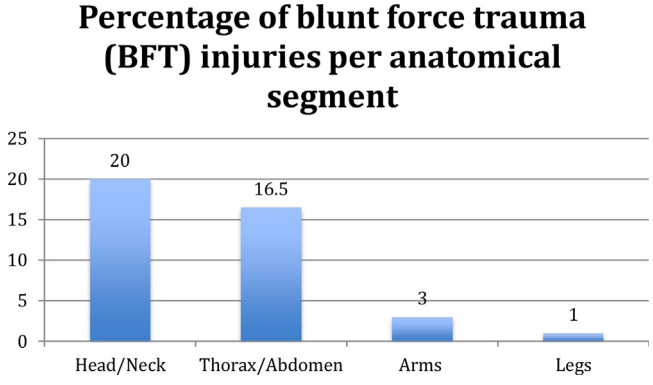

Fig. 8. Percentage of blunt force trauma injuries per anatomical area.

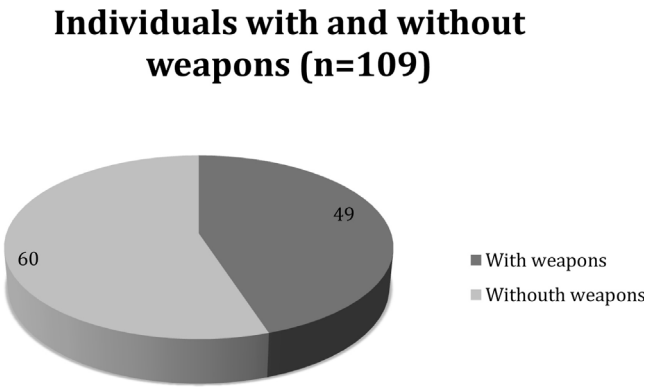

Fig. 9. Distribution of individuals with and without weapons.

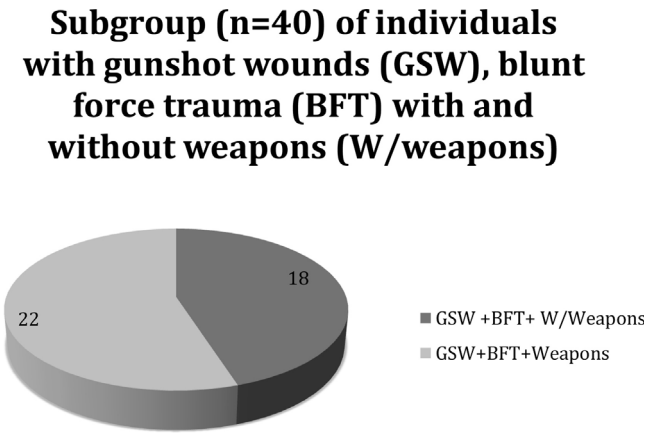

Fig. 10. Subgroup (n = 40) of individuals with GSW, BFT, with and without weapons.

and legs (22%); blunt force injuries show a similar pattern with the head (20%), thorax/abdomen (16.5%), arms (3%) and legs (1%).

Gunshot wounds to the head (n = 98) were from back to front in 68 cases (70%), front to back in 25 cases (25%) and 5 (5%) cases with other trajectories. Fifty-three individuals (49%) from the whole sample sustained gunshot wounds in more than one anatomical segment. The presence of weapons associated to the bodies is presented in Fig. 9.

Forty individuals (37%) sustained both gunshot and blunt force trauma; of that group 22 (20%) had weapons associated and 18 (16%) did not (Fig. 10).

The distribution of injuries in each of the groups (with weapons and without weapons) per mechanism of injury is not significant:

From the total sample (n = 109) eleven individuals (10%) sustained gunshot wounds through the head and chest but in opposite trajectories (i.e. from front to back and back to front; Table 1,Fig. 11a–c). From that subgroup of eleven, four also sustained blunt force trauma to the head or chest. Additionally all four were associated to weapons (Table 1).

4. Discussion

As mentioned previously at Lurigancho prison an unknown percentage of inmates were military and/or political cadres of the Shining Path (PCP-SLSL) and an unknown percentage were innocent individuals wrongfully detained under terrorism charges (a similar situation occurred at the island prison of El Fronton; see Ref. [14]. One hypothesis not tested to date, is whether the act of killing all prisoners after surrendering at Lurigancho was a mere act of vengeance from security forces which comrades died at the hands of SL militants in the past, but a means of weakening the organization's leadership by killing their cadres. According to that logic, individual identity (i.e. demonstrated affiliation with SL) would result in receiving a differential treatment from the rest of inmates. A recent testimony by one of the perpetrators of the killings may shed light on the matter. Jose La Madrid Ponce, a now retired Army major who participated in the operation, refers that "Rabanal gave me a list of twenty or thirty people who had to be eliminated. The list was headed by Antonio Diaz Martínez (considered to be an ideologue of Sendero Luminoso), and Rabanal told me: They have to verify that they do not survive" [24]. General Jorge Rabanal Portilla was in charge of the Guardia Republicana during the operation.

