



BIOMETRIC MORPHO-ANATOMICAL CHARACTERIZATION AND DATING OF THE ANTIQUITY OF A TRIDACTYL HUMANOID SPECIMEN: REGARDING THE CASE OF NASCA-PERU

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ABSTRACT

Objective: Report the bioarchaeological case and perform the morpho-anatomical biometric characterization and dating of the antiquity of a tridactyl humanoid specimen found in Nasca-Peru.

Method: Qualitative approach study of a bioarchaeological case report of a tridactyl humanoid specimen. The imaging analysis applied the RadiAnt DICOM Viewer software version 2024.1 and the age dating technique used radiocarbon 14.

Results and Discussion: The tomographic imaging analysis showed that the specimen is a desiccated humanoid body with a biological architecture similar to that of a human, but with many morphological and anatomical structural differences such as the lack of hair and ears, an elongated skull and an increase in cranial volume. (30% greater than humans); maxillary and mandibular protrusion as well as protrusion of the eyeballs, absence of the fifth lumbar vertebra, tridactyly in both hands and feet, in addition to different foci of arthropathies. Carbon-14 dating analysis of the specimen gave an age of 1771 ± 30 years, corresponding to 240 AD-383 AD. (after Christ). Implications of the research: If it is demonstrated with further studies that this is a new humanoid species, it would have a strong impact on biology and science and scientific-historical and socio-cultural implications.

Originality/Value: The sui generis theme and the applied scientific methodology grant originality and value is given by the significance of the revealed findings, which ipso facto reveal the non-human humanoid biological existence.

Keywords: Anatomy, Morphology, Tridactyl, Bioarchaeology, Postmortem Case Report.

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CARACTERIZAÇÃO BIOMÉTRICA MORFOANATÔMICA E DATAÇÃO DA ANTIGUIDADE DE UM ESPÉCIME HUMANOÍDE TRIDÁCTILO: A RESPEITO DO CASO DE NASCA-PERU

RESUMO

Objetivo: Relatar o caso bioarqueológico e realizar a caracterização biométrica morfoanatômica e datação da antiguidade de um espécime humanoide tridáctilo encontrado em Nasca-Peru.

Método: Estudo de abordagem qualitativa de relato de caso bioarqueológico de espécime humanoide tridáctilo. A análise de imagens aplicou o software RadiAnt DICOM Viewer versão 2024.1 e a técnica de datação de idade utilizou radiocarbono 14.

Resultados e Discussão: A análise de imagens tomográficas mostrou que o espécime é um corpo humanoide dessecado com arquitetura biológica semelhante à de um humano, mas com muitas diferenças estruturais morfológicas e anatômicas, como falta de cabelos e orelhas, crânio alongado e aumento do volume craniano (30% maior que o humano); protrusão maxilar e mandibular, bem como protrusão dos globos oculares, ausência da quinta vértebra lombar, tridactilia em mãos e pés, além de diferentes focos de artropatias. A análise de datação por carbono 14 do espécime deu uma idade de 1771 ± 30 anos, correspondendo a 240 DC-383 DC. (depois de Cristo).

Implicações da pesquisa: Se for demonstrado com estudos posteriores que se trata de uma nova espécie humanoide, teria um forte impacto na biologia e na ciência e implicações histórico-científicas e socioculturais.

Originalidade/Valor: O tema sui generis e a metodologia científica aplicada conferem originalidade e o valor é dado pelo significado dos resultados revelados, que ipso facto revelam a existência biológica humanoide não humana.

Palavras-chave: Anatomia, Morfologia, Tridáctilo, Bioarqueologia, Relato de Caso Postmortem.

CARACTERIZACIÓN BIOMÉTRICA MORFO-ANATÓMICA Y DATACIÓN DE LA ANTIGÜEDAD DE ESPÉCIMEN HUMANOIDE TRIDÁCTILO: A PROPÓSITO DEL CASO DE NASCA-PERÚ

RESUMEN

Objetivo: Reportar el caso bioarqueológico y realizar la caracterización biométrica morfo-anatómica y datación de la antigüedad de espécimen humanoide tridáctilo encontrado en Nasca-Perú.

Método: Estudio de enfoque cualitativo de reporte de caso bioarqueológico de espécimen humanoide tridáctilo. El análisis imagenológico aplicó el software RadiAnt DICOM Viewer versión 2024.1 y la técnica de datación de antigüedad usó el radiocarbono 14.

Resultados y Discusión: Al análisis imagenológico tomográfico se evidenció que el espécimen es un cuerpo humanoide desecado de arquitectura biológica similar al humano, pero con muchas diferencias estructurales morfológicas y anatómicas como la carencia de cabello y de orejas, cráneo con alargamiento y aumento del volumen craneal (30% mayor respecto al humano); protrusión maxilar y mandibular así como protrusión de los globos oculares, ausencia de quinta vertebra lumbar, tridactilia en ambas manos y pies, además de diferentes focos de artropatías. El análisis de datación por Carbono-14 del espécimen dio una antigüedad de 1771 ± 30 años, correspondiente a 240 d.C.-383 d.C. (después de Cristo).

