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RESEARCH ARTICLE

Forensic Semiology: An Applied Methodological Perspective on Human Identification

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ABSTRACT: To improve practice and increase the quality of human identification processes, this article proposes a methodological framework and interview to facilitate the recovery of antemortem information about ailments, illnesses, and injuries, referred to as forensic semiology. The proposal is based on experience working on the intervention at the Parish Cemetery in Penco, Chile.

Twenty-eight cases, which correspond to a total of 61 interviews, were analyzed through a diachronic comparison of content during the 2010–2016 period. The qualitative and quantitative analyses of the semiology interview demonstrate an increase in the quantity and quality of supplementary information in the process of human identification based on skeletal remains.

KEYWORDS: forensic semiology, methodology, antemortem interview

Background

In the Parish Cemetery of Penco (CPP, for its initials in Spanish), in the region of Biobío, Chile, a landslide of small niches (graves) occurred following the 2010 earthquake (Gaytán 2010; Guerra & Reyes 2012; Reyes 2011). The burial niches contained around 400 individuals in different states of decomposition, although the majority were skeletonized.

Of these 400 individuals, approximately 100 were identified by relatives in the days following the landslide. The remaining 300 bodies[1] were organized and analyzed by a team of volunteer anthropology students and professionals, under the parameters of forensic anthropology.[2] The other component of the disaster[3] is represented by the approximately 203 families who are demanding the identification and return of their deceased loved ones. As such, the main objective of the intervention was to reestablish the material bond between family members and the deceased, through the identification of skeletonized corpses, following scientific standards of forensic anthropology.

Human identification[4] based on skeletal remains is a comparative process that developed due to various factors (natural disasters, common crimes, among others), which can alter or make difficult the recognition of a person's identity. In the human identification project in the CPP, an epistemological-methodological type problem emerged in the collection and management of antemortem[5] and postmortem[6] information, and subsequent comparison, which draws on the information provided by the victim's social circle.[7] It is in the process of capturing and interpreting the information where the proposal of the investigation is situated, denominated forensic semiology, theoretical-methodological interpretation that facilitates analyzing information provided in the antemortem interview. This investigation emphasizes diseases, injuries and afflictions, analyzing 28 cases. The research question is: "In what way is the forensic semiology approach useful in the process of human identification,

1. The exact number of individuals is 388, of which there are duplicated individuals due to the fact that various bodies lost their anatomical continuity following the landslide. It was estimated that there were around 300 unidentified bodies after cross-checking the cemetery administration's books.

2. Even though the intervention was conducted according to forensic standards, it is important to emphasize that there are no judicial processes associated with these cases.

3. Defined as "disruption of the functioning of a community (. . .) that exceeds the ability of a community or affected society to deal with" (Boer et al. 2018:2).

4. Identity is not specifically defined, but rather refers to the condition necessary for a process of knowing the "other" (Vera 2002). Understanding what is intended by the concept "identity," the act of identification as such corresponds to establishing said identity (Thompson & Black 2007).

5. Social profile of the individual, as illustrated in the narrative of the victim's family members and friends.

6. Biological profile of the individual as revealed in the skeletal remains of the presumed victim.

7. Person that suffers harm due to the actions of another person or a chance accident.

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specifically in the context of the Penco Parish Cemetery in Biobío, Chile?"[8]

Interviews carried out in a first stage between 2010 and 2013 were analyzed in comparison with interviews conducted in 2016 using an approach based in forensic semiology, according to interview guidelines. The comparison demonstrates the role of a strategy contextualized in the collection of antemortem information, in addition to methodological aspects of the procedure.

Forensic Semiology

There is a constant concern to improve and increase the scientific standards of forensic anthropology, which translates into reevaluating the discipline from a theoretical, methodological, and technical perspective (Dirkmaat & Cabo 2012). To optimize the human identification process and increase quality standards (Fleischman et al. 2019), we propose a reevaluation of the recovery and analysis of antemortem information. As a result, we link clinical semiology[9] to the interpretation of afflictions, diseases and injuries suffered by the unidentified deceased person, from whom antemortem information must be collected to reconstruct his or her social identity. Physical anthropology studies disease, allowing experts to infer the operation of multiple environmental and cultural factors from a bone injury (Ramírez 2007). Therefore, it is possible to consider this kind of modification a distinguishing feature in the process of identification based on skeletal remains (Barreto et al. 2005; Boer et al. 2018).

Highly regarded among interpretive trends (Ramírez 2007), semiology is a tool that permits one to name a phenomenon based on its (symbolic) meaning. From a clinical semiology perspective, Gazitúa (2017) considers it the application of an interview with the patient, where information about signs and symptoms of a possible disease are gathered, including sociocultural factors that affect this understanding.

In addition, semiology refers to the possibility that the sick person may not be able to communicate, in which case family members or close friends who have information about signs and symptoms of the illness will be interviewed. The diagnosis will be constructed based on narrative information and the physical examination, conditions that are similar to an antemortem interview.

Despite its contributions, the focus of clinical semiology does not adapt fully to the problems that characterize processes of human identification. Generally, in such contexts, communities have fewer economic resources, are deprived of human rights, are indigenous and/or rural populations without access to health and education, all of which make obtaining dental or biomedical records difficult (Barreto et al. 2005; Salado n.d.).

In addition, it should be considered that a relative of the deceased person participate in the interview to verify a process related to illness, injury or ailment, a person who can provide important pathological information, beyond expressing or communicating the symptomatology and immediate social context. This ability to recall illness is mediated by the relatives' memory (EMAF 2016), and given the marginal social status of the person (Guglielmucci 2017), it is difficult to carry out the identification process.

Therefore, the term forensic semiology is inspired by clinical semiology focused on disease processes and interpretations of symptoms and signs. This includes communicative abilities in the medical interview (Gazitúa 2017; Rodríguez et al. 2009), the interdisciplinary vision shared with anthropology in the formation of the subject's holistic comprehension abilities at the time of the interview, and the possession of knowledge linked to processes of suffering and disease (Olivero & Barráez 2011).

The ethnographic focus, then, considers the researcher the primary instrument, guiding the approach to the field and subjects of study, from unknown to identified (Guber 2011). This focus becomes useful when dealing with diverse sociocultural contexts, in which various tools from the social sciences are required to collect antemortem testimonies (Barreto et al. 2005).

Human Identification and Antemortem Information

Processes of human identification are characterized according to the causes that lead to the loss of identity. However, the most complex cases emerge when the bodies are in an advanced state of decomposition or skeletonized.

