

EVIDENCE OF CREMATIONS ON THE ARCHAEOLOGICAL SITE OF MINASPATA DURING THE EARLY TRAINING AND INTERMEDIATE PERIOD

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Abstract. The human bone remains recovered during the excavations of the years 2014, 2015 and 2016, at the archaeological site of Minaspatha, whose preliminary chronology corresponds to the Formative and Early Intermediate Period. Showed morphological alterations, the change of coloration on the surface and high fragmentation. The visible alterations in the bone remain present different

fracture patterns, which derive from the exposure to high temperatures. Developing the analysis identified two forms of cremations. The C.F -16 showed the cremation in dry bone, being the only case of this type of exposure to fire found so far at Minaspatha. Cremation in fresh bone or covered with soft parts that reached to develop incomplete and complete type.

Keywords. Cremations. Formative. Early Intermediate. Minaspatha. Patterns of fractures.

INTRODUCTION

Previous studies on fire exposure in the Cusco region are scarce, one of the closest cases corresponds to the research conducted by Allison Renee Davis between 2005 and 2007, at the site of Yuthu, where she indicates having found 27 individuals, among which, some remains showed traces of having been exposed to fire. Davis, describes that the human bone remains show a gray coloration and that some were found with areas of the skeleton exposed to fire and without apparent associates or remains of the burning as ash or coal. He also reports that he found contexts that could have been buried in a state of mummification (Davis, 2010, pp. 98-103).

Another reported case of skeletal remains exposed to high temperatures is that of Sutter & Cortes (2007, pp. 88-89) in Kasapata, who when reviewing the bone material reported the presence of localized burns in some parts of the bones in two individuals. The authors argue that added to the observations during the excavation, it would be a mortuary practice that can still be observed in a site on the coast called La Paloma, where as a ritual of burial the individual is placed hot stones in the body.

During the excavations carried out by the Ministry of Culture in the years 2014 to 2016, the human skeletal remains of funerary contexts corresponding to the Formative and Early Intermediate Period showed a high degree of deterioration, and a notable difference with respect to the individuals that come from later strata.

Soil type analyzes were carried out to determine the components of the soil that could be the cause of the terrible state of preservation in which human bone remains were found, with the result that natural degenerative agents on earth were not intervened. In the alteration of the skeletal remains, contrasting from other archaeological sites as well as from the specialized bibliography, it was determined that the alteration shown by human bone remains corresponds to typical reactions to exposure to fire. It is based on these observations that it is proposed that the individuals of these funerary contexts of the Formative and Early Intermediate would have been exposed to high temperatures, prior to their burial. If it was a common funeral practice for these periods or if it was only carried out in Minaspatha, they are aspects that can not be addressed yet because it is an ongoing investigation; however, some evidence found in the field as well as the data obtained during the cabinet work will be shown.

I. DISCUSSION

The human bone remains recovered in Minaspata during these three years of excavation showed two forms of cremation which were determined as: cremation in dry bone, which maintains similarities with that reported by Davis, (2010) and cremation in fresh or covered bone whit soft parts.

2. CREMATION IN DRY BONE

Cremation on dry bone results in cracking or cracking of the surface as well as longitudinal fractures, but the bones do not deform or twist (Ubelaker, 2007, pp. 56-57). This form of cremation was found in only one case among all the contexts reviewed to date and it is the funerary context CF-I6, context that presented similarities with some contexts mentioned by (Davis, 2010), besides being a context that would correspond to the Late Formative Period.

2.1. Funerary context C.F-I6 / PRIA LUCRE - 2014, 2015

Found during the excavations of the PRIA-Lucre, this context was found in the U.E. IV-A within level I; it is a burial of primary type, located inside a pit; that was delimited in the north side to the northwest by an alignment of lithic elements that begins with the structure of 2 faces and a row; the individual was flexed from left lateral decubitus; oriented towards the north; the skull was oriented towards the west, this individual was found at a level where mother rock was evident; on the individual's pelvis a quadrangular vessel was discovered and handles on the sides, which could correspond to a Marcavalle style vessel; likewise, a boulder, an animal bone needle and an obsidian tip were found associated with this individual. To this individual of feminine sex, of approximate age to the 35 years, the pathologies observed were caries and periodontitis.

The cabinet analysis noted the patterns of longitudinal fractures and the cracking of the bone surface, which suggest the form of cremation that corresponds to this individual is in dry bone, which shows that the cremation was performed at a distant moment in time. The death and having been found in anatomical coherence suggests that he was in a state of mummification at the time of cremation for his later inhumation, similar to the case of Yuthu.