Implicaciones de la investigación: De demostrarse con mayores estudios que se trata de una nueva especie humanoide tendría un fuerte impacto en la biología y la ciencia e implicancias científico-históricas y socioculturales.

Originalidad/Valor: El tema sui generis y la metodología científica aplicada otorgan la originalidad y el valor esta dado por la trascendencia de los hallazgos revelados, que revelan ipso facto la existencia biológica humanoide no humana.

Palabras clave: Anatomia, Morfologia, Tridáctilo, Bioarqueología, Reporte de Caso Postmortem.



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1 INTRODUCTION

Nowadays it is possible to study the social and environmental management of ancient extinct societies using avant-garde and emerging scientific approaches such as social archeology and bioarcheology. These modern disciplines can provide valuable insights into how ancient societies interacted with their natural environment, managed available resources, and managed their lifestyle and economic livelihood (Milner & Larsen, 2023; Spencer, 1987).

Social archeology can investigate: how extinct ancient societies structured their social, political, and cultural systems in relation to the natural environment; how such societies organized the production, distribution, and consumption of natural resources and other resources necessary for their subsistence; and how the environment, agriculture, fishing, hunting, water management, housing and infrastructure construction, and other activities were managed as an expression of human interaction with their environmental environment. (Milner & Larsen, 2023; Carrión et al., 2015).

Bioarcheology can provide insights into the health, disease, diet, and well-being of extinct ancient populations, which can give insight into how environmental and social management affected the lifestyles and quality of life of these past populations. Bioarcheology also studies the association between human biology and the environmental environment, considering human biological adaptation to specific environmental conditions, exposure to disease, availability of food resources, and other environmental and cultural factors that influenced the health, disease, and well-being of ancient settlers (Thomas, 2016; Turner & Klaus, 2016). In this way, bioarcheology provides new biocultural perspectives in bioarcheology and biocultural anthropology by offering modern paleoepidemiological and biocultural approaches on ancient morbidity and mortality states (Milner & Larsen, 2023; Zuckerman & Harper, 2016; Zuckerman & Martin, 2016).

This report corresponds to the bioarcheological case of Nasca-Peru, which involves a strange desiccated humanoid body that was found fortuitously by a “huaquero” (person who is dedicated to searching for huacas and buried archeological treasures), in 2016 between the provinces of Palpa and Nasca of the Peruvian south, which was taken in 2019 to the “Universidad Nacional San Luis Gonzaga” (UNSLG) of the city of Ica-Peru, for purposes of



custody and study (Hernández-Huaripaucar et al., 2024). The specimen known as “the mummy Mary” was codified as specimen M001; which, however, is in the process of investigation, there are preliminary studies carried out by researchers from Russia (Korotkov, 2020), France (Jamin, 2020), the United States (Miles, 2022), Switzerland (Martínez, 2018) and Mexico (De La Cruz, 2021).

The purpose of this study was to report the bioarcheological case and to carry out the biometric characterization of the morpho-anatomical and dating of the antiquity of the humanoid specimen found in Nasca-Peru.

2 THEORETICAL FRAMEWORK

The study of the social and environmental management can relate to and benefit from the bioarcheological and social archeological studies by providing information on past cultural practices, environmental impacts and the importance of cultural heritage for conservation and sustainable development.

2.1 RELATIONSHIP OF SOCIAL AND ENVIRONMENTAL MANAGEMENT WITH SOCIAL BIOARCHEOLOGICAL AND ARCHEOLOGICAL STUDIES

Interdisciplinary studies of bioarcheology and social archeology will provide information on environmental impact assessment, because bioarcheological studies (Milner & Larsen, 2023; Turner & Klaus, 2016; Spencer, 1987) can reveal information on diet, health-disease status, lifestyles (Milner & Larsen, 2023) and cultural practices of an ancient population, which will give insight into the environmental impact of past human activities on the environment, such as farming, hunting or gathering, and how these activities affected ancient local ecosystems.

On the other hand, social bioarcheological and archeological studies (Hall, 2001) can contribute to the management of cultural and environmental heritage, because bioarcheological findings (Milner and Larsen, 2023) can provide valuable information about the history, culture and social structure of a region, which can influence decisions and measures for the conservation, protection, preservation and management of cultural and environmental heritage.

Postmortem case report studies derived from bioarcheological findings can contribute to increasing public awareness of issues related to health, history, as well as cultural and biocultural diversity (Thomas, 2016); promoting education and culture of social and



environmental management; as well as highlighting the importance of responsible management of natural and cultural resources (Zuckerman & Harper, 2016; Zuckerman & Martin, 2016).

2.2 SOCIAL ARCHEOLOGY AND SOCIAL BIOARCHEOLOGY

Social archeology is a branch of archeology focused on the study of social relations and social structures in the past through the analysis of archeological materials; which studies how social relations, hierarchies, ideologies and other cultural aspects manifest themselves in archeological patterns (Baquedano and Lillo, 2022; Carrión et al., 2015; Swift et al., 2022).

