

Forensic anthropology: challenges and scopes

Abstract

The objective of this work is to analyze the scope of Forensic Anthropology, since this is a medical-legal specialty that is oriented towards the application of the knowledge, methods and techniques of Physical Anthropology, Cultural Anthropology, and Archaeology, with the aim of contributing to the resolution of judicial cases, through the identification of human remains or people, who have lost their identity due to some circumstance, or when verification is required or is doubted, through strategies with high scientific rigor.

Keywords: forensic anthropology, crimes, forensic identification

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Introduction

Forensic Anthropology has had a global development with little uniformity, because each region has had different scenarios that demanded different technical-scientific strategies of this medical-legal specialty, which is why various perspectives originated, however, all conditioned by the general principles of human identification, namely: individuality and differentiation as a directional axis.^{1,2} This disciplinary situation responds, without a doubt, to particular socio-cultural, legal and academic contexts, in which forensic anthropologists have been trained, performed and innovated, responding to the demands of the justice administration apparatuses of each country.³ In the academic context, anthropological training responds to two traditions: American and European. The American one places basic anthropologists as experts in the specialty, which requires that they have undergraduate studies in Anthropology, with a series of subsequent specificities of each country for their practice; In the United States, for example, a Doctorate is required to be qualified by the American Board of Forensic Anthropology to be able to sign expert reports and act as an expert witness in trials,^{3,4} a different situation in Latin American countries that do not require a doctoral degree for participation as an expert in the area but rather a degree in anthropology and knowledge related to the area; while the European, since it does not have an undergraduate degree in anthropology related to the biological field, Forensic Anthropology is practiced by doctors, biologists or archaeologists with postgraduate studies in the forensic anthropological specialty.⁵⁻⁷

Despite the training differences that are required in one tradition or another, both agree that the function of the forensic anthropologist is to identify human remains (corpses) in different conditions such as recent data (frescoes), putrefied, preserved, skeletonized, altered by thermal, mechanical (dismembered, dismembered, decapitated, or disarticulated), or chemical action, but also covers the field of forensic somatological identification, also called personal scientific identification, examining living subjects who are presumed to have committed a punishable crime that is evidenced by a film or photographic clue.^{1,2} The objective of this collaboration is to analyze the challenges that Forensic Anthropology currently faces at a global level, being that this medical-legal specialty is oriented towards the application of knowledge, methods and techniques of Physical/Biological Anthropology, Social/Cultural Anthropology, to the resolution of cases of legal interest, whose objective is the identification of human remains or living subjects, who have lost their identity, or their identity is doubted, due to some circumstance, all through standardized scientific protocols.

Forensic Anthropology: the science of identification. The development of Forensic Anthropology at a global level responds to the two traditions already mentioned, which have an impact on the professional training of forensic anthropologists on all continents, however, outside of the formal aspects of each country, in both cases they converge. In the operational protocols they carry out in practice. In this sense, multiple authors have defined this discipline, establishing some basic elements that structure both the object and the method as well as the scope, contributing more in some areas than in others according to the demands of each justice system.²

The three fundamental premises of forensic anthropology are identity, identification and individualization. Thus, the Royal Anthropological Institute of Great Britain and Ireland⁸ defines it as “the application of scientific techniques and principles to the identification of the deceased. In some cases they were victims of disasters, both natural and man-made, victims of homicide, but also of deaths in non-suspicious conditions” (para. 1). While Reverte Coma⁹ provides that this medical-legal specialty (...) its main purposes are the study of skeletal bone remains in order to achieve personal identification, find out the cause of death, the date of death, the age, race, sex, height of the subject, professional marks, old bone lesions, study of the oral cavity (...) and everything possible to always provide information to police investigators so that they can identify the subject. Furthermore (...) studies the living subject and its biotypological characteristics as well as its possible relationship with criminal acts (p. 39). Steward¹⁰ for his part, defines it as the branch of Physical Anthropology that, for forensic purposes, deals with the identification of more or less skeletonized remains, human or of possible human belonging. For its part, the American Board of Forensic Anthropology (ABFA, 2022) indicates that a forensic anthropologist applies specialized knowledge of the human skeleton and its cartilaginous structures, as well as archaeological methods, to assist in medicolegal investigations of deaths.

In the Latin American scenario, with a context of political violence, armed conflict and other forms of structural violence, forensic anthropology was developed according to diverse circumstances, including multiculturalism and pluriethnicity, a condition specific to the region and a factor to be considered in any action. forensic expert, which is reflected in the definitions of this discipline from the south.¹¹ Sanabria¹² a Colombian forensic anthropologist, considers the specialty as a discipline that provides support to the medical-legal investigation of deaths, from his knowledge of skeletal biology, starting the process with correct management of the crime scene and the rescue of the corpse, followed by diagnosis in the anthropology

laboratory or in the autopsy room, in order to contribute to the proper administration of justice in response to the resolution of homicide cases, which is aimed at the application of the law to punish the responsible and protect the innocent. Valera^{1-3,11} Venezuelan forensic anthropologist, defines it as the application of knowledge, methods and techniques of physical Anthropology, as well as archaeological and ethnographic order, with the aim of resolving legal cases, which require the establishment of the identity of the individual (NN or missing), which lacks or is doubted, which requires its location in a specific socio-legal framework, considering biological and biocultural characteristics of criminalistic interest. This is how Raffaella et al.,¹³ Brazilian forensic anthropologists, report that (...) is a relatively recent specialty within Legal Medicine that applies the methods of physical anthropology and archeology for the collection and analysis of legal evidence from human remains, seeking to establish the identity of the subject through the individualization of intrinsic characteristics in context. (p. 241). While, the Latin American Association of Forensic Anthropology¹⁴ defines forensic anthropology as (...) the application of the theories, methods and techniques of social anthropology, archeology and biological anthropology in the processes of search and recovery of corpses and human identification, as well as clarification of the facts as support to the administration system of justice and humanitarian work (p. 27).

