



Case Report

Where do those remains come from?

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ABSTRACT

Part of the study of skeletal remains or corpses in advance decay located in the field involves determining their origin. They may be the result of criminal activity, accident, unearthen because of erosion, or they may also have originated from a cemetery. The discovery site, condition of the remains, and the associated artifacts, are factors that could be helpful for the forensic anthropologist to identify the origin of the remains.

In order to contribute to this recognition, an analysis was made of the exhumations of 168 unclaimed human remains from the cemetery of Terrassa (Catalonia, Spain). This investigation presents a description of artifacts and conditions of remains that could indicate that the human remains may have originated from a cemetery.

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1. Introduction

The discovery of human skeletal remains and corpses in advance decay in the field, raises many questions that need to be answered. One of these questions refers to the origin of the remains. Occasionally, these may originate from a cemetery. When this type of remains is found, the anthropologist should be able to recognize those characteristic signs that could help to identify their origin.

Remains from a cemetery context can be skeletons and corpses previously legally buried in a cemetery but later removed from their tombs or ossuaries without authorization, as a result of, for example, acts of vandalism [1–5]. When remains are found in or near old cemeteries, it is suggested that they are not of forensic interest.

Occasionally, opposite situations can occur, resulting in illegal burials. For instance, homicide victims can be dumped at a cemetery in an attempt to hide a body. This situation is observed more frequently in countries where the bodies are buried in the

ground [6–8]. Therefore, in cases where a tomb is damaged or the number of bodies does not correspond to the known records, the forensic anthropologist has to be able to identify each of the exhumed corpses and make a conclusion about a possible criminal activity. However, the discrepancy in the number of exhumed bodies is not always the result of a crime. Renovation or closure of cemeteries may result in misplacement of human remains. Early recognition of features associated with cemetery remains and collection of related evidence can reduce the time and effort spent on investigations [1]. In this sense, forensic anthropologists should be present during the exhumation process in cemeteries in order to prevent misidentification of exhumed bodies [9].

There are some studies relating to the recognition of remains pertaining to a cemetery context [1,7,10] that offer some guidelines for recognition of cemetery remains. It is of great importance not to forget that funeral customs differ between countries. In some countries it is common to bury human remains in the ground, while in other coffins are placed in special vertical cement constructions called niches (e.g. Spain). In addition, in some areas it is customary to embalm the body before it is buried, while in other places embalming is not a routine procedure [11]. This fact is important due to different environmental conditions that lead to different decomposition processes [12].

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Knowledge of decay characteristics in different environments is very important to understand the origin of remains. However, this kind of information in some specific locations is not always available. One of the current problems that European anthropology and taphonomy has to face is the absence of experimental models or observational studies in this area, which leads to a lack of data that could help to answer the questions of high interest in forensic anthropology. The investigation of human remains decay from a cemetery may offer good training for specialists in forensic science and it can also provide a large amount of information pertaining to human body experimentation.

In addition, forensic anthropologists need to have proper knowledge about funeral customs and thanatopraxy of the local society, including preparation of the body for burial, artifacts accompanying the body, and accouterments associated with the grave, to be able to identify cemetery remains.

Finally, the study presented here can be important to differentiate recent cemetery remains from those of historical significance [13], since, as Eliopoulos et al. noted in his article, the remains of historical significance sometimes may be unearthed because of erosion or during a construction project [10]. As a consequence, the characteristics and conditions of human remains from cemeteries need to be known in order to correctly address the investigation. Projects like the one presented here, help to reconstruct and identify the history of archaeological remains, helping to understand how the human remains from an historical context were decomposed.

The aim of this study was to identify and describe the artifacts that may indicate a cemetery origin, studying the unclaimed human remains of exhumations performed in a cemetery from Catalonia, Spain. No observational studies of this type have been conducted in Spain, thus the study presented in here is pioneer in this field.

