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EVIDENCES OF THE GUANCHE MUMMY OF THE NATIONAL ARCHAEOLOGICAL MUSEUM THROUGH THE COMPUTED TOMOGRAPHY

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Abstract. The Ministry of Education, Culture and Sports, the Quirónsalud University Hospital of Madrid and the company Story Producciones signed in 2016 an agreement to carry out a study using Computed Tomography Scan (CT scan) on four mummies of the National Archaeological Museum: three of them were Egyptian mummies and the other was a "guanche" mummy.

The "guanche" mummy of the National Archaeological Museum is the best preserved of the mummies of its kind. We knew its outer appearance, but we did not know what it hid inside. Using a CT Scan of the latest generation, we have been able to access its interior and it has allowed us to analyze the mummy in detail, through high-resolution images and and it has been very useful in clarifying three-dimensional reconstructions.

The hypotheses about whether the "Guanche" practiced evisceration or not, are contradictory. Thanks to the CT scan, we have verified that, in effect, this mummy had not been eviscerated. Undoubtedly, these findings help us to better understand what the way of life, customs and mummification processes of the Guanche population could may have been like.

Keywords. Guanches mummies. Mirlado. Evisceration. Computed Tomography Scan. Conservation.

In 2015, a re-registration of collections between State Museums took place that affected the collections from the Canary Islands, it ruled that the would be regrouped and integrated into the collections of the National Archaeological Museum (MAN). On December 14 of that year, the transfer of the "guanche" mummy and a collection of skulls that were preserved in the National Museum of Anthropology (MNA) was carried out[1]. Since the beginning of 2015, works have begun on the two museums in order to have the infrastructure and the best conservation conditions available for these pieces that increased the collection already existing in the MAN. There was also the collaboration of the Institute of Cultural Heritage of Spain and the General Sub-Directorate of State Museums. There is no doubt that the most outstanding piece of this collection is this "guanche" mummy, considered to be the best preserved of its kind. (Fig. 1).

The works initiated at that time, have been successively complemented with those carried out to date-interdisciplinary research work between MAN technicians and external collaborators from scientific institutions. The exceptional nature of the mummy has motivated these investigations, which have resulted in a notable increase in the knowledge of the mummy, as well as in the procedure of "mirlado" ("guanche" embalming process) or mummification to which it was subjected. In this context, it has been possible to date this mummy through C^{14} and today we know that the person lived and died between the twelfth and thirteenth centuries[2].

We will refer on this occasion only briefly to the history of this mummy discovered in the Barranco de Herques, in a funerary cave that contributed an abundant number of mummified specimens and that from those dates until today has not been located. This archaeological find took place in the years 1763-1764, according to the news provided by Viera y Clavijo. In the month of July 1764 the mummy was sent to Madrid, to the Court, on behalf of the Regidor Don Francisco Javier Machado. On August 23, the mummy arrived at its destination and remained in the house of this Regidor until December 16, 1766, when it was moved to the Cabinet or Museum of Antiquities of the Royal Library. Since then this specimen had different destinations, the next one was the Royal Natural History Cabinet founded by Carlos III, which in 1815 changed its name to the Museum of Natural Sciences. There is evidence that it left this Museum to be displayed at the Universal

[1] Ministerial Order OC 08/15 (25/06/2015).
[2] Sánchez Cabrero, B., Gómez Espinosa, T. (2018), pp. 473-480.

Fig. 1. Photograph of the guanche mummy of MAN, (Photo: Fernando Velasco, MAN).

Exhibition in Paris in 1878. In 1919 it was moved to a new museum, the Anatomical or Anthropological, an institution that was the origin of the current MNA[3].

In 2016, an agreement was signed between the Ministry of Education, Culture and Sports, the Quirónsalud Hospital and Story Productions to perform a CT scan to the mummies of this Museum, three egyptians and a "guanche". For two years the work team has carried out an interdisciplinary investigation through historical studies, the results of the tomographies and visual examinations, have allowed us to extend the knowledge of it and to obtain important conclusions, besides being able to improve its conditions of conservation.