Forensic anthropology represents the application of anthropological knowledge and methodology to medical-legal issues, which include detection, recovery and analysis of human skeletal remains (Ubelaker 2019). Information about the individual, along with antemortem information, allows researchers to identify the individual (Ubelaker et al. 2018).

Humanistic disciplines with expertise in conducting interviews collect antemortem information as part of the preliminary investigation (Barreto et al. 2005; Cardoza 2017; Guglielmucci 2017; EMAF 2016; Instituto Nacional de Medicina Legal y Ciencias Forenses 2016). However, this is not always the case (CICR 2014a, 2014b). The collection of

8. This originated in the process of the master's thesis under the supervision of Dr. Omar A. Barriga and co-director Mg. Ricardo Gomes, in the program "Social Research and Development," Universidad de Concepción, Chile.

9. Clinical semiology is defined as the science that studies signs and symptoms of illnesses, in which symptoms are considered subjectivities of the illness and signs objective manifestations. Semiology proposes arriving at a diagnosis by examining the diverse manifestations that a particular illness may cause (Gazitúa 2017).

antemortem information should be carried out by qualified persons, specifically those trained in the social sciences (Barreto et al. 2005; EMAF 2016; Instituto Nacional de Medicina Legal y Ciencias Forenses 2016), who construct a narrative of the disappeared individual while the person was alive, relative to their physical, medical and personal characteristics. This narrative is fundamental to the process of identification, given that along with the postmortem information (sex, age, stature and individual features of the skeleton), the information is analyzed in the search for disappeared persons (Instituto Nacional de Medicina Legal y Ciencias Forenses 2016). Therefore, the scientific process of identification requires a variety of multidisciplinary techniques which make identification possible by linking the body with a pre-existing identity (Guglielmucci 2017).

Assigning an identity to a dead body is a sociocultural necessity which comes from the rituality surrounding the individual change of state, but which is collectively agreed-upon and denominated a "rite of passage" (Van Gennep 2008). An individual's death will have effects on her social context, beyond carrying varied cultural meanings which anthropology can help to comprehend (Cartay 2002; Thomas 1991).

However, in contexts in which the body of the deceased person disappears, the survivors generate new strategies to confront the problem of the person's death given that it is impossible to carry out socially established funerary rites (Panizo 2011). Beyond the benefit it may bring to the deceased individual, these rituals allow her relatives to reintegrate into society (Panizo 2011; Pérez 2010; Thomas 1991; Van Gennep 2008).

Forensic Anthropology in Latin America and Chile

During the last thirty years, forensic anthropology has become an alternative for the families that have lost their loved ones under diverse circumstances (Aranguren & León 2020). The process of collecting memories of each victim and of the community (Cardoza 2017), and the participation of forensic experts in the identification of bodies promote the restitution of rights, human dignity and the possibility of mourning and justice (Huffschmid 2019).

During the 1980s Dr. Clyde Snow, an American anthropologist, was appointed to collaborate in cases of human rights violations, supporting the formation of local forensic anthropology teams, with Argentina and Chile pioneering this effort (Asociación latinoamericana de antropología forense [ALAF] 2016). Social anthropologists and archaeologists formed work teams with the goal of contributing to the clarification of truth and justice. Supported by Dr. Snow, they worked in complex sociopolitical environments in Latin American countries which suffered under violent military dictatorships (Dutrénit 2012).

In Chile, forensic anthropology began in response to the need to contribute to the search, recovery and identification of victims illegally buried in the context of the military dictatorship that governed the country from 1973 to 1990. The Forensic Anthropologists Group (GAF, for its initials in Spanish) was formed in 1989 (Padilla & Reveco 2004; Bustos & Intriago 2015). The team worked until 1994, when it dissolved due to a lack of participants.

Now the work of identifying victims is done by the "Special Forensic Identification Unit," a multidisciplinary body created in 2003 and affiliated with the Medical Legal Service of Chile. The unit has been focused on investigating cases of human rights violations, and over time, it has assumed the tasks of "search and recovery, identification of unknown victims, verification of identity, cause of death, repatriation and posthumous paternity" (Garrido & Itriago 2012, p. 37). Additionally, it has compiled a database of centralized antemortem and postmortem information and maintains contact with victims' families (Bustos & Intriago 2015).

In November 2019, a group of forensic anthropologists called the "Chilean Forensic Anthropology and Human Rights Team"[10] (ECHAF, for its initials in Spanish) was created, which proposed forming a non-governmental and non-profit body amid the social unrest in the country. They draw on their expertise as forensic anthropologists to solve cases of human rights violations, as well as contribute to legal processes and truth and reparation efforts. Concrete information about their work does not exist yet given its recent formation.

Methodology

Methodological Assumptions in the Process of Human Identification in the Parish Cemetery of Penco (CPP), Biobío Region, Chile

This investigation has an argumentative focus, with the objective of comprehending and validating a technique, combined with the analysis of qualitative information (Table 1) through a diachronic and applied comparison. It arose as a proposal around the reevaluation of the technique employed in the collection of antemortem information in the context of the CPP, and how this information is useful in human identification processes. The context is characterized as an intervention that bases its results on the use of traditional forensic anthropology techniques (Barreto et al. 2005; Cardoza 2017; Guglielmucci 2017; Instituto Nacional de Medicina Legal y Ciencias Forenses 2016), given the absence of resources to implement DNA extraction. As a result, the intervention has been carried out in a systematic and orderly way, drawing on

10. https://echaf.cl/.