The first condition for this hypothesis to be tested is that certain individuals are differentiated from the rest of the group based primarily on mechanism of injury (i.e. GSW and BFT) considering that different actions are required to cause one or the other type of injury (it is possible to cause a blunt force trauma with a firearm, however a gunshot wound can only be caused by a firearm); and secondarily on the association to weapons. There is no significant difference in injury distribution between individuals with and without weapons. Fifty-three (49%) individuals sustained gunshot wounds in more than one anatomical segment while forty (37%) individuals sustained both gunshot and blunt force trauma in different anatomical segments. The group of forty individuals that sustained both GSW and BFT injuries (22 with weapons and 18 without) was analysed further to determine whether there were attributes that allowed for further discrimination.

Considering inmates were laying facing down on the floor, their movement was obviously restricted and logic dictates they should have been shot from the back or the front if turned facing up. A subgroup of 11 individuals (from this group) showed opposing GSW trajectories (i.e. from back to front and front to back); further examination of the subgroup points to four individuals meeting all

Table 1
Eleven individuals (10%) that sustained gunshot wounds through the head and chest but in opposite trajectories; also sustained BFT and some were associated to weapons.

Case	Trajectory H/N	Trajectory thorax/abdomen	GSW arms	GSW legs	BFT_H/N	BFT_T/A	BFT_Arms	BFT_Legs	Weapons
PN1	A-P	P-A	1	0	0	0	0	0	Yes
PN2	A-P	P-A	1	0	0	0	0	0	Yes
PN3	A-P	P-A	1	2	0	0	0	0	Yes
PN4	A-P	P-A	0	0	1	0	0	0	Yes
PN5	A-P	P-A	1	0	1	0	0	0	Yes
PN6	P-A	A-P	4	1	1	0	0	0	Yes
PN7	A-P	P-A	1	0	0	1	0	0	Yes
PN8	P-A	A-P	0	0	0	0	0	0	No
PN9	A-P	P-A	0	0	0	0	0	0	No
PN10	A-P	P-A	0	0	0	0	0	0	No
PN11	P-A	A-P	0	0	0	0	0	0	No