Social bioarcheology is an interdisciplinary field that combines archeology with biological anthropology and social anthropology to study the relationships between biology and culture in past human populations. It focuses on the analysis of human remains and their archeological context to understand aspects such as health, diet, mobility, funeral practices and other social and cultural dimensions of ancient populations (Agarwal and Glencross, 2011).

In summary, it is comprehensively assumed that social archeology and bioarcheology can provide a comprehensive view of how past societies interacted with their environment, how they managed natural resources, and how they adapted to environmental changes over time. This information can serve as a reference and have important applications to understand contemporary environmental and social challenges and develop sustainable management strategies in current times.

2.3 MORPHO-ANATOMICAL BIOMETRIC CHARACTERIZATION

The study of desiccated human or biological remains of other species is critical to understanding the history and culture of ancient civilizations. In the case of the geographical area of Nasca, Peru, this region has been the object of great archeological interest due to the gigantic and mysterious geoglyphs, to the fascinating hydraulic constructions of underground aqueducts among other wonders of the Nasca culture (Roque, 2022; García, 2022). In this context, the discovery of a desiccated humanoid body with sui generis characteristics constitutes an exceptional finding that offers a unique opportunity to investigate its biology, morphology, anatomy, biometrics and cultural practices that this individual developed and its link with the ancient Nasca civilization.

Morpho-anatomical biometrics in bioarcheological contexts refers to the study, metric measurement and analysis of the physical and anatomical characteristics of human remains



(Cura, 2022; Verano, 2000); which in this case is reported refers to a dried humanoid body found as a bioarcheological find in Nasca.

2.4 DATING THE AGE OF BIOLOGICAL BODIES

The radiocarbon age dating technique, also known as carbon dating ^{14}C , is a method used to determine the age of organic carbon-containing materials, which is used in research in bioarcheology, paleomedicine and paleopathology.

The principle of radiocarbon dating is based on the use of carbon 14 (C-14 or ^{14}C) which is a radioactive isotope of carbon that is produced in the Earth's atmosphere when cosmic rays interact with nitrogen. This C-14 is incorporated into the biosphere through photosynthesis and is found in constant amounts in living organisms; but when this organism dies, it no longer incorporates C-14 , and the amount present in its tissue begins to disintegrate at a constant rate (Margariti et al., 2023; Taylor, 2020).

Regarding the decay rate of carbon 14, it is known that C-14 has a half-life of approximately 5,730 years, and that after this time, half of the C-14 present in an organism will have decayed into nitrogen 14 (N-14); therefore, upon knowing this decay rate, the age of an organic material can be calculated by measuring the amount of C-14 remaining in it and comparing it with the amount present in contemporary living organisms (Taylor, 2020, Hajdas et al., 2021; Seiler, 2015).

A series of steps are performed on the antiquity dating process to date a specimen, including the extraction of organic material, the preparation of samples for the measurement of C-14 , and finally, the measurement of the ratio of C-14/C-12 by techniques such as mass spectrometry (Seiler, 2015).

2.5 BIOARCHEOLOGICAL FINDINGS

Bioarcheological findings are human remains or archeological evidence related to human biology and past assumed behavior, which allow to deduce valuable information about aspects such as health, disease, mortality, demography, diet, funeral practices, and the interaction between human groups and their environment. These biological finds generally include skeletons, skulls, bones, teeth, hair, preserved soft tissues, as well as materials and artifacts in associated archeological contexts. Bioarcheological studies allow researchers to reconstruct the life and socio-cultural practices of past populations, thus contributing to



knowledge of human history and the evolution of societies (Milner & Larsen, 2023; Milner & Larsen, 2023; Tung & Knudson, 2011).

3 METHODOLOGY

Qualitative approach study of macroscopic and imaging analysis of a desiccated humanoid body using methods of biometric morpho-anatomical analysis, including anthropometric measurements, macroscopic observation with magnification and radiological and tomographic analysis; likewise, radiocarbon-14 dating methods were applied.

3.1 IMAGING TECHNIQUE

For the imaging analysis, RadiAnt DICOM Viewer version 2024.1 software was used to analyze tomographic images of the head and whole body. The RadiAnt DICOM Viewer is specialized medical software designed to display medical images in DICOM (Digital Imaging and Communications in Medicine) format.

RadiAnt DICOM Viewer has the function of making measurements of lengths and angles, which allow the user to measure distances between two points in the image and determine the length and angle between two anatomical structures. RadiAnt DICOM Viewer can also perform volume measurements on three-dimensional structures, which is very useful in computed tomography (CT) images where volumes of tissues, organs or lesions can be identified and measured; likewise, the software allows calibrating the measurements to ensure the accuracy of the results (RadiAnt DICOM, 2024).

The qualitative-quantitative imaging analysis of the skull and facial region was carried out using cephalometric parameters based on craniometric anatomical points and angular measurements, such as the SNA angle (Sella, Nasion and A point) and the SNB angle (Sella, Nasion and B point), which digitally measure the angle between said craniometric points, which in this study served to determine the maxillary and mandibular protrusion that this studied specimen possesses.

