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The mummified head of the child of Celano

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Abstract. In the 1980s, the mummified head of an infant was discovered in Celano, a town in central Italy, in the Abruzzo region. To establish its archaeological, rather than judicial, nature, multiple macroscopic, microscopic, and radiographic analyses were performed on the specimen. The results revealed intriguing data. The head, in an exceptional state of preservation, likely belonged to a male child approximately one year old. Furthermore, it exhibits clear paleopathological lesions compatible with probable blunt trauma. The artifact is housed at the University Museum of Chieti in a glass display case that adheres to ethical and scientific standards for such exhibitions. The findings from this preliminary study provide a basis for future, more detailed investigations.

Key words: paleopathology, anthropology

Introduction

The object of this study was discovered in the early 1980s in Celano, a small town in the Abruzzo hinterland, in the province of L'Aquila. It was found in a field, on a boundary wall between two properties, near the Celano Pieve. This church, dedicated to St. John the Baptist, was built in the Romanesque style in the 13th century and underwent several modifications over time, often following earthquakes that necessitated reconstruction (1).

Until the early 19th century, the underground spaces of such buildings, especially those of significance to the community, were often used as burial sites (2).

The artifact in question consists of the mummified head of an infant, most likely originating from a burial within the church premises (Fig. 1). At the time of discovery, only the head was found; the rest of the body has never been located. Despite the circumstances, the Prosecutor's Office of L'Aquila tasked Professor Capelli of the Catholic University of the Sacred Heart and Professor Capasso, director of the Anthropology Section at the University of Chieti and Pescara, with examining the specimen to determine whether it should be classified as an archaeological artifact or whether a judicial investigation should be initiated (3).

Materials and methods

Preliminary anthropological examinations established that the artifact dated back more than seventy years, ruling out any contemporary criminal liability (4). Dating was performed by analyzing fluorescence from exposed bone tissue at the skull base (5).

Macroscopic, microscopic, and radiographic analyses were conducted, and paleopathological diagnoses were derived from these assessments. Microscopic analyses were performed using a Zeiss Stemi 305 microscope, while radiographs were obtained at the radiology department of the Spatocco Clinic in Chieti.

The estimation of age at death was determined through radiographic evaluation of deciduous tooth mineralization (6, 7) and neurocranial bone

Figure 1. The mummified head of the Celano child.

development (8). Anthropometric measurements, including the cephalic index calculated according to Likus et al. (2014) (9) and cranial circumference based on World Health Organization (WHO) growth curves (10), were also employed.

The cephalic index was calculated using the formula: (cephalic width/cephalic length) x 100. Skeletal assessment standards described in The Juvenile Skeleton by Scheuer et al. (2004) (11) were followed.

For precise dating, a hair sample was subjected to accelerator mass spectrometry (AMS) at the Center for Dating and Diagnostics (CEDAD) of the University of Salento. Radiocarbon concentration was determined by comparing standard isotope values with the analyzed samples.

Results

Visual and radiographic analyses determined that the specimen belonged to a child approximately one year old. The degree of dental mineralization, cranial bone ossification, and the cephalic index (calculated at 83.33) corresponded to an age range of 4 to 12 months.

Table 1. Summary of calibrated datings for the samples

LTL33240	CELANO 1	1515AD (17.4%) 1591AD 1620AD (37.6%) 1688AD 1730AD (28.2%) 1807AD 1925AD (12.2%) ...

Radiocarbon dating placed the artifact between 1620 and 1688 CE, with a mean value of 245 ± 40 BP and δ13C at -17.3 ± 0.6 (Tab.1).

Lesions included a depression above the right nostril, tissue collapse around the brow ridge (Fig. 2), and a dark coagulated substance on the lower lip, currently undergoing microanalytical tests to ascertain its exact composition (Fig. 3). The right cheekbone exhibited a circular postmortem lesion approximately 5 mm in diameter and 1 mm deep (Fig. 4).

Radiographic analyses further revealed a high degree of bone mineralization (12), preservation of membranous tissue in the fontanelles (13), cartilages, and visible traces of some internal organs (Figs. 5A, 5B, 5C).