It is necessary to note that the incorporation of a scientific aspect and humanitarian work in this definition implies a specific contextualization for the region, adjusting to the needs and incorporating notions from other areas of Anthropology to be able to consider its expert action. These definitions are a reflection of the disciplinary convergence of forensic anthropology, but also of its contextual diversity, visible in theoretical and operational elements, influenced tangentially by the tradition of anthropological thought where it has been developed, as well as the demands to which they have been addressed.¹¹ These professionals and their forensic work teams have been exposed, as Menéndez¹⁵ refers, an American model with emphasis on the circumscription of Physical Anthropology and a European one with a tendency towards Medical Anthropology, as shown by the professional profiles of different prominent forensic anthropologists.¹¹

Forensic anthropology: scope and generalities

Forensic Anthropology is a medical-legal specialty that is aimed at human identification, circumstances, data and cause of death in skeletonized remains or in advanced states of decomposition, applying knowledge, methods and techniques of physical/biological anthropology, archeology and social/cultural anthropology. In this sense, we must consider that anthropology is the science that studies the origin, variability and human biocultural experience, that is, it is located in two moments: the present and the past.¹⁶ From each of these branches of anthropology it will take fundamental aspects today, despite the fact that the center of the exercise is in physical/biological Anthropology for the purposes of the examination of human remains in the laboratory phase, particularly. While in archeology, the techniques associated with prospecting, excavation and detailed registration will be applied, as well as the relationships established with respect to the mortuary context. In the case of social/cultural Anthropology, it will provide contributions within the forensic anthropological research process, in what corresponds to obtaining important information about the physiognomic characteristics and behaviors related to their corporality through the antemortem interview carried out with family members and close friends, which is methodologically associated with the techniques of in-depth interviews and participant observation, especially when there is general social commotion.^{11,16}

Challenges in forensic anthropological identification

The challenges in Forensic Anthropological Identification currently demand that expert professionals in this specialty use modern technologies to carry out identification analysis, new forms of crime associated with the claims of concealment of lifeless bodies as well as the new subjects that make up society, legally and socially recognized.¹⁶

Modern technologies

In the case of the examination of human remains, the integration of Artificial Intelligence for the purposes of their search, recovery and identification analysis will have broad applications in practice, such as artificial vision (AV) that is responsible for the automatic interpretation of images, either for the restoration and enhancement of the image, or the semantic understanding of the image, also the segmentation of images (SI) into homogeneous regions related to visual features, and the registration of images.¹⁷

New forms of crime

The new modus operandi for concealing corpses requires mechanisms of thermal alteration (burning, charring and calcining), chemical alteration (use of acids such as sulfuric or hydrochloric acid) and mechanical alteration (mutilation, dismemberment, fragmentation by weight, decapitation, intentional cadaveric anthropophagy as in the case of placing the body in *Sus scrofa* [pig] troughs), which demands that forensic anthropologists develop methodologies for action.¹⁶

New subjects

Trans people as new legally and socially recognized subjects generate a problem that must be addressed from human identification because in the face of human remains in an advanced state of decomposition it is currently impossible to achieve an accurate diagnosis, given that the examination of the skeletal remains and its conventional indicators will result in a sex that does not correspond to the gender that the individual exhibits and how it is known to society, so such name will be on lists of missing people that will not allow them to be identified, as it is contrary to the biological sex assigned by the bones, especially when it comes to people with a complete transition from biological schemes.¹⁶ However, at this time we require more information that arises from research projects to be able to establish standardized criteria for identification that include these subjects, considering indicators that may arise in the bone due to the incorporation of a hormoneization scheme, feminization surgical interventions, among others. Even our forensic formats do not include any category that can be associated with whether or not the person was undergoing a transition; for the purposes of this collaboration, the term "in transition" is promoted as a category associated with sex in order to disable the problem, and therefore, the trans person also has rights.¹⁸⁻²⁰

Conclusion

Forensic Anthropology plays a very important role in the examination of human remains, in order to provide - after an identification process - the identity of the subject. Its development at a global level fundamentally responds to three criteria: the tradition of formative thought, the circumstances that demand its intervention and the system of administration of justice, which is why each of the regions: North America, Latin America and Europe, The specialty has evolved with certain trends, and with this, a series of methodologies have been developed that allow us to respond to situations and

scenarios that require expertise in this area. Regardless of this, there are a series of fundamental elements that are specific to the discipline and are observable in the intellectual performances and productions of each region. Forensic anthropologists dialogue with human remains, they understand that language that is no longer fully audible and seek to be the voice of those who no longer have it, they explore the skeletal architecture in search of answers, and they are ready to be attentive to knowing how to question the corpse on its own terms, in this sense, as Dr. Clyde Snow mentioned years ago, “the bones are good witnesses, although they speak in a low voice, they never lie and they never forget.”

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Conflicts of interest

The author declares there is no conflict of interest.

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