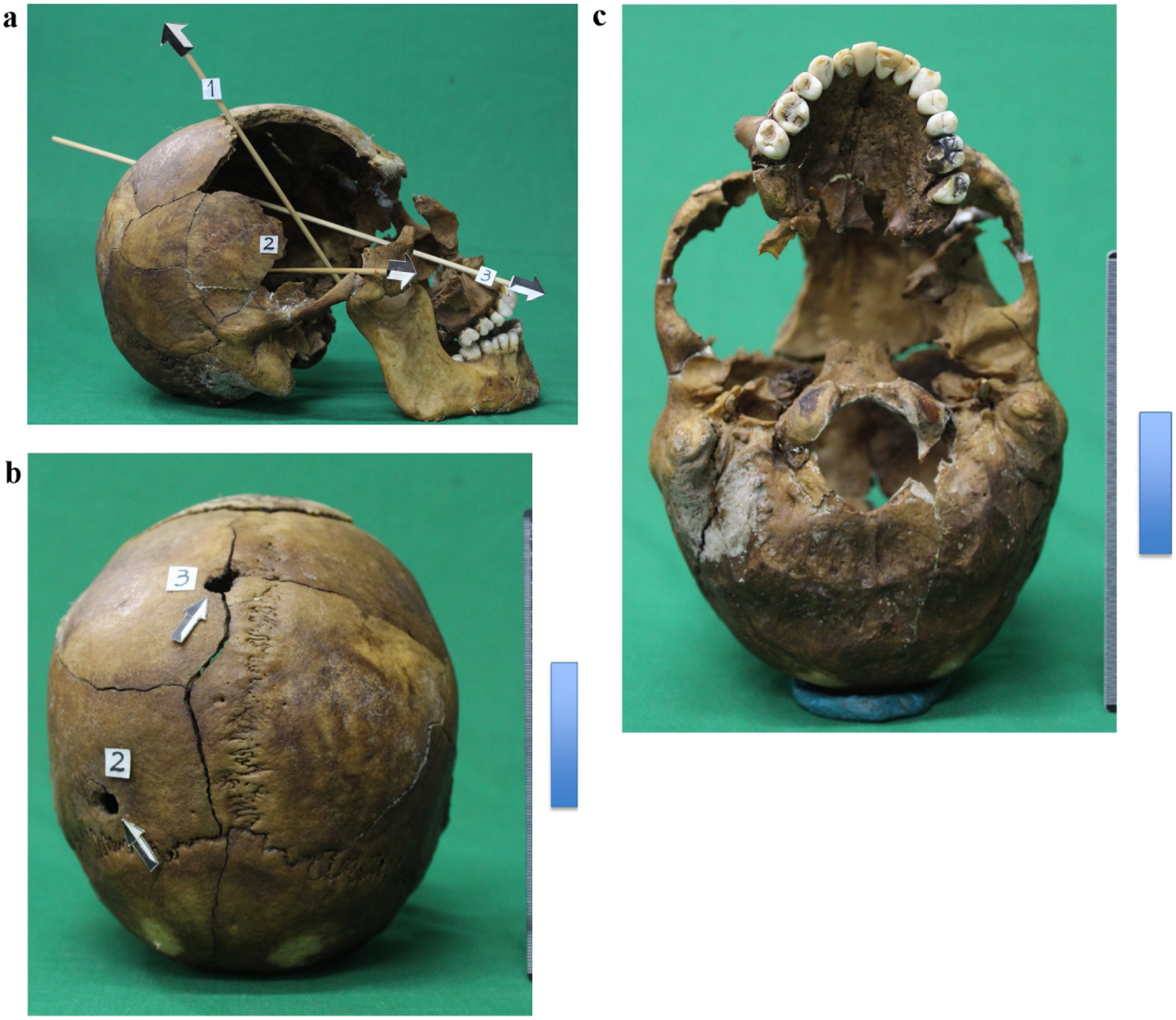

Fig. 11. (a) High velocity gunshot wounds through the head. Injuries labeled as 2 and 3 run from back to front, while injury 1 penetrates anterior to the neck and exits through a composite defect on the right fronto-temporal. Photo © EPAF. (b) High velocity GSW through the head. Posterior views. Photo © EPAF.(c) High velocity GSW through the head. View of the base. Injury 1 penetrates in the area anterior to *pars basilaris*. Photo © EPAF.

criteria (mechanism of injury, anatomical segments affected, trajectory and weapons). The latter suggests a very stratified distribution better represented graphically (Fig. 12).

Based on the analysis it remains clear that a discrete group of people showed a combination of injuries and characteristics of those injuries are different from the rest of the sample. It is argued that such characteristics could have been linked to their identity (i.e. being a cadre of the SL). According to the testimony of one of the commanding officers of the event, a list including one of the top leaders in prison had been drafted beforehand, hence it is proposed that such a small group of individuals characterised by a specific combination of injuries could have been pat of the ring leaders of the organization. No similar studies have yet attempted using peri mortem trauma to generate "identifiers"; similar studies however in an individual scale have used skeletal pathology as attributes of individual identification [25]; also see recommendations in Ref. [26].

5. Conclusions

This study possesses inherent limitations. The first is the actual identity of the deceased; as explained earlier, it is an almost unsolvable issue considering the myriad of problems surrounding the case and hence the need to produce additional lines of evidence. It is also clear that if the deceased were identified the hypothesis put forward in this study could be easily accepted or rejected. The second regards the integrity of the sample (109 of 124 bodies) and the fact that no criminalistics or medico-legal investigation took place after the events; hence associations or artifacts (i.e. weapons) to the bodies cannot be determined as primary or secondary. The study reflects however real constraints that challenge the role of science and scientists in contexts were a number of negative factors such as politics, economic constraints and limited information interact (see also Ref. [13]. While the results presented do not constitute *per se* proof of identity, they highlight the importance of using yet another line of study that