TABLE 1—*Comparison of categorical data from D2 (2010—2013) and ESF (2016) interview types, and qualitative comparison of information.*

D2 Interview	D2 interview responses	ESF Interview	ESF Interview Responses	Result of qualitative comparison of information
Characteristic feature of deceased (defect)	Permanently maimed finger on left hand. Appears as a lifted finger, probable nerve damage from accident	Specific physical features of the deceased	-	Misinterpretation of traumatic injury as defect
Traumatic injury of the deceased	-	The deceased showed signs of fractures and accidents suffered	accident, had problems on one finger, which was stiff, scar on forehead and on a frontal rib (which side not recalled) due to a drunken fall	Information corresponds to analysis categories
Deceased complained of pain in spine and bones	-	Deceased complained of pain or suffering	no	Lacking information versus "no" response
Deceased person's life activities	soccer (childhood and adolescence), boxing (18–19 years) sporadic military service (18–19), loading and unloading at grocery store (26 years and after), *tejo* club	Primary occupation of deceased	various jobs, alcoholism did not permit him to maintain employment	The activities mentioned match. The timeline of activities undertaken was specified in the second interview, along with the context in which they were carried out.
		Other occupations carried out by deceased	Military service at 18, cutting wood, odd jobs, boxer for 4 years starting at 18, played soccer occasionally, dockworker-sporadic loading/unloading at port	
		Other activities that may have caused tension in the body of the deceased	-	
Illnesses suffered by the deceased	alcoholism	Suffering of deceased from important illness	no, alcoholism only	Same information
		Other medical observations about deceased	-	
Other	-	Surgeries performed on deceased	no	First interview did not include categories, information was specified in second interview
		Deceased had amputations	no	
		Deceased had implants	no	
		Deceased had orthopedic prosthesis	no	
Date interview conducted	March 23, 2010	Date interview conducted	June 29, 2016	Information current
Interviewer	No information	Interviewer	Name of interviewer obtained	Information specified in second interview

all the evidence available about the individual who lost his identity, information from the preliminary forensic investigation in addition to postmortem information, which comprise the findings of the forensic anthropological analysis of the body (ALAF 2016).

In constructing the osteo-biographical profile of the deceased person, researchers should consider that not all the pathologies in an individual's life have a direct relationship with the skeletal system, so the individual's pathological biography will be limited under this premise (Ortner 2011). In addition, as was previously mentioned, the construction of the osteopathological profile is carried out by relatives and associates of the deceased, a process mediated by diverse factors that can diminish and even obviate pathological conditions or injuries that the individual suffered during her life.

As a result, Baraybar (2008) proposes the utility of the categories EMIC[11] y ETIC[12] in the gathering of antemortem and postmortem information, and subsequent comparison of the two kinds of information. At the same time, the Mexican Forensic Anthropology Team (EMAF 2016) mentions the conduct of a forensic expert as "translating and systematizing" the information that the families provide (32). Within the information provided, based on the physical and

11. EMIC Category: objective physical features translated into categories recognizable by the relatives.

12. ETIC Category: translation of information provided by relatives and witnesses into objective categories.

sociocultural evidence about the individual to be identified there are predetermined parameters on which the two should agree. This process should be mediated by standardized language in both antemortem and postmortem information. In the case of the CPP, this means using postmortem interview form and a forensic semiology interview, the latter of which is described in the following section.

Designing a Forensic Semiology Interview

The interview was designed following the questionnaire on antemortem information (version 1.0) prepared by the International Committee of the Red Cross (CICR n.d.), which lays out the components of antemortem interviews. However, this is a generic form for cases in which the bodies have soft tissue and are not skeletonized. The form incorporates considerations about the directionality of the questions to be asked by the interviewer, which was adjusted to the format created for the intervention in the CPP, and its possible use in other contexts of human identification based on skeletal remains.

The interview guide, called "Guide for the collection of antemortem information," consists of a brief introduction that describes its purpose, in addition to describing formal aspects related to the interview context, information about the interviewee that should be recorded, and technical aspects like general observations and audio recording.

During the interview, information is documented about the relative or close associate who attends the meeting with the researcher, to gather information about the deceased person that they seek to identify. This includes information about the context of the interview (location, interviewer, date and case sheet); information about the interviewee; physical and medical information about the deceased, and situations that may have generated stress or reconstruction of the skeletal system; a section on clothing and funerary objects; perception of the interviewee about the process; and technical information about the interview (submission of documentation by the family, final observations, missing information, recording of the session). The interview is semi-structured to generate a pattern of conversation, but the ethnographic focus applied by the interviewer emerges within each item. Annex 1 includes a guide for the collection of antemortem information and the interview.

Sample and Processing of Information

The sample corresponds to 61 interviews, of which 32, named D2 interviews, include secondary information provided by the anthropological intervention team in the CPP, collected between March 2010 and January 2013. A second period (June–September 2016) includes the use of the forensic semiology interview (ESF, for its initials in Spanish) in 29 interviews. The cases considered in the sample were those that included D2 interviews and interviews with a forensic semiology focus.

Researchers analyzed a total of 28 cases, and in some cases, more than one interview was conducted. The age distribution of the deceased is between 46 and 98 years old, among 17 male and 11 female individuals. Because the investigations are ongoing, the information is confidential. Among the limitations of the sample, it is worth mentioning that the number of forensic semiology interviews depends on the families' availability to participate in them. As a result, it was not possible to apply the methodological instrument to all the interviewed families in the first stages of the intervention.

The data analysis was carried out by designing a qualitative thematic grid based on the interview categories D2 and ESF, as well as comparing them across time (Table 1). The categories of analysis correspond to the topics addressed— illnesses, injuries, ailments and interview context. The independent variables correspond to the instruments used (D2-ESF). The coding, available in Table 2, shows whether information was missing or available, which may or may not coincide with the category of analysis as laid out in the interview.

"Specified information" refers to an increase in information, and "misinterpreted information" indicates an inconsistency between the information provided in the interview and the category of analysis. An example of misinterpreted data is evident in Table 1, where a possible stiffness in the finger following an accident is listed as a congenital feature because it had been included in the traumatic injury category. The qualitative assessment of the information is evident in the comparison among percentages of the coded information (Table 3). Finally, the chi-squared test is employed to evaluate the dependence among categorical variables according to type of interview used, using a p-value of < 0.05.

Results and Analysis

The results of the chi-squared test show the dependence of the analyzed variables based on interview employed (either the D2 interview or forensic semiology interview) for all cases. The analysis and discussion by category according to percentage results follow.

1. Characteristic feature or specific physical defect/feature: A general tendency emerged in the responses during D2 interviews to leave the analyzed categories without information (Table 3). In the interviews using the forensic semiology instrument, the interviewers were instructed to record all kinds of information, which later could be evaluated by the team performing the osteological analysis. The distinction is reflected in the category of physical

TABLE 2—*Numerical coding of categories analyzed in D2 antemortem interview and forensic semiology interview (ESF).*

D2 Index card	ESF Interview	Coding comparison
Characteristic feature (defect)	Specific physical characteristics	0: no information 1: information 2: specified information 3: misinterpreted information*
Traumatic injury	Showed signs of fractures/accidents	0: no information 1: information 2: specified information 3: misinterpreted information
Complaint of pain in spine or bones	Complaint of pain or suffering	0: no information 1: information 2: specified information 3: misinterpreted information
Life activities	Main occupation of deceased Other occupations carried out Other activities that may have caused tension in the body of deceased	0: no information 1: information 2: specified information 3: misinterpreted information
Illnesses suffered	Suffered from important illness Other medical observations	0: no information 1: information 2: specified information 3: misinterpreted information
Other	Surgeries performed on deceased Had amputations Had implants Had orthopedic prosthesis	0: no information 1: information 2: specified information 3: misinterpreted information
Date	Date	0: no information 1: information
Interviewer	Interviewer	0: no information 1: information

*Misinterpreted information refers to inconsistency of the information provided in the interview and the category of analysis.

characteristics, increasing from 37% of cases that record information on physical characteristics in D2 interviews, to 62.06% of cases in semiology interviews (Table 3).