3.2 CRITERIA FOR ASSESSMENT AND INTERPRETATION

The assessment criteria applied were the following:

SNA angle: normal value around $82^{\circ} \pm 2^{\circ}$.



SNB angle: normal value around $80^{\circ} \pm 2^{\circ}$.

It was established that when these angles deviate from normal values, they can be interpreted as indicators of protrusion or retrusion both maxillary and mandibular, for example the presence of:

- Maxillary protrusion: when the SNA angle was greater than normal.
- Maxillary retrusion: when the SNA angle was lower than normal.
- Jaw protrusion: when the SNB angle was greater than normal.
- Jaw retrusion: when the SNB angle was lower than normal.

It is important to note that the diagnoses made based on these ANN and SNB angles were contrasted with other clinical data such as facial morphological analysis that also revealed the same diagnoses of double maxillo-mandibular protrusion.

The cephalometric analysis applied in this research is fundamental in investigations related to dentistry, orthodontics, maxillofacial surgery, but also in bioarcheology, paleopathology, since it provides invaluable qualitative and biometric information on craniofacial morphology (Bone, 2023; Castedo et al., 2022 Aguilar-Hernández and Alba-Cruz, 2020).

The cephalometric analysis in a research allows to evaluate the growth and craniofacial development, which is fundamental to understand the etiology and prognoses of malocclusions and other pathologies; Likewise, it allows to investigate the morphological variability of an individual or population in relation to ethnicity, age, gender and other factors, which contributes to better understanding phenotypic diversity and its impact on health and craniofacial function (Aguilar-Pérez et al., 2024; Castillo-Páez and Villasmil-Suárez, 2021).

3.3 METHOD AND TECHNIQUE OF MORPHOANATOMICAL ANALYSIS

The macroscopic morphological analysis was carried out by means of the method of direct and instrumental observation using magnification, which allowed to describe and document meticulously the physical characteristics, such as height, physical dimensions, facial morphology, the superficial structure of the head, hands, feet and spine, as well as the possible pathological signs or traces of morpho-anatomical variants present in the body.

The morpho-anatomical biometric analysis was carried out using the RadiAnt DICOM Viewer version 2024.1 software that allowed to analyze tomographic images of the head and the whole body, obtaining measurements of lengths, angles and volume of the analyzed anatomical structures.



3.4 BIOLOGICAL BODY AGE DATING TECHNIQUE

The antiquity dating technique was performed by applying radiocarbon 14 (C-14 or ^{14}C) which is a radioactive isotope of carbon, based on the rate of decay of said C-14, that is, the antiquity of a skin sample with collagen content from specimen M01 was calculated and the amount of C-14 residual in this organic material was measured and then compared with the amount present in current living organisms.

The C-14 antiquity dating process of the analyzed sample was performed in four steps: sample preparation, graphitization, mass spectrometry analysis with accelerators and calibration.

4 RESULTS AND DISCUSSION

4.1 CASE PRESENTATION

Specimen M01, is impregnated with a white powder that the physical-chemical analysis called multielemental spectrometric analysis turned out to be diatomite (diatomite) dust, which according to its discoverer in its funeral chamber was completely covered by this material. Diatomaceous earth is derived from the fossil remains of microscopic algae, which the current commercial environment is used as an effective and harmless natural insecticide for humans and domestic animals, causing the death of insects and parasites by a dehydration mechanism. Therefore, this land of diatoms is the reason for having dehydrated, dried and preserved in good condition this humanoid body.

4.2 HEAD ANALYSIS

4.2.1 Cranial Examination

The macroscopic examination with magnification shows that the head of the specimen lacks hair and earlobes presenting only the holes of the ear canals. The most obvious feature of the skull is that it has a noticeable elongation, without external signs of cranial compression by external agents. Specifically, it is the cranial vault that presents an atypical growth and development, with an approximation to the dolichocephalic biotype. On the other hand, the cranial volume is 30% greater than that of a normal human.