RESULTS OF THE CT SCAN STUDY

The dimensions of the mummy measured through the CT scan are 162 cm high and 31 cm wide at shoulder level. It is lying supine, with its arms extended

[3] About the history of this mummy you can consult the article by Gómez, Carrascoso and Badillo (2018), where the news contributed by the related sources in the bibliography included in this work.

and resting on the anterior external portion of the thighs. Its head is tilted towards the right shoulder and the lower limb on the same side is taller than the left. The hands are long and retain the nails, as do the feet (Fig. 2). Its state of conservation is good; however, throughout its history it has suffered some alterations that, although they are currently stable, make this specimen more fragile.

The skin is cracked; it has generalized cracks and fissures in the face, arms, trunk, right thigh and both legs.

In the chest there is a very large patch of skin, probably of, sheep and goat origin, placed due to the deterioration of the skin of the mummy, perhaps during the same process of "mirlado". It was not due to trauma because there are no alterations in the sternum or in the rib cage. In the lower portion of the thorax, immediately to the central portion of the patch, there is an important transversal crack that has caused a significant skin loss, next to which you can see an underlying patch fragment, very blackened, that ends in a triangular shape and that is also seen in the right shoulder area. The large patch shows here and on the right side of the chest, the irregular profile of the tanned skin with which it was made, as opposed to the profile on the left side, where it has been carefully trimmed.

Small circular holes denote that the patch was reinforced with pins; at another undetermined time they were removed, only one of them can be seen on the CT scan images; it slipped into the chest cavity, remaining under the ribs on the left side.

There is significant skin loss in the proximal and anterior portion of the left arm, with no bone damage to the humerus. This is the area in the worst state of conservation and therefore the most fragile.

The skull shows very characteristic male features such as the mandibular angle close to 90º, supraciliary and occipital prominences and quadrature of the orbit. In the orbits, eyeballs, optic nerves and extrinsic eye muscles are identified. The mouth is large, with a perfectly preserved denture, without loss of parts, tooth decay, or tooth wear. There are 16 teeth in the maxilla and another 16 in the mandible. It shows a slight separation of the upper central incisors (diastema) (Fig. 3). The dried tongue is identified in the oral cavity and oropharynx. What is most striking is the state of preservation of the teeth, especially when compared with egyptian mummies studied in this project. This mummy might have had healthy habits of life or at least a balanced diet.

The internal organs are identified in the skull, thorax and abdomen, which shows that the body was not eviscerated. This practice, that was common in the

Fig. 2. Three-dimensional reconstruction by CT of the surface of the guanche mummy from the feet and in a lying position. Very well preserved soft parts, facial region and very long and stylized feet and hands are appreciated. The skin of the thighs is slightly cracked, particularly marked on the right thigh. (Image: HUQS).

Fig. 3. Three-dimensional image of the CT scan of the skull and facial region, from anterior and lateral view. The mummy has masculine features and a perfect denture. (Image: HUQS).

egyptian mummification, was not carried out in this case, nor is there evidence in other preserved "guanche" mummies, although some of the oldest written sources referring to the pre-Hispanic population of the Canary Islands affirmed that they did.

In the region of the skull the brain is objectified, which was not extracted - something that was done in the egyptian mummies - and is desiccated towards the most declining area of the right posterolateral portion, where the head was turned. (Fig. 4).

In the thoracic cavity the collapsed lungs with the characteristic triangular shape of the lower base are located. The heart is desiccated in its anatomical position and is fragmented in its central portion, in the axial or transverse plane. The rib cage has no fractures or injury and there is no calcification of rib cartilages, which indicates that it was a young person.

In the abdomen, the liver and kidneys are clearly identified, with their characteristic morphology, although they are smaller due to desiccation. There is no incision in the abdominal wall for the extraction of the viscera. (Fig. 5)