Another form of cremation (cremation in fresh bone or covered in soft tissue) was also identified with two identifiable types by means of a macroscopic analysis, which are complete and incomplete.



Fig. 1. Right tibia of the individual, note the type of transverse fracture as well as the coloration of the surface.



Fig. 2. Note the cracking of the bone surface.

3. CREATION IN FRESH BONE

Cremation on fresh bone is when the bones are fresh or covered by soft tissues; transverse curvilinear fractures, longitudinal breaks of irregular morphology and pronounced deformations occur (Ubelaker, 2007, page 56)

Also several authors show the different phases and the physical and chemical changes that these suffer when they are cremated in relation to the temperature to which they are exposed and they vary in color, reduction, surface, consistency. All this in relation to the temperature of exposure, in addition the teeth of the individuals undergo different physical and chemical changes that are observable at the macroscopic level.

Two types of cremation were found in fresh bone or covered in soft tissue:

3.1. Incomplete cremation in fresh bone

The cremation in fresh bone of incomplete type refers when the exhibition only managed to reach some parts of the bones overcoming the cremation of internal organs and soft tissues within this type of cremation we have the following contexts:

3.1.1. Funerary context 03 (C.F - 03) / PIA Minaspata-2016

It is located within level E, this is a burial of primary type arranged inside a well, the individual was found in position of semi-flexed left lateral cube, oriented towards the Southeast, conserves 50% of the total of a skeleton; it was not possible to determine the sex of the individual due to the terrible state of conservation, but it is an individual of adult age. The skull of the individual was crushed by the pressure of a lytic element; A deterioration of the anatomical units with greater incidence towards the lower extremities that were located towards the East was noted. Associated with this individual were large fragments of black ceramic that apparently contained seeds and a greenish-yellow pigment; these correspond to a single vessel located at the feet of the individual.

From the field observations it was possible to determine the type of cremation to which this individual was subjected was incomplete; the skull and cervical vertebrae had less observable physical alteration, the deterioration was increasing so that it approaches the thermal focus that was located between the lower extremities and the hands of the individual affecting mainly the ulna and radius of both sides as well as both femurs, that presented transverse fractures and high fragmentation in addition to the brown and black coloration indicated an exposure to temperatures close to 600 °C.



Fig. 3. Note the increased alteration of the bones according to the proximity to the thermal focus; also the coloration and state that these present.

3.1.2. Funerary Context C.F-23 / PRIA LUCRE-2014, 2015

The funerary context C.F-23 was found in U.E- II; level O, this context is associated with C.F-22, this burial is of the primary type, located inside a well; constituted by vertically arranged slabs of semicircular shape, the individual was in a flexed position oriented towards the east, his feet were crossed at ankle height where the articulated ulna and radius were also found, as well as some carpus,

metacarpals and phalanges; the right scapula, the cervical vertebrae and some dorsal bones reclined to the east side, the column gave way from the sixth thoracic vertebra to the south; the ulna, radius and left humerus were at the height of the left temporal or, arranged from north to south; also at the height of the jaw some phalanges were found; the right humerus was placed below the right side of the jaw and the occipital.

It is in the field phase where the cremation indicators were evidenced and the main indicator was the state in which the bones found among them the color, the surface and the fragmentation of these, added to the indicators such as the ash that surrounded the individual, already suggest the practice of cremation.

In the cabinet analysis showed a high degree of bone fragmentation concentrated in the axial and upper appendicular area of the individual that should be the area closest to the thermal focus, can be seen in Fig. 5, where the integrity of the lower extremities is greater as the distal epiphysis of both tibias. The coloration of the different anatomical units vary between coffee and black, also, the cracks in these are not generalized so the cremation temperature varies from 400 ° to 800 ° C in the case of teeth, enamel detachment, that of the crowns and the presence of fissures in the root; show the damage caused by thermal exposure at temperatures above 400 °C to 800 °C.



Fig. 4. The transverse fracture, the deformation, the coloration of the bone that suggests this type and form of cremation.

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Fig. 5. Reconstruction of the individual, note the difference in affection of greater degree in the upper part of the body and lower in the lower part.

3.2. COMPLETE CREMATION IN FRESH BONE

This type of cremation refers to the individual's complete exposure to fire, in many cases only ashes and / or very small fragments of bones remain; if it is not meticulously registered in the field, its recognition in the cabinet will be impossible to carry out.