Figure 1

Length and height of skull and face of specimen M01

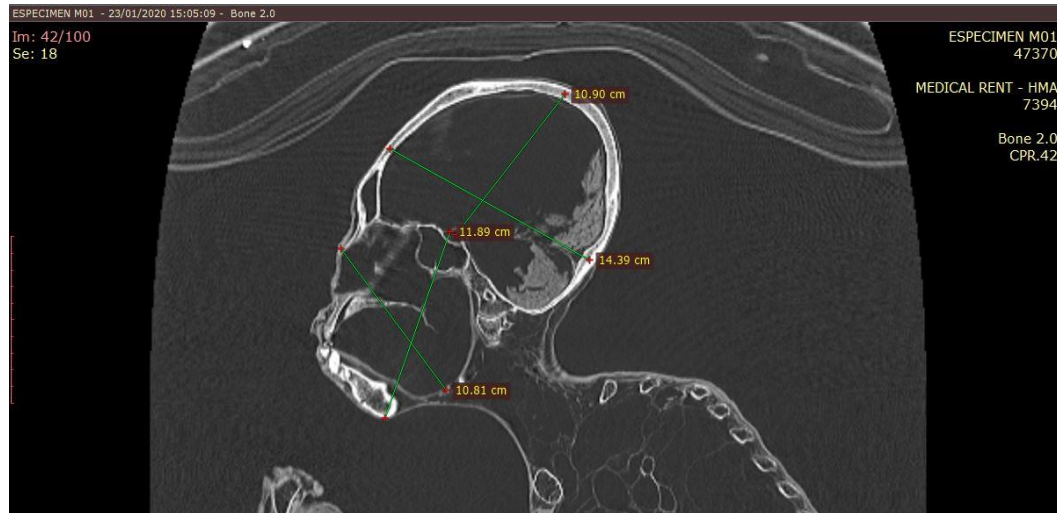


Figure 2

Comparison between cranial and facial volume between Esp. M01 and homo sapiens sapiens.



Note. Skull/Face Ratio Esp. M01: 1/1.3 (30% higher); Skull-Human Face Ratio: 1/1
Source. Image left: UNSLG imaging database. Image right: Center for Advanced Medical Research

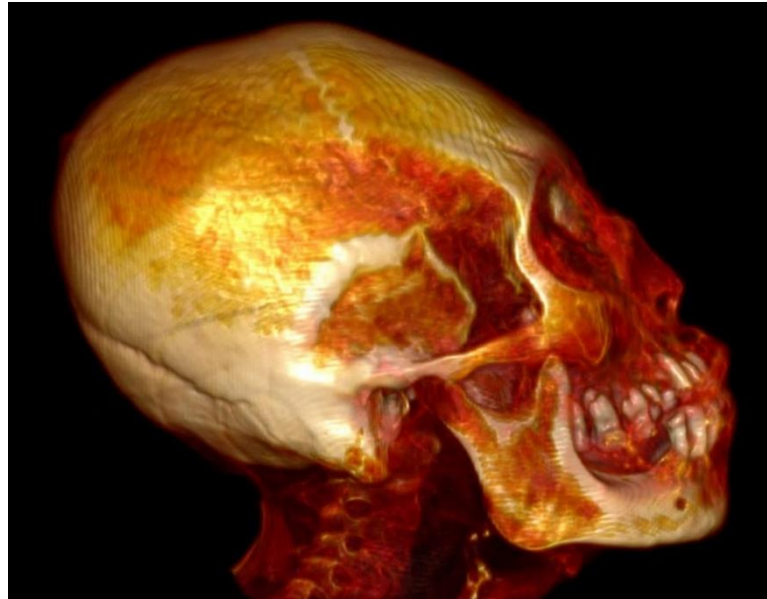
Examination of the facial, nasal and orbital region shows atypical qualitative and biometric features, for example a strong maxillary and mandibular protrusion and lack of lip closure is observed, in the orbital region there is also a marked protrusion of the eyeballs and in the nasal region there is a nose of almost normal appearance and dimension, except for a slight compression. Facial examination shows a face with an exophthalmic face, with the middle third of the face forward, with apparent facial symmetry, with a convex profile and presence of bulky lips.

Intraoral examination shows severe protrusion of upper and lower incisors, loss of 6 teeth, presence of 4 root remnants, severe tooth abrasion, absence of 3 of 4 third molars.



Figure 3

Left side view of M01 head, with toothless rear-lower area (3D reconstruction)



4.2.2 Hand and foot analysis

The strangest and most salient features of the humanoid body are found in its hands and feet, which show a quadruple tridactyly, i.e. only three fingers on both hands and feet.

Superficial macroscopic examination and the use of magnification magnifiers show a superficial skin appearance and natural morphology in both hands with uniform topographic details, as well as a uniform volumetric transition between the width of the carpus, the width of the metacarpal and the width of the proximal parts of the three fingers of the hand. At first glance it is noted that the hands are almost as wide as that of the normal human, but much longer with an average length of 20.18 cm. In the feet to superficial macroscopic observation, similar morphological characteristics are also evident, that is, harmonies in the transition from the regions of the tarsus to the metatarsus and from the metatarsals to the three toes. The appearance of the feet is also of a similar width to human, but much longer, with an average length of 22.41cm.

