Insights into the funerary practices in the dolmen of Cabecinha (Figueira da Foz, Portugal)

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ABSTRACT – The dolmen of Cabecinha in the region of Figueira da Foz (Coimbra, Portugal) was excavated at the end of the 19th century by António dos Santos Rocha. This tomb belongs to a Megalithic necropolis of c. 21 dolmens in Western-Central Portugal and was explored and published between 1880 and 1909. The aim of this contribution is to present the human bone collection of the Megalitho da Cabecinha, cross-referencing this data with the original available documentation from the excavation and the chronology obtained from direct radiocarbon dating of a human bone fragment. This approach is adopted to get insights into the funerary practices, and the biological and pathological profiles of the individuals deposited in the dolmen. The most relevant information obtained pertains to the mortuary behaviour, where a unique funerary practice for this Megalithic necropolis was identified. In each corner of the irregular polygonal chamber, an adult individual was deposited in crouching or squatting position in sandy sediment and surrounded by small flat limestone slabs. All but one individual was associated with votive items.

KEY WORDS – Megalithic tombs; burial practices; human bones; dolmen; Chalcolithic; central-west of Portugal

Vpogled v pogrebne prakse v dólmenu Cabecinha (regija Figueira da Foz, Portugalska)

IZVLEČEK – Raziskovalec António dos Santos Rocha je konec 19. stoletja izkopal dólmen Cabecinha na območju Figueira da Foz (Coimbra, Portugalska). Grobnica sodi v okvir megalitske nekropole, ki vključuje ok. 21 dólmenov v zahodno osrednjem delu Portugalske in je bila raziskana ter objavljena med leti 1880 in 1909. V članku predstavljamo zbir človeških kosti iz najdištva Megalitho da Cabecinha, primerjem podatke z originalno dokumentacijo o izkopavanjih in kronologijo, ki smo jo vzpostavili z neposrednim radiokarbonskim datiranjem odlomka človeške kosti. S tem pristopom smo želeli pridobiti vpogled v pogrebne običaje ter v biološke in patološke profile posameznikov, ki so bili pokopani v dólmen. Najpomembnejše informacije, ki smo jih pridobili, se nanašajo na pogrebne prakse, saj smo prepoznali edinstven običaj, vezan na to megalitsko nekropolo. V vsakem kotu te nepravilne poligonalne komore je bil položen en odrasli posameznik v čepečem položaju, in sicer v peščen sediment in obkrožen z majhnimi ploščatimi apnenčastimi ploščami. Vsak razen enega posameznika so imeli ob sebi votivne predmete.

KLJUČNE BESEDE – megalitske grobnice; pogrebni običaji; človeške kosti; dólmen; halkolitik; osrednji del zahodne Portugalske
Introduction

In the last decade, research in Portugal has demonstrated that funerary practices from the Middle Neolithic to the Late Neolithic/Chalcolithic were less homogeneous than previously thought. This diversity is visible in terms of funerary practices and structures (Boaventura et al. 2014; Silva 2003a; 2002; 2012; Silva et al. 2017; 2019; Valera et al. 2014), with the regions of Estremadura and Alentejo the best documented. Mortuary activities have been described for Megalithic tombs (Boaventura et al. 2013; Evangelista 2019; Silva 2020), pit graves (Silva 2002; 2012), natural (Carvalho et al. 2012) and artificial caves (hypogea) (Silva 1993; 1996; 2019; Silva, Ferreira 2007), and more recently, for ditched enclosures (Valera et al. 2014) throughout that period. These tombs are frequently characterized by collective or multiple burials, with individual ones occurring less commonly. Primary and/or secondary unburnt and burnt depositions are also documented (Bettencourt et al. 2020; Silva 2003a; Silva et al. 2015; 2017; 2020; Valera et al. 2014).

Between the end of the 19th and beginning of the 20th centuries a set of 21 megalithic tombs were excavated by the archaeologist António dos Santos Rocha, in the region of Figueira da Foz (Coimbra, Portugal; Fig. 1). The majority of these tombs, located in the central-west region of Portugal, were disturbed prior to their archaeological excavation. The interventions were published in four volumes of Antiguidades Prehistoricas do Concelho da Figueira (Santos Rocha 1888; 1895; 1897; 1900), republished in 1949 (Santos Rocha 1949) and by Luiz W. Carrisso and António dos Santos Rocha (1909). A number of these tombs revealed human bones, including the Megalitho da Cabecinha1 (Alhadas, Figueira da Foz), representing a unique opportunity to get information about the funerary behaviour and biological and paleopathological profile of the individuals deposited in these dolmens. These human bone assemblages, nowadays curated at the Museu Municipal Santos Rocha (MMSR) were forgotten and never exhaustively studied. Additionally, and as usually happens to many old museum collections, part of the material was lost due to, among other reasons, reorganization, movements, and the lending of samples (Silva, Ferreira 2016–2017).