2. Materials and methods

From March 2012 to May 2013, an investigation was carried out on unclaimed human remains from a cemetery context. The study reports the results of 168 exhumed corpses from the cemetery of Terrassa (Catalonia, Spain). The access to the unclaimed human remains was facilitated by cemetery authorities to the Universitat Autònoma de Barcelona for the observational study. An official agreement of collaboration with cemetery authorities and a health license had been approved.

In this study, remains from different evicted niches within the same cemetery have been analyzed. Decomposition data and artifacts were collected from corpses, clothes, coffins and niches. In all cases, decomposition of human bodies took place in wooden or conglomerate coffins, which simulate an empty space [14]. The evaluation of corpse conservation was performed by categorizing it into one of six different stages: total skeletonization (>80%), skeletonization with wet putrid matter, skeletonization with dry putrid matter, mummification/desiccation, saponification, and corification. Skeletonization with dry putrid matter, as well as mummification, can be defined as dry types of conservation because of the absence of body fluids. Whereas, skeletonization with wet putrid matter or saponification can be defined as wet type of conservation due to the presence of body fluids. The type of conservation may facilitate the incidence and observation of cemetery artifacts. In this study, artifacts refer to any object made by human beings, or which results from anthropogenic treatment of corpses.

Throughout this observational study, four types of artifacts were observed. We distinguish these four types of artifacts by their origin, which can be from: Autopsy practice (autopsy of cranial vault and thorax); Thanatopraxy (sewing of upper and lower jaw together, cotton packing, etc.); Funeral practice (coffin wear, fungal growth or others related to the place and manner of the interment); and finally, forgotten or personal objects.

Photo-documentation was performed throughout the whole research. At the end of the field study, the remains were deposited into ossuaries of the cemetery.

3. Results

The anthropological intervention was carried out between 2012 and 2013 in the cemetery of Terrassa (Catalonia, Spain), with 168 unclaimed corpses exhumed. The observed funeral structures included multiple niches (41) and individual niches (56). The majority of the corpses were adult individuals (164) and just 4 were juveniles. The period of all analyzed interments was between 1937 and 2009.

The decedents were dressed up, some in vestments (105), others shrouded in white burial sheets (36), while in 27 cases it was not possible to observe the type of clothing.

Dry conservation of corpses predominated in the cemetery of Terrassa (114 cases). Skeletonization with dry putrid matter (81) was the most frequently observed decay stage, followed by mummification (29) (totally or partially mummified corpses). Few cases of skeletonization with partial desiccation (2), and skeletonization with dry putrid matter in combination with partial desiccation (2) were observed. Thirty-one cases of total skeletonization were analyzed. The wet conservation was less observed. In few cases, skeletonization with wet putrid matter was presented (24). Saponification was observed only in specific areas of the corpses (small pieces in abdominal area, and between distal parts of legs). No case of whole body saponification was observed. Corification was not observed during this study either.

Table 1 shows the different kind of artifacts found in the 168 individuals observed in Terrassa cemetery.

The artifacts can be divided into 4 types according to treatment/practice performed previously:

1. Autopsy practice/treatment that involves forensic or clinical autopsy (Fig. 1).

Table 1

Observed artifacts throughout exhumations in cemetery of Terrassa (Catalonia, Spain), and their indication of cemetery origin (1–2).

Type of artifacts	Number of cases observed in cemetery of Terrassa	Indication of cemetery origin
Autopsy practice	11	1
Embalming	0	
Aspiration trocar button	1	
Sewing of upper and lower jaw	9	
Cotton packing <i>buccal</i>	44	
nostril	40	
<i>buccal</i> + nostril	37	
Eye cup	2	
Cloths posterior cut	64	2
Diapers presence	37	
Waxes rest	0	
Decomposition accelerant product	2	
Coffins wear	23	
Fungal growth within the face or hands	12	
Sawdust from coffin adhering to body	7	
Unpigmented fauna	4	
Hair circular lost in the posterior part of skull	20	
Forgotten objects and associated with funerary, autopsy practice or thanatopraxy	4	

Indication of cemetery origin: highly indicative of cemetery context (1); suggestive of cemetery context (2).

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