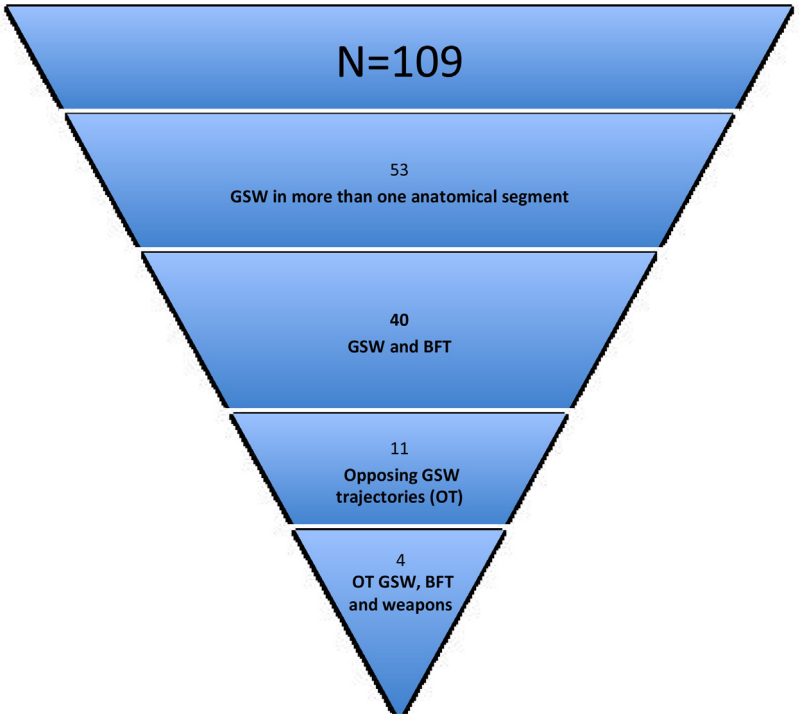

Fig. 12. Stratified distribution of individuals with attributes such as GSW, opposing gunshot wounds (GSW) trajectories, blunt force trauma (BFT) and weapons.

shows a well separated group of individuals from the rest of the sample; considering the contextual and testimonial information provided (testimony of survivor and perpetrator) this approach generate an independent line of evidence that may guide the collection of ante mortem data and/or biological reference samples from families of Shining Path cadres. Such an approach is useful however considering the challenges dealt with in a situation were the political affiliation of the deceased does not rally immediate support nor funding to carry out more expensive procedures such as DNA testing is available.

Acknowledgments

My sincere gratitude to all EPAF members and international invitees that worked in this complex case. My deepest thanks to EPAF team members Franco Mora, Oscar Loyola, Percy Rojas and Valeska Martinez. Also to international invitees from Brazil, Mexico the United Kingdom, Colombia, Peruvian and Chilean students, Patricia Fisher, Roxana Farias, Sarah Livesey, Maria Francisca Pineda, Catherine Marulanda, Francisco Reyes, Andrea Loyola, Joaquin Varas, Macarena Ibacache, Ana Lucia Nunez, Andres Inchaustegui, Daniela Carrasco, Soledad Samame, Mary Navia y Claudia Roque. The revised version of this article benefited greatly from the comments by Ms. Shuala S Martin, Dr.Rafael de Abreu e Souza, Dr. Erin H Kimmerle, Dr. Maria Dolores Morcillo, Dr. Sara Casado Zapico and two anonymous reviewers.

The article reflects the views of the author alone and not necessarily those of the ICRC.