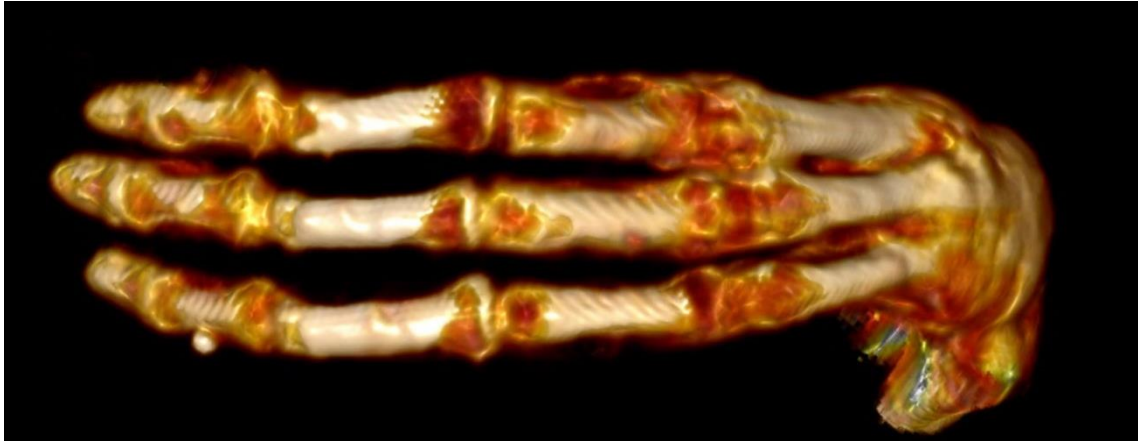
The imaging analysis based on tomographic images, shows at the level of the hand, a harmony and anatomical coherence between the different (eight) bones of the carpal (scaphoid, semilunar, pyramidal, pisiform, trapezoid, trapezoid and hooked bone) showing an integrally uniform morphology and a volumetric coherence with the adjacent region that is the metacarpal formed by three metacarpals; likewise, a regular transition of the width of the metacarpal region with the proximal portions of the first three phalanges (or proximal phalanges) of the three



fingers of the hand is also evidenced. It is remarkable the presence of four phalanges for each finger of the hand unlike the three phalanges that a normal human possesses.

Figure 4

M01 Specimen Flexed Tridactyl Left Hand (3D Reconstruction)



The imagenological analysis of the feet, reveals that in the tarsus the bones and joints are harmonious and that all seven tarsal bones are complete (calcaneus, astragalus, scaphoid or navicular, cuboids and the three cuneiforms) delimiting a silhouette with a volume and integral perimetric morphology congruent to each other and to the three adjacent metatarsals, no spaces or steps being observed in the distal portions of the tarsal region by a supposed amputation of the first and fifth metatarsals; in such a way that a transition in anatomically uniform width between the tarsus and metatarsal is evidenced, as well as between the region of the three metatarsals and their Pulation with the proximal extremities of the first phalanges on each of the toes. At the level of the toes, four phalanges are also seen on each of the three toes, when in normal humans it is only three per toe.

Figure 5

Tomographic sagittal cut of the right foot of specimen M01





Finally, compared to the normal human foot, a different morphology and anatomy is revealed at the level of the calcaneal bone (which forms the heel of the foot), characterized by the absence of the large posterior protuberance that the calcaneus possesses. This posterior protuberance of the calcaneus influences the biomechanics of standing, as it gives human feet stability in the upright position allowing it to maintain the body with a certain degree of body tilt backwards. It follows that due to this morpho-anatomical variant in both feet of specimen M01, it is inferred that this living individual walked forward inclined to achieve proper stability.

4.2.3 Analysis of the Spine

Other relevant findings are observed at the spine level that differ from normal human anatomy, some anatomical variants, and arthroscopic lesions at different vertebral levels. Thus, for example, seven cervical vertebrae (C), twelve thoracic vertebrae (T), four lumbar vertebrae (L) and a sacrum (S) are observed; emphasizing that in a normal human there are five lumbar vertebrae.

The imaging analysis according to the pathological anatomy at the level of T2, T7, T12 and L1 are identified vertebral arthropathies (probably osteoarthritis and osteoarthritis), which added to the arthropathies observed in the hands and feet would be a case of polyarthritis. At the level of the pelvis, a disjunction is visualized between the fifth lumbar vertebra (L5) and the base of the sacrum, i.e. on the promontory. The promontory is a prominence formed by the union of L5 with the sacrum, and is an anatomical reference point for separating the L5 from the sacrum.

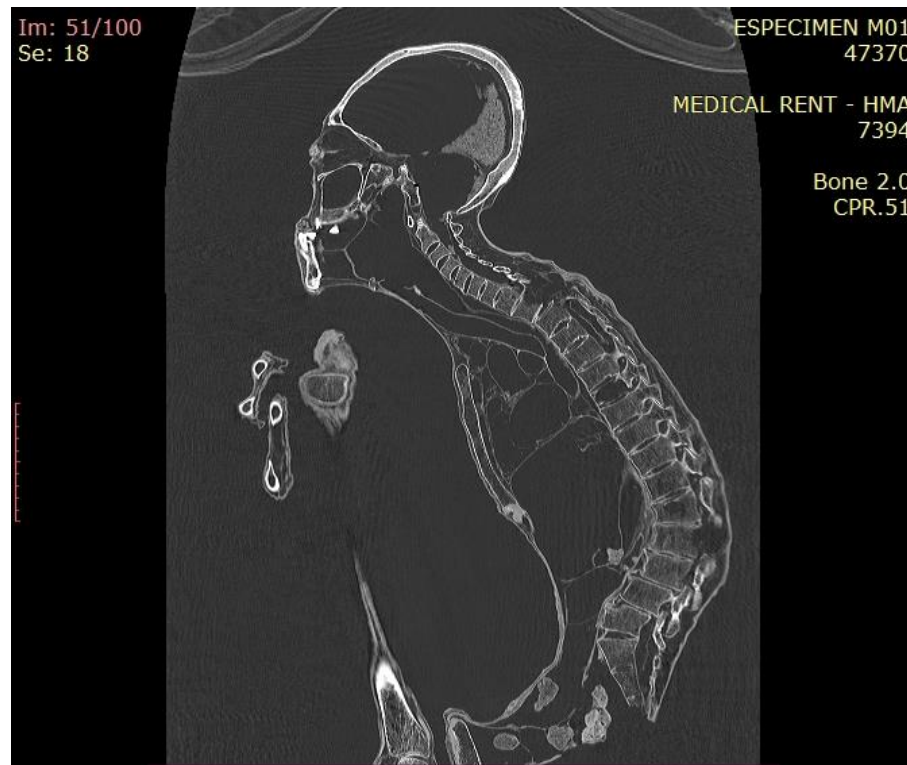
Due to the presence of a large lesion and perforation of the perineum region and pelvic cavity, it is observed that such extensive lesion involves the terminal part of the spine, so the coccyx and the distal part of the sacrum, exactly the last two sacral portions (S4 and S5) are absent.