In recent years, research on the collection from this necropolis started to be conducted, including work on anthropological and archaeological findings. Among the former are the study of a possible trepanation in an adult male skull recovered from the Megalitho da Capella (Silva 2003b), and the analysis of the human bone assemblages from Megalitho do Facho (Silva 2020) and from Megalitho do Cabeço dos Moinhos (Bettencourt et al. 2020).

The aim of this contribution is to provide a complete anthropological analysis of the human remains of the Megalitho da Cabecinha currently curated in the Municipal Museum of Santos Rocha (MMSR), cross-referencing this data with the original available documentation of the excavation, and the chronology obtained from direct radiocarbon dates of the human bones. This approach intends to obtain insights into the burial practices, biological profiles, and health status of the individuals who lived at the end

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Footnote 1: The original designation of Santos Rocha, Megalitho, is used. However, Megalitho, dolmen and the Portuguese expression ‘Anta’ all represent tombs without major architectural differences.
of the Neolithic and the beginning of the Chalcolithic periods in the central-west region of today’s Portugal. As these populations are poorly known, the study will contribute substantial new information for this period.

The documentary sources of Megalitho da Cabecinha

The dolmen is composed of a chamber and a gallery oriented E-W. The gallery, formed by six orthostats (Fig. 2), presented a well-adapted door, with the entrance on the eastern side. The major axis is 3.5 m long, 1.85 m of the gallery (including the door) and 1.65 m of the chamber. The gallery is 0.64 m wide, and the chamber width varies between 1.75 m and 2 m – both measured at the level of the floor. The gallery was found intact with preserved coverage of small horizontal slabs. The larger roof slabs were made of sandstone and the small ones of limestone (Tab. 1). The door was made of two small slabs, placed against the end of the supports and held by two stones stuck in the ground as a buttress. Outside, a large accumulation of small stones surrounds the whole monument. The majority of the roof slabs of the chamber were missing, and one of the orthostats to the west was taken by the landowner to make millstones. This perturbation affected the chamber only superficially, except where the slabs were ripped out. Here the perturbation reached the base of the tomb, including the mortuary deposit located between the angle of the missing orthostat and orthostat 3. The interstices of the supports were sealed with small stones. The floor of the chamber and part of the gallery were made of small and thin limestone slabs, laid over a layer of sand (Santos Rocha 1900.196).

All the contents of the chamber were mixed at the bottom of the monument due to old disturbances. At 0.4 m, the superficial layers started to display signs of fire up to 0.65 m deep, as evidenced by the presence of ashes, charcoal mixed with splinters of quartz and quartzite, small fragments of sandstone, and other materials. At that level (0.65 m), signs of fire disappear, but the content continues to display signs of intense mixing.

The upper layer of the chamber was composed of reddish clayey soil, like the one in the tumulus. At around 0.5 to 0.7 m, in the areas marked (with crosses) in the plan of the monument, evidence of four fire loci was found (Fig. 2). Each included ashes and charcoal, not exceeding 0.5 m in diameter, with clods of undercooked clays, all strongly stuck in sandy soil. This level displays a thickness between 0.1 to 0.25 m. Outside these areas, rubble in clayed soil continued to appear until the floor. The signs of fire then disappear completely around 0.15 to 0.25 m beneath this, with only some splinters of quartz and flints being recovered. Below this level, the soil changes to limestone and groups of human bones started to appear. The burials were clustered next to the orthostats, crushed by the rubble, jammed over the pavement slabs, and very poorly preserved. These were surrounded by small flat stones of white limestone, except on the side of the supports. Santos Rocha (1900.197–198) made it very clear that no human bone displayed any signs of fire, and that such signs disappear entirely between 0.15 to 0.25 m above the level of bones.

Santos Rocha (1900.198) provides a description of the burials of this tomb. The intact bones of the disturbed burial in the western part of the chamber (due to the ripping out of one orthostat) include long bones, vertebrae, ribs, some hand and foot bones, and several stone instruments (including an arrowhead, two blades, a hammerstone and a lithic nucleus).

In the corner formed by orthostats 3 and 4, several bones that probably belong to an adult skeleton were recovered. The femurs and tibias are stretched along orthostat 4, with tibias under the femurs. The

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**Fig. 2.** Santos Rocha’s drawing of the dolmen – Megalitho da Cabecinha (adapted from Santos Rocha 1900.Fig. 303). An X indicates where human bones were recovered.
cranium was deposited in the corner, and next to it were arms and trunk bones (all poorly preserved). Santos Rocha considered that the body was placed squatted in the corner with the face turned to the centre of the chamber (Santos Rocha 1900.198).