3.2.1. Funerary context 09 (C.F - 09) / PIA Minaspata-2016.

It is located within level E, in this burial it was not possible to determine its typology but it would be a secondary context located inside a well dug in the floor; the individual was found in an unknown position, without a defined orientation, 10% of the total of a skeleton; can not determine sex or age due to the poor state of conservation, this context could belong to a period similar to C.F-01, this individual seems to have been subjected to cremation. A tupu of corroded metal was found, with turquoise green coloring, near the teeth impregnated with this color. Likewise, an unknown material was found adhered to the tupu from which samples were taken for a future analysis. To the west, two burning points were found.



Fig. 6. Jaw that retains some roots of the teeth of this individual, in which the detachment of the crown is observed.

Due to the field evidence, it shows a high degree of deterioration, the poor state of conservation in which it was found did not allow sexual or age estimation. In the dentition it presents detachment of enamel and crown, these physical changes show temperatures superior to 600 °C.

3.2.2. Funerary context 10 (C.F - 10) / PIA Minaspata-2016

Located within level E, it is a burial of primary type deposited inside a well dug in the floor, in an unidentified position and unknown orientation, conserving approximately 20% of the total of a skeleton. In very bad state of conservation from which only very small fragments could be recovered; it is an individual of adult age and unknown gender; the color of the bone elements is beige in some portions and others in black and brown. It was found very close to the North profile associated with C.F - 08. Towards the west end very close to the skull was found a bifurcated silver feather that represents two faces with a headdress; this feather was found next to organic matter of white coloration and unidentified material stuck to said feather; due to the poor state of conservation of the individual only small bone fragments could be recovered, the long bones that could be distinguished were not collected at the time of the exhumation, due to their high state of deterioration.



Fig. 7. Note the high degree of deterioration and the coloration of the bone remains.

The evidence collected in the field plus the high degree of deterioration of the bones added to the coloration and fractures, suggest that it is a complete cremation at temperatures above 600 °C.

3.2.3. Funerary context 16 (C.F - 16) / PIA Minaspata-2016

It is located within level F, it is a primary type burial, it was found on an alignment of lithic elements that enclosed the individual, it was also surrounded by an element made of clay with straw. The individual was found in the left lateral ulna position, it is an individual of undetermined sex; The pelvis was found to be damaged, but only a small portion that is not diagnosed was preserved. He concluded that he is an adult of adult age because of the complete development of both femurs; The state of conservation is very bad and the estimated percentage of the skeleton is 25%. It was found above an accumulation of lithic elements and surrounded by stones with black stains, which indicate exposure to fire, which can be seen with the gray color of the earth and the coal points that were below and that they surrounded the individual. The lithic elements were deposited during combustion. It



Fig. 8. Note the high degree of deterioration and the coloration of the bone remains, also the ash that surrounds the individual adds to the black spots on the lithic elements.

was also possible to observe the presence of yellow and white pigments; This context is associated with Chanapata and Chanapata Derived ceramic fragments.

From the field evidence, a high degree of deterioration of the lower appendicular anatomical units is observed, added to the very poor state of conservation in which it was found, which did not allow for sexual or age estimation, in addition to this, the coloration of the skeletal remains with the fracture pattern suggesting cremation close to 600 ° to 800 ° C.

4. PRELIMINARY CONCLUSIONS

During the fieldwork it was possible to determine that the agents involved in a cremation can be observed macroscopically; like the ash and the coal, and the fuel used for the cremation and the own alteration of the bones.

The type of alteration observed in the different anatomical units of the individuals suggests that the individuals were exposed to temperatures that oscillate between 400 °C and can reach up to 800 °C for approximately 40 minutes.

Based on the patterns of fractures and alterations of the bones, it was determined that one of the individuals whose preliminary chronology corresponds to the Formative Period, presents the form of cremation in dry bone, whose exposure to fire was carried out at a time distant from its death and in a state of mummification since it presented articulation and anatomical coherence during the exhumation. Also, the funeral contexts whose preliminary chronology corresponds to the Early Intermediate, showed a cremation in fresh bone (covered with soft parts), suggesting an exposure to fire in times very close to his death, However, the different phases reached during the cremation For this it will be necessary to make archaeometric analysis such as X-ray diffraction, electronic scanning microscopy, among others that will help us to have a better clarity and making the information more reliable.

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