The hair, well-preserved, was smooth, blond, circular in cross-section, and perpendicular to the scalp (Fig. 6). Eyelashes were also intact.

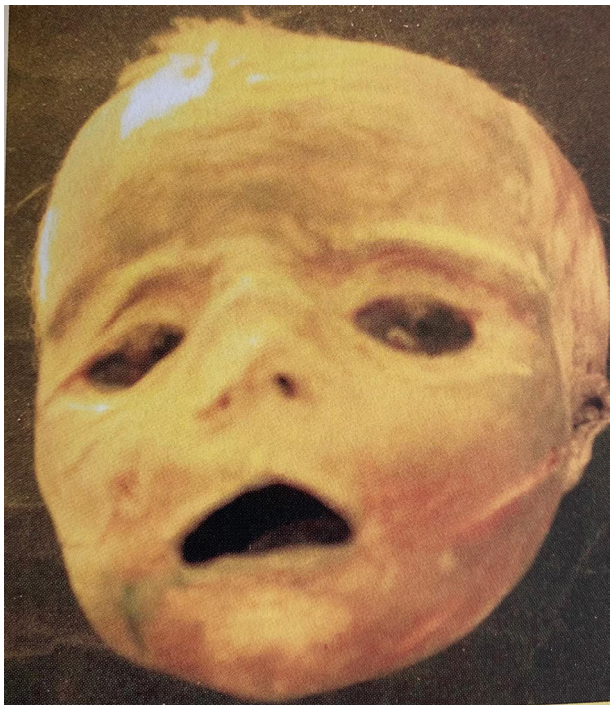

Figure 2. Depression due to compression of the cartilaginous tissues on the right side of the face.

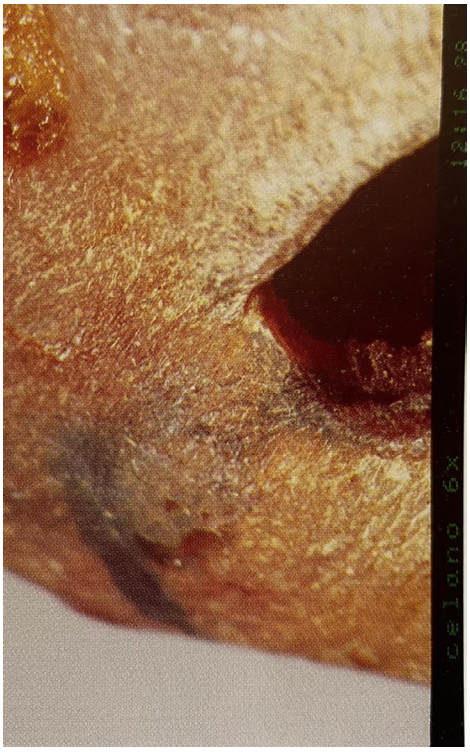

Figure 3. Dark colored coagulated substance.

Figure 4. Post-mortem circular lesion on the right cheekbone.

Since the skull lacked secondary sexual characteristics, the child's sex could not be definitively determined. However, based on general facial traits and haircut, the child was presumed to be male (14).

The head displayed a deep L-shaped laceration, approximately 1 cm long, in the occipital region, associated with a sub-rectangular cranial depression likely caused by perimortem trauma (15).

Other lesions included skin cracking and a clear formation consistent with fungal infections (16) (Fig. 7). Dermatological assessments are ongoing to determine the presence of potential infections or nutritional deficiencies.