Another skeleton was found next to orthostat 5. The best preserved bones were femurs and tibias. Field observations allowed Santos Rocha to conclude that the skeleton was leaning against the support, facing the middle of the chamber (Santos Rocha 1900.198).

Another group of human bones, that according to Santos Rocha (1900.199) were “completely decayed” (translation by the author), were excavated among orthostats 2, 7 and 8, closer to the gallery. They apparently belonged to the same skeleton and were associated with prestige artefacts. Two notable pieces, one flint bade and a flint dagger blade, were recovered in a kind of niche “next to the remaining bones”. However, Santos Rocha is not clear with regard to the location of this niche.

According to Santos Rocha (1900.203–204), the human bones were so poorly preserved that only a muddy block containing part of a crushed cranium, some teeth, fragments of femurs and tibias were taken to be curated in the MMSR. Among them, two fragments of femurs have a well developed pilastrum and a fragment of tibia, marked platycnemia. It seems that this set of bones belong to the same skeleton, although it is not possible to associate it with one of the burials described above.

Fragments of two small black pots (including the one next to the skeleton placed against orthostat 5) and a considerable number of artefacts were recovered from this dolmen (Santos Rocha 1900.199–203). Nowadays, the majority of these are on display in the permanent exposition of the MMSR, and include one flint blade, one flint dagger blade, 15 flint arrowheads, one polished stone axe-head, one flint and hyaline quartz nuclei and eleven flint blades. Some drawings were originally published by Santos Rocha (1900), but the complete set can be found in the work by the Leisner couple, in their compilation of Megalithic graves of the Iberian Peninsula (Leisner 1965.126–128, Tabs. 90–91). At present, this set of artefacts are currently being studied by collaborators of the MMSR.

This monument was dismounted and restored, with the help of Francisco Ferreira Loureiro, responsible for the drawings and plans of the tomb, in an exhibition space designed specifically for its display in one of the buildings belonging to the city hall of Figueira da Foz, where the local museum was created in 1899 (Santos Rocha 1900.197). Strictly, the available documents only attest to its presence in the gardens of city hall until the year of 1897. So, unfortunately, the whereabouts of its parts are now unknown2.

Material and methods

All bone fragments currently curated at MMSR were dry-brushed with small brushes, labelled and marked. This process was followed by an inventory of the materials using an MS Excel sheet. An attempt was made to refit broken fragments of individual bones. The minimum number of individuals (MNI) was estimated according to Ana Maria Silva (1993, adapted from Herrmann et al. 1990). Age at death of adult individuals was confirmed by the degree of completion of epiphyseal unions (Ferembach et al. 1980). Identification of the sex of the adult remains was attempted using morphological traits following Denise

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2 Personal communication of Ana Margarida Ferreira, Director of MMSR.
Ferembach’s et al. (1980) recommendations. Nonmetric dental traits were scored following the ASUDAS protocol (Scott, Irish 2017; Turner et al. 1991), and the mandibular molar pit-tubercle (MMPT) according to Luís Miguel Marado and Ana Maria Silva (2016). Postcranial discrete traits were recorded following Shelley Rae Saunders (1978) and Michael Finnegon (1978) approaches. Dental wear was scored according to Bennett Holly Smith (1984) as adapted by Silva (1996). The osteological remains were macroscopically examined for evidence of pathologies, lesions and stress indicators.

Results

The collection curated at the MMSR includes one tooth and 31 bone fragments. Among the latter, six are small fragments with signs of exposure to fire, showing a black colour. Due to poor preservation we cannot rule out the possibility that these charred fragments are non-human faunal remains. Moreover, according to the notes by Santos Rocha, no signs of fire were observed in the recovered human bones. As such, these are probably fragments from the upper levels which percolated into the tomb and not related to the burial context, and thus not considered in the following anthropological analysis.

One small long bone fragment (Cabecinha 201) confirmed the Chalcolithic chronology of these human remains, placing them in the first half of the 3rd millennium BCE (Tab. 2).

The bones are very fragmented and mostly reduced to small pieces (Fig. 3). At present, the collections include cranial (n=7) and long bones fragments (n=18) and one tooth. Among the long bones, humerus, femurs and tibias were identified.