In addition, it can be noted that in two D2 interview cases, interviewers were able to obtain more in-depth information on characteristics, while five ESF interview cases generated more detailed information. It is also evident that misinterpreted information does not emerge from ESF interviews, while in one D2 interview, information was misinterpreted. Table 1 includes an example of this regarding a characteristic feature.

2. Traumatic injury/showed accident fractures

The semiology interview considers the possibility of accidents, but the D2 interview refers exclusively to fractures or traumatic injuries suffered by the individuals, an incident that could have produced a detectable change to bone. As is observed in Table 3, 37.5% of D2 interview cases lacked information. There is just one case of an ESF interview without information, which includes more detail about life histories of the deceased, which were recorded and shared by the relative or close associate interviewed.

According to Table 3, D2 interviews make up 50% of the cases that record information about the injury or traumatic accident variable, and ESF 86.2%. An example of a more in-depth record is provided in Table 1, considering that in the observed category, if traumatic injuries are not evident, eventually indications may emerge in the bones of the hand or face.

For the category of specified information, in 12.5 % of D2 interview cases more information was provided, in comparison with 10.34% of ESF cases, The difference can be explained by the time spent in conducting interviews, or who may have given the first interview, if it was a direct or indirect relative, or other person close to the deceased person. For this category, misinterpreted cases do not exist.

3. Complaint of spinal or bone pain/complaint of pain or ailment

In the ESF, this category is supplemented with ailments related to other regions of the body, with the understanding that it is preferable to provide options that enrich the processes of interpretation and assessment of the antemortem narrative given by relatives or close friends of the deceased. As Table 3 shows, a high percentage of responses without information are given in D2 interviews, and ESF produces a higher percentage of responses with information (72.42%). It is worth

TABLE 3—*Percentual comparison between D2 (2010–2013) and ESF (2016) interview variables.*

Categories	Variables	(Frequency) Coding response percentage 0	1	2	3*
Characteristic feature/specific physical feature	D2 Interview	(17) 53.12%	(12) 37.5%	(2) 6.25%	(1) 3.12%
	Forensic semiology interview	(6) 20.60%	(18) 62.06%	(5) 6.89%	0
Traumatic injury/showed signs of fractures/ accidents	D2 Interview	(12) 37.5%	(16) 50%	(4) 12.5%	0%
	Forensic semiology interview	(1) 3.44%	(25) 86.2%	(3) 10.34%	0%
Complaint of pain in spine or bones/Complaint of pain or suffering	D2 Interview	(15) 46.87%	(15) 46.87%	(2) 6.25%	0%
	Forensic semiology interview	(3) 10.34%	(21) 72.41%	(5) 17.24%	0%
Life activities/Main occupation of deceased, other occupations carried out, other activities that may have caused tension in the body of deceased	D2 Interview	0%	(28) 87.5%	(4) 12.5%	0%
	Forensic semiology interview	0%	(15) 51.72%	(14) 48.27%	0%
Illnesses suffered/Suffered from important illness, other medical observations	D2 Interview	(10) 31.25%	(10) 31.25%	(7) 21.87%	(5) 15.62%
	Forensic semiology interview	(1) 3.44%	(23) 79.31%	(5) 17.24%	0%
Other/surgeries performed on deceased, had amputations, had implants, had orthopedic prosthesis	D2 Interview	(31) 96.87%	(1) 3.12%	0%	0%
	Forensic semiology interview	(2) 6.89%	(26) 89.65%	(1) 3.44%	0%
Date	D2 Interview	(7) 21.8%	(25) 78.12%		
	Forensic semiology interview	0%	(29) 100%		
Interviewer	D2 Interview	(7) 21.8%	(25) 78.12%		
	Forensic semiology interview	0%	(29) 100%		

* misinterpreted information: refers to inconsistency of the information provided in the interview and the category of analysis.

pointing out that responses providing additional information emerged in 6.25% of D2 interview cases and 17.24% of ESF cases. A specified response, as is evident in case 004 (Table 1), would correspond to a "no" response.

4. Life activities/main occupation of the deceased, other occupations practiced, other activities that cause tension for the body

   The ESF cases allow family members to provide more in-depth information about this variable, considering that the skeletal modifications that may exist, would complement the construction of the osteo-biography along with postmortem information, adopting a holistic perspective of the individual. Additionally, considering the temporary nature of activities is useful as a complement to the individual's life history.

   As Table 3 demonstrates, there are no cases without information, which can be explained by the fact that usually everyone dedicates time to some activity during her life. Regarding the responses, 87.5% of D2 interview cases include information, and 51.72% of the forensic semiology interviews have information. The difference is rooted in the fact that for the ESF, 48.27% of cases reflect specified information in comparison with D2 interview responses. In this category, more information emerged by asking different questions based on the previous responses, as is observed in Table 1, which facilitates supplementing and/or exhausting possibilities with the interviewee in relation to the activities that may be interpreted subsequently by researchers. There is no misinterpreted information for the life activities variable.

5. Illnesses suffered during lifetime/affliction with important illness, other medical observations

   There is a need to know the subject's medical diagnoses and treatments during his life. During the forensic semiology interview, two questions about this are proposed, in contrast to one question in the D2 interview, which explore the possibility of interpreting medical observations, treatments and specific care that the deceased may have received.

The question about an "important illness in one's lifetime" refers to an illness that the individual suffered over long periods of time, with the possibility of spreading and affecting the person's skeletal system. 31.25% of responses in D2 interviews included no information (Table 3), in contrast to 3.44% of cases in the ESF. For the responses that included information, 31.25% presented information in D2 interviews, in comparison with 79.31% in the semiology interviews. This highlights the in-depth information that the semiology interviews can generate regarding possible medical diagnoses and treatments and how they may be interpreted in a process of comparison.