Other morpho-anatomical variants are seen in the arms, forearms and other regions, but these will be described in subsequent reports.



Figure 6

Body tomographic sagittal cut specimen M01



4.2.4 Aging Dating Analysis

In this study, the radiocarbon radiometric dating method that used the radioactive isotope carbon-14 (^{14}C) to determine the age of carbon-containing materials was applied and was carried out in the laboratory of the Institute of Physics of the National Autonomous University of Mexico (UNAM), from a skin sample of specimen M01.

The antiquity dating report had the key of IFUNAM- LEMA-FPS05-01 and was carried out under the standard: 9001 17025; with the following data: the laboratory key was LEMA 895, the user key was “María bottom” and the analyzed material was a sample of skin collagen. The methodology of radiometric radiocarbon dating analysis (^{14}C) was performed using four processes:

A. Sample preparation

This 1st phase consisted of the extraction of keratin from the skin sample, which was previously subjected to an ultrasonic cleaning with ultrapure water, to remove salts and other adhered contaminants. A chemical cleaning protocol ABA (acid-base-acid: HCl - NaOH - HCl) was then applied. Subsequently, extraction was performed using a solution based on



dithiotreitol (DTT), sodium dodecyl sulfate (SDS) and Trizma (Tris). Finally, keratin was precipitated, with a solution of trichloroacetic acid (TCA) and sodium deoxycholate (DCO).

B. Graffiting

The samples were processed in an Ion Plus AGEIII Automated Graffiting Equipment, to transform their carbon content into CO₂ and then this into pure graphite.

C. Mass Spectrometry Analysis with Accelerators

The analysis of ¹⁴C, ¹³C and ¹²C of graphite obtained by mass spectrometry with accelerators was performed. Tandetron equipment from High Voltage Europe Engineering (HVEE) was used, with an accelerator of 1 mv of energy. Based on the values obtained, the Radiocarbon or Conventional Age (¹⁴C) was calculated, given in years before present (a.P.), that is, before 1950. The Radiocarbon Age was corrected by $\delta^{13}\text{C}$ fractionation from the ¹³C/¹²C ratio in the sample.

D. Calibration

The radiocarbon age was corrected for variations in the ¹⁴C content in the atmosphere, with the OxCal v4.2.4 program, using the SHCal13 calibration curve (Hogg et al, 2013). The Calibrated Ages given in years after Christ (A.D.) were obtained. For each of them, the most probable intervals were calculated, with confidence levels of 68% (1 σ) and 95% (2 σ).

The dating report of the skin sample specifically of a keratin fraction code LEMA 895.1.1 corresponding to specimen M01, resulted in an age of 1771 ± 30 years; which, expressed in age calibrated according to the birth of Jesus Christ by world convention, at 95% confidence level years it is established that the age of the sample analyzed corresponds to 240 A.D. - 383 A.D. (after Christ).

Table 1

Age dating of a skin sample from specimen M01

LEMA key	Fraction Dated	Radioisotope Carbon-13 ($\delta^{13}\text{C}$)	Age ¹⁴ C Years (at ± 10)	Calibrated age Confidence Level	
				1 δ (68%)	2 δ (95%)
MOTTO 895.1.1	Keratin	-19%	1771 ± 30	250 AD – 357 AD.	240 A.D. – 383 A.D.

According to this ancient result, the M01 desiccated body corresponds to the time when the Paracas culture died (900 BC until 200 AD), but at the height of the Nasca culture (100 BC and 700 AD), according to official and recent data.

The Nasca and Paracas cultures flourished in ancient Peru during the period known as the Early Horizon, which spans approximately 900 BC to 200 AD. The Paracas culture



developed before the Nasca culture and is considered a precursor to the latter. The Nasca culture reached its peak between 100 BC and 700 AD.