Discussion

The mummified head was preserved due to favorable environmental conditions. The separation at the skull base suggests human intervention

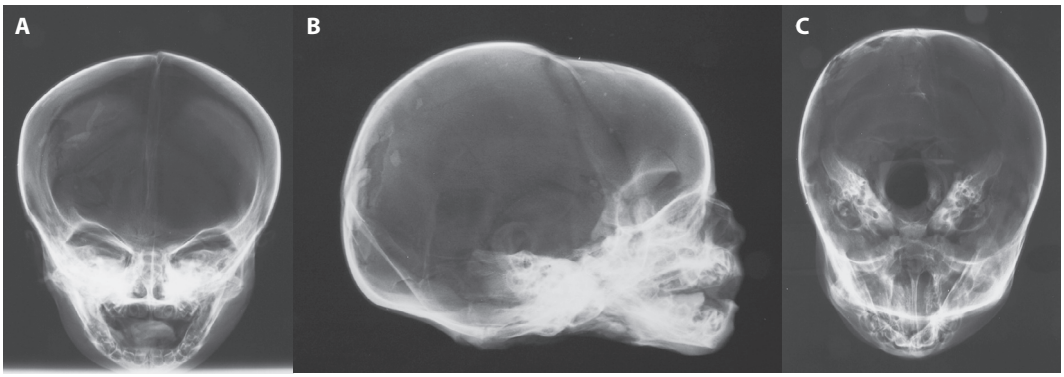

Figure 5. A, B, C Radiographs of the mummified head in different projections.

Figure 6. Hair, perfectly preserved, with a circular section.

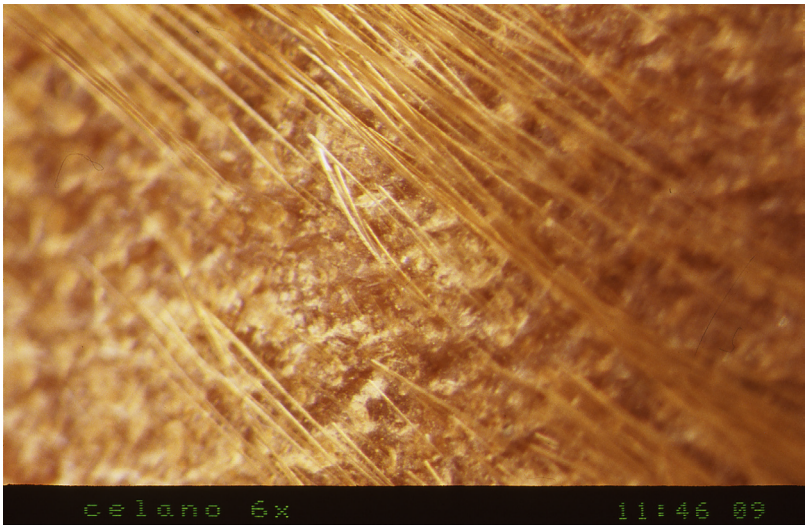

Figure 7. Skin cracking and a clear formation.

Figure 8. The musealisation of the mummified head of the Celano child at the University Museum of Chieti.

performed postmortem. Observed lesions indicate probable trauma sustained during life, consistent with blunt force or accidents. Skin cracking was attributed to dehydration during the mummification process.

C14 dating confirmed the specimen's 17th-century origin, situating it within a historical period characterized by specific burial practices often linked to churches or sacred sites. Paleopathological lesions and natural mummification provide valuable insights into the living conditions and causes of death during the 17th century.

The display of the head at the University Museum of Chieti complies with ICOM ethical guidelines, ensuring a balance between scientific dissemination and respect for human remains (17) (Fig.8). The specimen represents a significant resource for future studies, offering unique anthropological, paleopathological, and historical data.

Conclusions

The mummified head of the Celano child is among several natural mummies discovered in Abruzzo. Since the first such find in 1902, the number has steadily grown. These rare remains are invaluable for scientific studies, allowing the reconstruction of both the biological and cultural profiles of the region. Unlike skeletal remains, which are more common due to natural decomposition, mummified soft tissues provide considerably more biological information.

The University Museum of Chieti, home to the Anthropology Section, has long been engaged in the recovery, restoration, analysis, and preservation of skeletal and mummified remains from various contexts (18). These remains often display paleopathological features resulting from trauma, infections, tumors, or nutritional deficiencies, studied and cataloged by the Anthropology team (19). The mummified head analyzed in this study has already yielded significant findings and offers new avenues for further research, representing a valuable preliminary study.

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