For the analyzed cases, most deceased individuals had neither an important illness during their lives nor medical records, which interviewees may remember. This information allows researchers to discard illnesses or treatment that may have required medical attention. The absence of information is a consequence of the lack of methodological standardization in conducting the interview (use of yes–no–unsure responses). One point to highlight is the existence of five misinterpreted cases in D2 interview responses and a lack of misinterpreted information in the ESF.

6. Other/surgical operations, amputations, implants, or orthopedic prothesis

   Regarding the "other" category in D2 interviews, in the ESF relevant categories are broken down to interpret the skeletal evidence that could not have been considered in earlier responses. Table 3 shows that for this variable there is a 96.87% response rate without information, and only 3.12% with information, in stark contrast to the responses in forensic semiology interviews, which produce 6.89% of responses without information and 89.65% of responses that include information. For cases with information, most correspond to a "no" answer, in response to the question about whether the individual had any of these other medical conditions. As a result, this demonstrates the importance of recording information that reflects a response to the question asked, given that the subject may not have suffered from these conditions, which would allow researchers to discard the possibility. "No" is a useful response because it serves as a methodological contribution in understanding the meaning of the antemortem information about the subject being identified.

7. Date and interviewer

   This is technical information which allows researchers to understand the timeline and who is responsible for carrying out the interviews. For the variable "date," according to Table 3, 21.8% of D2 interview cases lack information, in contrast to 78.12% of responses with information. In the responses given during the forensic semiology interviews, 100% of respondents provided a date. For the interviewer variable, 21.8% of responses during D2 interviews lacked this information, and 100% of ESF responses included the name of the interviewer. Table 1 shows the recording of the interview date, but this is not the case for the interviewer's name.

In general, the analysis highlights that the categories regarding "illnesses, ailments and injuries" represented by the questions posed in the D2 interview and later in the ESF, refer to a varied range of improvements that may be obtained by implementing the methodology proposed in this article. Overall, the lack and misinterpretation of information emerge as the most frequent responses in the D2 interviews.

This is a product of the voluntary work and experience of those who interviewed in the first round, without a process coordinator, an issue which will be addressed in the discussion. The ESF is characterized by providing varied options in asking the questions, which can be interpreted holistically. For instance, in the case of the questions on "traumatic injury/fracture/accidents," researchers have an opportunity to consider part of the life story of the individual to be identified, which may activate interviewees' memories and open up their responses to generating more information which the team can interpret.

Similarly, in the category "spinal pain/complaint of pain or suffering," with the perspective of broadening the corporal range in which the individual may have experienced pain, the specified information allows the team to reconstruct the individual's profile. This reconstruction is carried out based on the comparison with postmortem information, in which there is evidence of enteric changes, bone fissures, reconstructed fractures, joint articulations with lipping and osteophytes, among others. Considering the age of the sample (46 to 98 years), it is advisable to adopt a holistic approach to the body in this context, integrated with the life history provided in families' testimony.

Regarding technical considerations, the percentage of information received in the ESF increased in comparison with the D2 interview. An example of this is found in details such as including categories of "no," "yes," or "unsure," employed in the semiology interview, which increases the certainty of each response, when confronting a gap in information that is impossible to interpret. As a result, the quality of each question item allows researchers to consider or discard a greater number of variables in the comparison of antemortem and postmortem information.

In addition, the unfolding of questions in each analyzed category specifies details such as duration of processes, which influence the interpretation of illnesses, injuries and ailments that may have affected the lives of the deceased individuals, given the increase in quantity and quality of information.

Discussion

At the beginning of the intervention in the Parish Cemetery of Penco, the voluntary participation of students and professionals in training stands out and is reflected in the lack of standardization and discipline regarding the quality of the analyzed interviews. The process of constructing the osteobiographic narrative should be conducted by professionals in the social sciences, qualified and with previous training, considering the importance of the antemortem information for the identification process (Barreto et al. 2005; EMAF 2016; Instituto Nacional de Medicina Legal y Ciencias Forenses 2016).

Additionally, the professional has a responsibility to be familiar with the conceptions about illness or ailments that interviewees may have (Salado & Ríos 2002). It is not surprising that there are non-responses in the first interviews—as well as a lack of in-depth information, considering the inexperience of the interviewers. Also, there was no training on these issues because it was a humanitarian intervention and the goal from the beginning was to respond quickly in the face of the disaster.

With the use of the ESF, coordination among members of the work team was evident. As the ALAF (2016) and the National Medico-legal and Forensic Sciences Institute in Colombia suggest, having a coordinator guide the process and track standards in antemortem information gathering tools is advisable, in addition to developing an instruction guide (Annex 1). Also, the coordinators should promote the creation and implementation of clear and effective protocols, to train new team members, with the goal of assuring the quality of the identification process (Fleischman et al. 2019).

Interviews should be conducted based on a consensus among team members. If the team is comprised of forensic and sociocultural anthropologists, as is the case in the CPP, then initial interviews should be carried out by sociocultural anthropologists accompanied by forensic anthropologists. The latter know the possible interpretations of skeletal remains based on family members' responses, allowing researchers to direct and deepen the questions as they are being asked.

This suggestion was useful in the reevaluation of the antemortem information-gathering instrument in the CPP, given that upon revising the categories of analysis in the D2 interview and the responses, there were features that could possibly be observed in the bodies that were not being examined. This reflects the importance of the development of questions in the ESF by category of analysis, increasing the interpretive possibilities on the part of the forensic team. The recommendation to include a social expert in the gathering of antemortem information, ideally a sociocultural anthropologist has to do with the skills that the professional has in collecting testimonies (Barreto et al. 2005).

In the context of the CPP, it became necessary to use traditional forensic anthropology methods (Baraybar 2008; Cardoza 2017; Guglielmucci 2017), considering that it was impossible to apply molecular tools to corroborate subjects' identities. Querales (2019) mentions that if DNA plays a role in facilitating an "accurate and scientific identification," the significance of the process undertaken by relatives transcends the limits of the forensic sciences (68).

As a result, considering the need to improve procedures and strengthen the scientific character of anthropology (ALAF 2016; Dirkmaat & Cabo 2012) to ensure the quality of the process of gathering antemortem information, we have demonstrated a shortcoming in conducting the interviews. Improvements in the instrument and procedure (Fleischman et al. 2019) correspond in this case to the interview with a forensic semiology perspective. Additionally, an ethical, rigorous and attentive interview lends dignity to the process, and as a result, to the family.