4.3 DISCUSSION

This bioarcheological discovery has generated great impact nationally and worldwide in the scientific, academic and media field because of the scientific-historical, socio-cultural and philosophical-religious implications it has, also because it disrupts sensitive issues of society that for centuries have been considered immovable truths, however, the most transcendental of the findings revealed, is that it would be validating *ipso facto* by the existing physical evidence, that the ancient pre-Columbian cultures coexisted with another intelligent humanoid biological species (Hernández-Huaripaucar, 2023). However, despite these findings and preliminary research carried out in other countries (Korotkov, 2020; Jamin, 2020; Miles, 2022; Martínez, 2018; De La Cruz, 2021), the issue remains controversial (Lombardi and Rodríguez, 2021) and in academic, scientific and media forums there is still no consensus and it is expected that more and new research will continue to contribute to elucidate this issue definitively, which probably leads to a new scientific paradigm (Rabadán, 2017).

The findings of this morpho-anatomical biometric study offer a detailed, complete and accurate description of the biometric physical characteristics of the dried humanoid body, and *ipso facto* provide valuable information about its unique biological architecture; highlighting its elongated skull and a quadruple tridactyly; however, the archeological context where it was found that would have allowed social bioarcheology (Milner and Larsen, 2023; Carrión et al., 2015; Spencer, 1987) to establish associations or cultural links of this humanoid biological specimen and the ancient human populations of the Nasca civilization (Béguelin et al., 2024; Shin and Bianucci, 2021).

Specimen M01, by the morpho-anatomical features of its pelvic bone structure, is compatible with a gynecoid pelvis and would correspond to a female individual, however, at the level of the skull it presents android features (typical of men) represented by large cranial protuberances such as the glabella, external occipital protuberance and mastoid processes, as well as a remarkable thickness of the cranial bones; therefore, in the face of these evidences, the identification of the genus of the specimen is questionable. Due to the morpho-anatomical characteristics in the external cortical layer of bone that do not reveal traces of external compressions due to cranial deformation, it is assumed that the cranial elongation would be



natural; since compression by splints or bandages leaves typical marks (Ross et al., 2009; Menanteau, 2020).

From the perspective and foundations of social bioarcheology (Baquedano and Lillo, 2022; Swift et al., 2022; Agarwal and Glencross, 2011), the finding of widespread wear of teeth in extreme degree provides information about the food style and social life of this individual, which suggests that he would have had a very hard diet, that probably the dental system suffered from parafunctions or had multifunctions such as the use of teeth as defense instruments or work tools; which caused its exaggerated wear.

At the level of the jaw, in the left posterior area the loss of two molars is observed, however, the salient feature is that the residual bone retains a regularity and flat surface, compatible with a surgical intervention, emerging the unknowns of those who did it and how they did it. Therefore, in the face of the conjugation of so many supposed alterations of the bucomaxillofacial, mandibular and cranial region; they suggest that they would not be pathologies, but natural traits of another species of superior hominids (Hernández-Huaripaucar, 2023).

The superficial and imaging morphological analysis of the carpo-metacarpal joints of the hands and the tarso-metatarsals of the feet show no obvious signs of having suffered a disarticulation of two metacarpals and two metatarsals with all their phalanges, since having suffered such surgical amputation would have left traces of spaces and steps in the distal portions of the carpo (of the hand) and tarso (of the foot), which would be easily detectable in tomographies and even with a simple x-ray (Previgliano, 2005; Sutherland, 2019).

Finally, this research seeks to contribute in a scientific way to solving the enigmas that still surround this strange bioarcheological find, unique in the world and that could mean not only a change of scientific paradigm (Rabadán, 2017), but of a historical, social and cultural nature that could consequently revolutionize human consciousness, as well as the perception of the world and life, as it is established until now (Hernández-Huaripaucar et al., 2024).

5 CONCLUSION

The morphological analysis of surface and imaging tomography concludes that specimen M01 is a desiccated humanoid body of biological architecture similar to human, but with many structural differences and morphological and anatomical singularities, in addition to showing signs of polyarthritis due to the multiple foci of arthropathies in the spine and hands and feet. Superficial morphological and imaging analysis of the carpo-metacarpal joints of the



hands and the tarso-metatarsal joints of the feet show no obvious signs of having suffered a disarticulation or amputation.

The Carbon-14 dating analysis of specimen M01 reveals an antiquity of 1771 ± 30 years, corresponding to 240 A.D.-383 A.D., so it would have coexisted with the ancient Nasca civilization.

These findings have an impact and relevance in the field of world research and have the potential to contribute significantly to the field of bioarcheology, archeopathology and archeology in the ancient Nasca civilization, providing rigorous scientific data on a unique find in the region and the world. In addition, the results of this study will enrich scientific knowledge about the biological and cultural diversity of ancient civilizations and may have broader implications for understanding the history and culture of ancient civilizations in South America.

The results of this study are expected to provide a solid basis for future research in the field of bioarcheology and archeology in Nasca, as well as for the preservation and dissemination of the cultural heritage of this region. On the other hand, the incredible findings of this study can contribute to the development of conservation and management policies of the archeological heritage, the development of culture and the strengthening of tourism in Nasca and its surroundings.

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