

A RADIOLOGICAL STUDY OF THE BONE REMAINS FROM THE PRINCE DON PEDRO ENRIQUE OF CASTILE FROM THE CATHEDRAL OF SEGOVIA'S GRAVE.

On 11st December 2019 we received in the Diagnostic Services of the San Cecilio University Clinic Hospital of Granada ("HUCSC" in Spanish) a box that contained the bone remains that came from the Cathedral of Segovia, in order to be studied by its appearance.

The remains were located individualized in plastic bags and they were handled by the staff of the Laboratory of Anthropology of Granada University ("UGR" in Spanish) with the necessary protection to prevent any kind of contamination. After a radiological study, the bones were returned that morning to the Laboratory of Anthropology of the UGR.

Technique employed for the study:

A volumetric acquisition of the bones was carried out through a study of Computed Tomography model Philips Brilliance 64.

The bone remains were three small and much deteriorated fragments by the passage of time. From now on we will refer to these fragments as nº1, nº2 and nº3.

Findings:

Fragment nº1.

It is a piece of a medial diaphysis from a left femur. Length: 82.6 mm. The rest is more deteriorated.

Fragment nº2.

It is a right tibia. Complete diaphysis without Epiphysis. Length: 98,25 mm. Findings: Bowing of the diaphysis (Weismann-Netter–Stuhl Syndrome). There is an external rotation and a widening of the proximal metaphysis.

Fragment nº3.

This is a distal end of a right femur. There are an incomplete diaphysis and distal metaphysis. There are also a diaphyseal bowing and a widening of the distal metaphysis

Research conducted: CT with volumetric helical acquisition and cuts of 0.33 mm thickness.

Conservation measure: digital file in DICOM format with the study.

Reproduction: 3D Printing of the bone remains with a 0.4 mm thickness.

All bones are in a child development phase since they are not connected by an epiphysis; there is metaphysis or at least some in the distal part of them.

The level of development and the morphological characteristics of the bone remains indicate that the three fragments belong to a child, but we cannot determine its gender. Estimated age: Around 1 year or 6 months.

Conclusions:

1. These are three bones / bone fragments in a poor conservation status that, according to its size, they belong to a child of around 1 year or 6 months. We cannot determine its gender.
2. The alterations observed suggest that there might be a metabolic process that alters the growth and produces these modifications, such as rickets.
3. This metabolic alteration and the growth might make us underestimate the age of the child in 6 to 8 months.

Date: 21st February 2020, Granada (Spain).

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