Considering the diachronic comparison among interviews, the analyzed categories depend on the clarity of the interviewee's memory about the deceased individual. As Jelin (2002) explains, "the meaning of the past in the present, and based on a desired future" (12). In the case of the CPP is the intention of the families to recover the identity of their deceased relatives. However, the passage of time might change or omit details useful to the identification process. Some changes have to do with the idealization of the person being identified, remembering them without illness, for example, so the interviewer should consider that possible bias in the responses.

In addition, the deceased individuals lost their identities due to the natural disaster of the earthquake, which is a traumatic event for those being asked to relive the memory (Ramos 2017). The problems around identification and how to establish a successful process will depend on the limitations of the knowledge and techniques employed (Guglielmucci 2017); as such, attention to both will help produce satisfactory results.

The evaluation of the responses provided in the D2 interviews leads us to consider the required antemortem information, and how to increase the possibilities of obtaining this information from relatives of the deceased of the CPP, considering the time spent and the sensitive nature of the responses. The objective of this study was to capture part of the argumentation and application of forensic semiology as a methodological strategy for the collection of antemortem information. Qualitative data generated within the framework of forensic semiology are useful in evaluating and supplementing antemortem information instrumental in the identification process, and they may be enriched by building relationships with the relatives.

Investigating and connecting memories, mediated by the questions asked is a highly sensitive process, accompanied by tears and smiles from those who remember their loved

ones. For team members, professionals and/or students in training who conduct the interviews, this reinforces the social and ethical commitment to the community, in addition to improving the connection and interpretation of information in the identification process, when antemortem and postmortem data are compared.

Drawing on the intervention in the CPP, along with proposing improvements in the practices used in the forensic semiology interview, this study promotes the participation of families (Reyes et al. 2016) beyond the provision of antemortem information. Aranguren and León (2020) probe the relationship between forensic anthropology and the community, highlighting the "intersubjective and dialogical" character (74), a bond that allows a researcher to come into contact with the reality of the community and the families, in addition to being overwhelmed by demands of "who is looking for another missing person" (91).

The researchers established this connection with the affected families, through meetings and workshops where they demonstrated the capacities of anthropology and its fields as ideal professions for managing human identification processes based on skeletal remains. This article has emphasized the importance of the antemortem and postmortem profile in the identification process, concluding that if the responsibility for the intervention lies with professionals, the results should be collectively validated with those affected due to the nature of the information that can be recovered from the context.

Conclusions

The problem addressed in the CPP is defined along social lines by families that seek to reestablish the materiality of the funerary ritual with their deceased relatives through the identification of the bodies. From a scientific and disciplinary point of view, the article defines improved practices of forensic anthropology, focusing on strengthening the information and quality of the antemortem narrative, as well as strategies that may strengthen the theoretical, methodological and technical corpus of the discipline in the process.

The forensic semiology instrument is designed with a focus on the categories of illness, injuries and ailments. The methodological review of each question is specified, its scope and objectives based on the information received, making it possible for the team to translate it into scientific information and apply it to the comparison with postmortem information. The ethnographic focus and the transcultural perception of death form part of the study's perspective, which strengthens the link between the scientific team and the families.

The contribution of the forensic semiology interview in the context of the CPP dates to the beginning of the human identification process, which requires a centralized organization that makes visible the importance of the information that comes from the social context to which the individual belonged. In addition, the inclusion of sociocultural anthropologists in the collection of information should be promoted and if necessary, the appropriate training for members of civil society, students, and professionals in diverse fields, depending on the scope of the context. The semiology interview model may not be applicable to the diversity of contexts that require human identification, but it is necessary to consider the gathering of antemortem information carefully—or its reevaluation— an idea that points to improving quality standards, as was the case with the CPP.

Limitations to the application of the semiology interview originate, in the first place, in the source of information embodied in the memory of the families and close friends of the person whose identity has been lost. As is mentioned in the text, the context of the identity loss, the time that passes between the disappearance and intervention, in addition to the significance of the event for the person being interviewed can affect the memory and its perception. In the case of the CPP, the families suffered the interruption of the "rest" of their loved ones, causing a rupture around the funerary ritual and the physical bond, represented in the body of the deceased person inside the burial niche, which is lost.

A second limitation is due to the lack of preparation in the application of the technical instrument, which for the case of the intervention in the CPP, was considered during the investigation, and not at the beginning. This required generating requests for interdisciplinary work teams among social and forensic experts to comprehend the applicability of the questions in the antemortem interview and its subsequent interpretation compared with the osteological information. Moreover, the team also carried out days of accompaniment with the involved family members, where team members explained the content of the antemortem interview, encouraging them to participate in the identification process and the communication of the results, promoting their empowerment and participation in the process.

The formulation and inclusion of the forensic semiology focus in the CPP context was born from confronting an investigation with broad social impact which until now has confirmed 27 identifications. The search to improve processes is a constant challenge for the families and communities affected by the loss of identity of their loved ones.

References

Aranguren J, León J. De la pasión por el hueso al dolor de los demás: la experiencia de profesionales en antropología forense ante la desaparición forzada de personas en Colombia. *Sociología y tecnociencia* 2020;10.1:72–93.

Asociación latinoamericana de antropología forense. *Guía latinoamericana de buenas prácticas para la aplicación en antropología forense*. Colombia: ALAF; 2016.

Baraybar JP. When DNA is not available, can we still identify people? Recommendations for best practice. *Journal of Forensic Sciences* 2008;53:533–540.

Barreto MI, Bacigalupo C, Centro andino de investigaciones antropológico forenses. *La investigación antropológica forense en casos de graves violaciones a los derechos humanos: lineamientos básicos*. Lima: Centro andino de investigaciones antropológico forenses; 2005.

Boer H, Blau S, Delabarde T, Hackman L. The role of forensic anthropology in disaster victim identification (DVI): Recent developments and future prospects. *Forensic Sciences Research* 2018. doi: 10.1080/20961790.2018.1480460.

Bustos P, Intriago M. The chilean forensic medical service. In: Ubelaker D, ed. *The Global Practice of Forensic Science*. Hoboken, NJ: John Wiley & Sons, Ltd; 2015:39–47.

Cardoza CR. Investigación antropológica forense y memoria en la búsqueda de personas desaparecidas en contextos de violaciones de derechos humanos en el Perú. *Memoria(s)* 2017;(1)69–85.

Cartay R. La muerte. *Fermentum* 2002;12(34):447–470.