References

[1] M. Crettol, A.M. La Rosa, The Missing and International Review of the Red Cross. www.icrc.org/eng/assets/files/other/irrc_862_crettol-larosa.pdf.
[2] D. Groom, Right to Know: Its Distinction from the Right to Truth, (2015) Available at SSRN: https://ssrn.com/abstract=2660886.
[3] M. Tidball-Binz, Global forensic science and the search for the dead and missing from armed conflict: the perspective of the International Committee of the Red Cross, in: D.H. Ubelaker (Ed.), Forensic Science: Current Issues, Future Directions, John Wiley and Sons, 2012, pp. 337–365 Chapter 13.
[4] ICRC, Missing People, DNA Analysis and Identification of Human Remains: A Guide to Best Practice in Armed Conflicts and Other Situations of Armed Violenc, 2nd edition, (2009) .
[5] Interpol Disaster Victim Identification Guide, 2014. Available at: http://www.interpol.int/INTERPOL-expertise/Forensics/DVI-Pages/DVI-guide.
[6] I.A. Pretty, D. Sweet, A look at forensic dentistry — part 1: the role of teeth in the determination of human identity? Br. Dent. J. 190 (7) (2001) 359–366.
[7] A. Brandstätter, T.J. Parsons, W. Parsons, Rapid screening of mtDNA coding region SNPs for the identification of west European Caucasian haplogroups, Int. J. Legal Med. 117 (2003) 291–298.
[8] A. Brandstätter, C.T. Peterson, J.A. Irwin, S. Mpoke, D.K. Koech, W. Parson, T.J. Parsons, Mitochondrial DNA control region sequences from Nairobi (Kenya): inferring phylogenetic parameters for the establishment of a forensic database, Int. J. Legal Med. 118 (5) (2004) 294–306.
[9] T. Muro, R. Iida, J. Fujihara, T. Yasuda, Y. Watanabe, S. Imamura, H. Nakamura, K. Kimura-Kataoka, I. Yuasa, T. Toga, H. Takeshita, Simultaneous determination of seven informative Y chromosome SNPs to differentiate East Asian, European, and African populations, Legal Med. (Tokyo) 13 (3) (2011) 134–141.
[10] J.P. Baraybar, F. Mora, Forensic archaeology in Peru: between science and Human Rights activism, in: W.J. Mike Groen, Nicholas Márquez-Grant, Robert C. Janaway (Eds.), Forensic Archaeology: A Global Perspective, John Wiley and Sons ltd., 2015, pp. 463–469.
[11] M.E. Keough, T. Simmons, M. Samuels, Missing persons in post0-conflict settings: best practices for integrating psychosocial and scientific approaches, Perspect. Public Health 124 (6) (2004) 271–275.
[12] J.P. Baraybar, When DNA is not available, can we still identify people? Recommendations for best practice, J. Forensic Sci. 53 (2008) 533–540.
[13] J.P. Baraybar, R. Blackwell, Where are they? Forensics, missing and memory, Ann. Anthropol. Pract. 38 (2014) 22–42 John Wiley and sons ltd..
[14] Truth and Reconciliation Commission (CVR) 2003. http://www.cverdad.org.pe/ifinal/pdf/TOMO%20VII/Casos%20Ilustrativos-UIE/2.67.FRONTON%20Y%20LURIGANCHO.pdf. (Accessed 15 September 2016).
[15] R. Uceda, Muerte en el Pentagonito: los cementerios secretos del Ejercito Peruano, Editorial Planeta, Colombia, 2004.
[16] R. Uceda, El hombre que debia morir, (2014) Available at: http://larepublica.pe/11-03-2014/el-hombre-que-debia-morir; (Accessed 11 April2017).
[17] Sentencia del Tribunal Constitucional, EXP.N.° 2529-2003-HC/TC LIMA, PETER CRUZ CHA'VEZ, (2004) Available at: http://www.legal-tools.org/doc/7a6b16/pdf/; (Accessed 12 April 2017).
[18] Weatherbase.com (nd). http://www.weatherbase.com/weather/weather.php3?s=82648&cityname=Lima-Lima-Peru&units=metric. (Accessed 12 April 2017).
[19] Standards for Data Collection from Human Skeletal Remains, in: J.E. Buikstra, D.H. Ubelaker (Eds.), Arkansas Archeological Survey Research Series No. 44, Fayetteville, 1994.
[20] A.R. Klales, S.D. Ousley, J.M. Vollner, Revised method of sexing the human innominate using phenice's nonmetric traits and statistical methods, Am. J. Phys. Anthropol 149 (2012) 104–114.

[21] E.A. Di Gangi, J.D. Bethard, E.H. Kimmerle, L.W. Konigsberg, A new method for estimating age-at-death from the first rib, Am. J. Phys. Anthropol. 2 (2009) 164–176.
[22] A. Schmitt, Une nouvelle méthode pour estimer l'âge au décès des adultes à partir de la surface sacro-pelvienne iliaque, Bulletins et mémoires de la Société d'Anthropologie de Paris 17 (1–2) (2005). Available at: http://bmsap.revues.org/943.
[23] E.H. Kimmerle, J.P. Baraybar, Skeletal Trauma: Identification of Injuries Resulting from Human Rights Abuse and Armed Conflict, CRC Press, 2008.
[24] A. Calderon Otoya, Garcia dio la orden de matar en Lurigancho, (2015) Available at: https://groups.google.com/forum/#!msg/acontecer-politico/jAe9i4AsqCo/dXQFzCxuxIoJ. (Accessed 11 April 2017).
[25] W. Maples, The identifying pathology, in: T.A. Rathbun, J.E. Buikstra (Eds.), Human Identification: Cases Studies in Forensic Anthropology, Charles C. Thomas, Springfield, IL, 1984, pp. 363–370.
[26] E. Cunha, Pathology as a factor of personal identity in forensic anthropology, in: A. Schmitt, E. Cunha, J. Pinheiro (Eds.), Forensic Anthropology and Medicine, Humana Press Inc., Totowa, NJ, 2006, pp. 333–358.