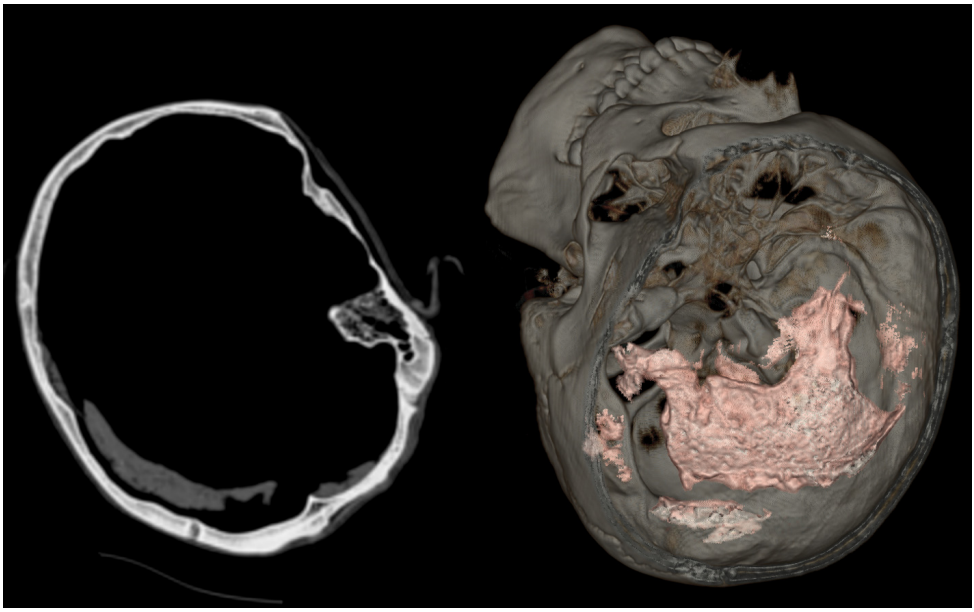

Fig. 4. Image of the skull CT. On the left, axial image of the dried skull in the most declining portion. On the right, 3D image after removing the upper part of the shell, observing the remains of the dried brain on the inner surface of the skull. (Image: HUQS).

There is an important hole in the anal region and in the path of the rectum, probably because of putrefaction. Through this hole, crushed minerals, possibly of volcanic origin, mixed with soil or sand were introduced into the pelvis. This type of inorganic material is also found at the level of the left rib cage, in its lower portion and in the left posterior paravertebral region.

The large penis is identified, located down and backwards, along with the scrotal sac and the testicles.

The skeleton is very well preserved. There is a slight dysmetry between both lower limbs, with the right lower limb being a centimeter longer than the left one. The patella (kneecap) has a fragmentation in its upper and lateral portion, in relation to a variant of normal called bipartite patella. There is another variant of normal called os acromiale in the distal portion of the right acromion.

The spine presents slight degenerative changes, with mild lumbar scoliosis of left convexity and lumbosacral hyperlordosis. Within the spinal canal are the medulla and no evidence of fractures. The spine presents slight degenerative

Fig. 5. Three-dimensional reconstructions of whole-body CT from anterior view. The skeleton is very well preserved. The viscera are observed inside the thoracoabdominal cavity. The musculature of the medial portion of the thighs is clearly appreciated. On the right side of the image, the lungs, heart, liver and kidneys are reconstructed in a different color. (Image: HUQS).

changes, with mild lumbar scoliosis of left convexity and lumbosacral hyperlordosis. Inside the spinal canal are the medulla and remains of the dural sac. It presents a fusion defect of the posterior arches of the last sacral vertebrae, which is frequent among the "Guanche" population and even more among the Berber. Slight degenerative changes are also seen in the symphysis pubis.

The pelvis is higher than it is wider. This mummy shows a subpubic angle of 70-72º (unlike the female pelvis, which is around 120º, to facilitate expulsion during childbirth). The quadriceps muscles and adductor musculature in the anterior and medial thigh and tibial ischium muscles in the posterior portion are very well identified.

In the right iliac bone, there seems to be a fracture, but it was caused postmortem by introducing a wire into the pelvic region that crosses it from side to side; it was probably inserted for its museum exhibition in vertical arrangement, simulating how the Guanche mummies were placed on the walls of the funeral caves of Tenerife.

He might have been 35-40 years old at the time of death, based on the pelvis study, which shows a fine granular texture surface, a regular pattern, typically observed among individuals of this age group.

What has not been determined through tomography is the cause of the death of this individual who lived on the island of Tenerife more than 800/900 years ago.

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