Comité Internacional de la Cruz Roja (CICR). *Cuestionario para recolectar datos antemortem de personas desaparecidas Versión 1.0*. Ginebra: CICR.

Comité Internacional de la Cruz Roja (CICR). *Ciencias forenses y acción humanitaria*. Ginebra: CICR; 2014a.

Comité Internacional de la Cruz Roja (CICR). *Acompañar a los familiares de las personas desaparecidas*. Ginebra: CICR; 2014b.

Dirkmaat D, Cabo L. Forensic anthropology: Embracing the new paradigm. In Dirkmaat D, ed. *A Companion to Forensic Anthropology*. Hoboken, NJ: Blackwell Publishing Ltd; 2012:3–40.

Dutrénit S. Los equipos de antropología forense en América Latina: coadyuvantes en el camino de la verdad y la justicia. *Red Universitaria sobre Derechos Humanos y Democratización para América Latina* 2012; 25–53.

Equipo Mexicano de Antropología Forense (EMAF). *La importancia del proceso de investigación forense en casos de desaparición forzada. Taller impartido al comité los otros desaparecidos de Iguala, Guerrero*. Guerrero: EMAF; 2016.

Fleischman J, Pierce M, Crowder C. Transparency in forensic anthropology. In: Fulginiti L, Hartnett-McCann, Galloway A, eds. *Forensic Anthropology and the United States Judicial System*. Hoboken, NJ: John Wiley & Sons Ltd; 2019:71–88.

Garrido C, Itriago M. The "Unidad de Identificación Forense" and Human Rights in Chile. *Cuadernos do GEEvH*. 2012;1(2): 32–41.

Gaytan E. Cambios en los vínculos afectivos entre difuntos y deudos en situación de desastre: 27/F 2010 Chile. La emergencia invisible. *Sociedad Hoy* 2010;97–111.

Gazitúa R. Manual de semiología 2017; Obtenido de http://publicacionesmedicina.uc.cl/ManualSemiologia/Default.html.

Guber R. *La etnografía*. Buenos Aires: Siglo Veintiuno; 2011.

Guerra C, Reyes E. Intervención antropológica en Cementerio Parroquial de Penco (Chile). *Actas del Tercer Congreso Latinoamericano de Antropología* 2012;1–10.

Guglielmucci A. Identidades fragmentadas: los procesos de identificación forense en casos de desaparición forzada *Avá*; 2017:(30)105–136.

Huffschmid A. Los (des)bordes de la justicia: agencias y procesos forenses a partir de las fosas comunes del presente (mexicano). In: Dutrénit S, Nadal O, eds. *Pasados recientes, violencias actuales. Antropología forense, cuerpos y memorias*. Ciudad de México: Instituto de investigaciones Dr. José María Luis Mora; 2019:31–67.

Instituto Nacional de Medicina Legal y Ciencias Forenses. *Estándares forenses mínimos para la búsqueda de personas desaparecidas, y la recuperación e identificación de cadáveres.* Bogotá; 2016.

Jelin E. *Los trabajos de la memoria.* Madrid: Siglo XXI de España; 2002.

Olivero R. Barráez C. Importancia de la semiología médica en la adquisición de competencias del médico. *Salus* 2011;31–36.

Ortner D. What skeletons tell us. The story of human paleopathology. *Virchow Archive* 2011;247–254.

Padilla E, Reveco I. Memorias del Grupo de Antropología Forense y su aporte al campo de los Derechos Humanos en Chile. *V Congreso chileno de antropología. Colegio de Antropólogos de Chile A.G* 2004;II:1100–1108.

Panizo L. Cuerpos desaparecidos: La ubicación ritual de la muerte desatendida. In: Hidalgo C. ed. *Etnografías de la muerte. Rituales, desapariciones, VIH/SIDA y resignificaciones de la vida*. Buenos Aires: CICCUS-CLACSO; 2011:17–39.

Pérez M. *El proceso de duelo y la familia* 2010:279–204.

Ramírez J. Nuevos retos en el estudio de la enfermedad desde la antropología física. *Estudios de antropología biológica* 2007; (XIII) 863–883.

Ramos J. (2017). Entre heridas y huellas el dolor crece: memoria en procesos de dolor y enfermedad en Ayacucho. *+Memoria(s)* 2017;(30)19–39.

Reyes E. *Estudio de rasgos no métricos craneales en el Cementerio Parroquial de Penco: un enfoque comparativo* [PhD dissertation]. Chile: Universidad de Concepción; 2011.

Reyes E, Guerra C, Gomes R. Identificación humana y antropología: un aporte metodológico desde la realización de talleres con Familiares. *Revista científica forense* 2016;173–190.

Rodríguez T, Blanco M, Parra I. Las habilidades comunicativas, entrevista médica, relación médico-paciente. *Revista Cubana de Medicina Militar* 2009;79–90.

Salado M. Patologías óseas. Museo de Tenerife; 2015. http://www.museosdetenerife.org/assets/downloads/file-111-9fe09d2507.pdf.

Salado M, Ríos L. La importancia de la osteopatología en la identificación de restos óseos humanos. *XV simposio de investigaciones arqueológicas en Guatemala* 2002;721–729.

Thomas LV. *La muerte*. Barcelona: Paidós Ibérica, S.A; 1991.

Thompson T, Black S. *Forensic Human Identification*. Boca Raton, FL: Taylor & Francis; 2007.

Ubelaker D. New directions in forensic anthropology. En: Martell D. *The Future of Forensic Acience*. John Wiley & Sons Ltd; 2019:1–18.

Ubelaker D, Shamlou A, Kunkle A. Contribution of forensic anthropology to positive identification: A critical review. *Forensic Sciences Research* 2018. doi: 10.1080/20961790.2018.1523704.

Van Gennep A. *Los ritos de paso*. Madrid: Alianza Editorial; 2008.

Vera JL. *Las andanzas del caballero inexistente. Reflexiones en torno al cuerpo y la antropología física.* México D.F.: Centro de estudios filosóficos, políticos y sociales Vicente Lombardo Toledano; 2002.

ANNEX 1

GUIDE FOR COLLECTING ANTEMORTEM INFORMATION, FORENSIC SEMIOLOGY PROPOSAL

This guide is designed to accompany the interviewer, who oversees registering antemortem information (AM) provided by relatives and close associates of the deceased who is to be identified.

