Researcher detect a Roman-period cranial tumor case

September 25 2023

Skull from the Marcenejas cave before its restoration. Credit: Pilar Fernández

A multidisciplinary team at the Centro Nacional de Investigación sobre la Evolución Humana (CENIEH) has published a paper in the journal *Virtual Archaeology Review* on a Roman-period meningioma (cranial tumor) found in a skull in the Iberian Peninsula. The finding of this skull, together with signs of cranial lesions in the same individual, offers new data about the health of past populations.

The cranium was discovered during a caving expedition to the Sima de Marcenejas, in Lastras de Teza (Burgos), thanks to the collaboration of the caving groups Gaem, Takomano, Geoda, Flash, and A.E.Get, which played a fundamental role in its recovery.

It was then carried to the CENIEH, where it was subjected to a meticulous process by the team at the Conservation and Restoration Laboratory. After all this work, it was possible to identify the skull as belonging to an adult male individual who had lived in the final centuries of the Roman Empire.

The main objective of this investigation was to understand the possible diseases that affected this person during life. Cutting-edge techniques such as micro-computed tomography (MicroCT) were used to do this, making it possible to obtain hundreds of X-ray images to create a 3D model and visualize the interior of the cranium in detail.

Virtual autopsy

Essentially, micro-computed tomography allows conducting a sort of "virtual autopsy" on the individual, and this revealed the presence of four cranial lesions, all of antemortem origin, that is, injuries showing

evidence of curing processes, indicating that they happened while the individual was alive.

Of the four lesions identified, three of them were on the outside of the skull, and show evidence compatible with injuries produced intentionally. This is because they are on the top of the head, which is not typical for lesions caused by accidents such as falls.

Moreover, two of them show characteristics consistent with wounds inflicted by sharp and blunt objects. This raises the possibility that they were the result of violent attempts against this individual's life.

Intracranial lesion

The fourth lesion is inside the skull. It is characterized as a depression of circular morphology that had eliminated part of the bone holding it.

After studying the characteristics of the lesion and conducting a comparative analysis with different pathologies such as infections, metabolic or genetic diseases, or a neoplasia, the conclusion was reached that it was probably caused by a tumor inside the skull, a possible meningioma. This meningioma is the first case of this condition for these chronologies in the Iberian Peninsula, which is a region with few records of these tumors from antiquity.

"What is interesting about this finding is that it offers a window onto the health of past populations, and raises fundamental questions for us about the ability of individuals to survive these conditions, and their quality of life thereafter," says Daniel Rodríguez-Iglesias, lead author of this paper.

The other participants in this paper were the researchers Ana Pantoja-Pérez and Nohemi Sala and the conservator-restorer Pilar Fernández-Colón, all from the CENIEH, and the researchers Manuel Alcaraz-

Castaño, of the Universidad de Alcalá de Henares (UAH), and Adrián Pablos, from the Universidad Complutense de Madrid (UCM).

More information: Daniel Rodríguez-Iglesias et al, Virtual assessment of a possible meningioma in a Roman-period cranium, *Virtual Archaeology Review* (2023). DOI: 10.4995/var.2023.19680

Provided by CENIEH