The "Questionnaire to collect antemortem information on disappeared persons version 1.0," proposed by the International Committee of the Red Cross, was used as a source,

It is important to emphasize that the information recorded in this interview will constitute antemortem information on the deceased, information that will subsequently be used in the process of comparison with postmortem information (PM). The quality and depth of the responses provided by the relatives and close friends of the deceased will be vitally important for the process of final identification.

Generally, the interview should be conducted by a principal interviewer, in a secure environment that allows the family or friends to feel comfortable in providing the required information.

Instructions for completing the interview

Before starting, it is indispensable complete the information about the location where the interview is carried out, the date, complete name of the interviewer and interview sheet number, which constitutes the coded profile of the deceased individual.

In the case of repeat interviews (interviews conducted for a second time or more), leave the sheet number blank, given that it should be completed with the sheet number assigned the first time.

Informant and primary contact section: information provided by the relative or associate of the deceased.

Deceased information section

2.1 General information. In this section, the information that can be left incomplete or estimated are the dates of birth and/or death. In both cases, indicate that they are possible approximations. Record comments.

2.2 Occupation of deceased: main occupation during her life, most consistent activity over time, of longest temporal duration. In the section "other occupations carried out during her life," emphasize those that involve physical activities, or patterns of physical activity.

2.3 Physical description: in the case of estimations of weight or height, indicate that they were approximations. Record comments.

2.4 Specific physical features. In the section on "characteristic features," consider congenital or acquired distinctive features, that may have been observable when the individual was alive. Examples are limps, deformities, absence of limbs or parts of congenital limbs, spinal curvature, among others.

In the section on "pains and ailments," consider the subjective level and interpretation of a possible illness, this from the perspective of the relative or associate about the experience and symptoms that the individual discussed socially while he was alive. It is very important to describe in a detailed manner that relatives' impressions of the illnesses or suffering, given that these may lead to a possible diagnosis in the interpretation of the postmortem information in the process of comparing AM and PM information.

2.5 Medical history. Consider in the responses that refer to illnesses or possible diagnoses, inquire if any other member of the family suffers from the same ailment or medical problem. Include: name, relationship with the disappeared person.

In the section on "fractures/accidents," consider going into more depth on the treatment of injuries, or the description of possible accidents that the individual may have suffered and include the time period of the events.

In the section on "surgeries," the description of the event, time period, and if in this intervention any kind of medical device was introduced to the individual's body that may have been present when the person was buried (example of devices: pacemaker, colostomy bag, methods of reproductive control, among others).

In the section on "implants," consider the time period and function of these devices.

In the section on "illnesses," consider the formal diagnoses, or without those, details regarding signs and symptoms for a possible diagnosis. Remember that if the focus is on the illnesses that might have some influence on skeletal tissue, in some cases, metabolic type illnesses can be associated with skeletal injuries. If the possible consequences of the illness are not known, record everything that the interviewee says.

ANTEMORTEM INFORMATION INTERVIEW, FORENSIC SEMIOLOGY PROPOSAL

Date of interview: **Date:**

Name of interviewer: **Sheet #:**

1. INFORMANT AND PRIMARY CONTACT:

1.1. Informant information:

Full name of informant:

Sex: Female: ( ) **Male: ( )** **Date of birth: _____ / _____ / _____**

Relationship with the deceased: **Home address:**

Telephone contact(s): **E-mail:**

Additional information: (Note below the names/relationship with the deceased/contact information if any other relative is present when the interview is conducted or if there is another relative whom might be contacted to obtain additional information in the future).

2. INFORMATION ABOUT THE DECEASED INDIVIDUAL

2.1. General information

Full name of deceased:

Sex: Female: ( ) **Male: ( )** **Date of birth: _____ / _____ / _____**

If the birthdate is approximate, explain why:

Place of birth:

Date of death: _____ / _____ / _____. **Age at time of death: _____** years.

If date of death or age at time of death is estimated, explain why:

Cause of death:

Hospital where individual was treated:

Autopsy conducted: Yes ( ) No ( ) Location where autopsy was conducted:

If the individual is a woman, did she have children? Yes ( ) No ( ) How many?:

Block and cemetery niche where the deceased was located:

Were the remains disarticulated and placed in a smaller niche? Yes ( ) No ( )

2.2. Occupation of deceased

Main occupation:

Time, location in which he/she conducted the activity and until what age:

Other occupations that he/she performed in his/her life (include duration and age at which he/she performed the activity):

Other activities that could cause tension in the body (Sports, artistic activities, hobbies, games, etc. Include age when he/she undertook each activity and its duration):

2.3. Physical description

Body size: Very thin: ( ) Thin: ( ) Medium weight: ( ) Large: ( ) Very large: ( )

Weight: _____ kgs.

If this is an estimate, explain why:

Approximate weight at time of death: _____ kgs.

If this is an estimate, explain why:

Height: _____ cms.

If this is an estimate, explain why:

Hair color. (Include quantity, length, color, type, style, if it was dyed, if he/she used artificial hair or a wig):

2.4. Specific physical features

Did the deceased have any characteristic feature (deformity or defect) in his/her body? Indicate the presence of deformities or birth defects. Include Feature – Location – Laterality – Age and duration – General details.

Did he/she complain of pain or suffering? Indicate Type – Location – Laterality – Age and duration – General details.

YES ( ) NO ( ) UNSURE ( )

2.5. Medical History

Did he/she have fractures/accidents? YES ( ) NO ( ) UNSURE ( )

Indicate type of fracture/accident – Location – Laterality – Age and duration - treatment – General description.

Did he/she have surgeries? YES ( ) NO ( ) UNSURE ( )

Indicate intervention type – Location – Laterality – Age and duration – General description.

Did he/she have amputations? YES ( ) NO ( ) UNSURE ( )

Indicate type of amputation – Location – Laterality – Age – General description.

Did he/she have implants? YES ( ) NO ( ) UNSURE ( )

Indicate type of implant – Location – Laterality – Date of implantation – General description.

Did he/she have an orthopedic prosthesis? YES ( ) NO ( ) UNSURE ( )

Indicate type of prosthesis – Purpose – Location – Date – Material and date of manufacture – Details.

Did he/she suffer from an important illness during his/her life? YES ( ) NO ( ) UNSURE ( )

Indicate type of illness – Indicate physical signs – Duration of disease – General details.

Other medical observations. Consider traditional/informal treatments. Objects related to the medical condition of the deceased (intrauterine devices, catheters for feeding or bowel movements, pacemakers, among others).

Include type, purpose, brand, quantity, description.