The bone fragments exhibit several changes related to various taphonomic agents, such as the presence of roots marks, small black spots and reddish spots on the only tooth recovered (Fig. 4). While the black spots can be attributed to the presence of manganese in the soil, the red spots are compatible with the use of pigment. Santos Rocha (1900.203) mentions the recovery of a piece of iron oxide from the site, that if sprayed produced a very intense red paint. The preserved bone remains correspond to a minimum number of three adults based on the femoral fragments. No anatomical bone section was available for a more specific age at death or sex estimation. However, taking into account the femur sample, two individuals were clearly more robust than the third. The results of the nonmetric dental analysis can be seen in Table 3. Only the femur sample allows the scoring of postcranial nonmetric traits. In two femurs hypotrochanteric fossa were observed (2/3), and one of those also displays a third trochanter (1/3). The most gracile femur presented both traits.

The only preserved tooth is a lower left first molar, which displays dental wear of grade 5 (medium/high), without cariogenic lesions or deposits of calculus (Fig. 4). No pathological lesions were observed in the preserved bone fragments.

Discussion

Over the last few decades, a renewed interest in the study of skeletal remains of Prehistoric burials has emerged when their informative potential was recognized (Evangelista 2019; Fernández-Crespo 2015; Silva 2002; 2017; 2020; Silva, Ferreira 2016–2017). Thus, the comprehensive analysis of these assemblages from the Iberian Peninsula in the last two decades has revealed valuable details with regard to burial practices (Boaventura et al. 2014; Carvalho et al. 2012; Evangelista 2019; Fernández-Crespo 2015; Silva et al. 2015; 2017), demographic profile (Cunha et al. 2015; Fernández-Crespo 2015; Fernández-Crespo, De-la-Rúa 2015; Silva, Ferreira 2007), population affinities (Irish et al. 2017; Martiniano et al. 2017; Olalde et al. 2018; 2019; Szecsenyi-Nagy et al. 2017), mobility (Carvalho et al. 2016; Waterman et al. 2014; Valera et al. 2020), diet and daily behaviours (Bonilla et al. 2019; Carvalho et al. 2019; Cubas et al. 2020; Fontanals-Coll et al. 2016; González-Rabanal et al. 2020; Guiry et al. 2016; Silva et al. 2012; Waterman et al. 2016), and the types of diseases and injuries these prehistoric individuals underwent (Silva 2003b; 2011; 2017; Silva, Ferreira 2008a; 2008b; Silva, Marques 2011; Silva, Wasterlain 2010; Tomé et al. 2017), as well as their medical skills (Silva 2003b; Silva et al. 2017), information that could not have been obtained otherwise.

| Reference | Conventional | cal BC | cal BP | Isotopes (C/N = 3.2) |
|-----------|--------------|--------|--------|---------------------|
| Beta 557667 | 4160±30 BP | 2821–2632 cal BC (76.2%) | 4770–4581 cal BP (76.2%) | Δ13C= –19.8 |
|           |              | 2880–2831 cal BC (19.2%) | 4829–4780 cal BP (19.2%) | Δ15N = 9.5 |

Tab. 2. Results of radiocarbon dating of a fragment of the diaphysis of a human long bone from Megalitho da Cabecinha.
Unfortunately, the human bones recovered from this dolmen are scarce and there is no information as to which burial (or burials) they belonged to. However, careful reading of Santos Rocha’s work allows us to recognize unique data on the funerary practices carried out in this dolmen, which differ from those documented in the other dolmens of this necropolis. The analysis of the human bone sample from Cabecinha confirms that all the bones belonged to adult individuals, at least three, an estimation close to the existing excavation notes that described four.

However, the skeleton found next to orthostats 2/7/8 was, according to Santos Rocha (1900.199) field notes, completely decayed, so probably no bone fragments were recovered, and thus nowadays this individual is not represented in the assemblage curated in the MMSR.

There is no evidence supporting more detailed age at death estimates other than marked tooth wear in the only preserved tooth, suggesting that it probably belong to a mature adulthood, based on the life stage model approach proposed by Mirjana Roksandić and Stephanie D. Armstrong (2011).

Although according to Santos Rocha the chamber of this monument was almost intact at its discovery, the bones within it were poorly preserved, and adhered to the stone slabs of the floor. However, data on the deposition of the cadavers and their funerary package could be obtained. The careful reading of Santos Rocha’s field notes reveal some funerary peculiarities of this tomb. One individual was deposited in each corner of its irregular polygonal chamber, adding to a total of four inhumations. All individuals seemed to be adult ones. They were placed in a crouching or squatting position on the stony floor against the orthostats. The bodies were buried in sandy sediment and surrounded by small flat limestone slabs. These were probably used to support the burials as well as to separate them. The individuals placed against orthostats 3–4 and 5 were facing the centre of the chamber (no information is available for the remaining burials). Varied funerary packages were found next to the skeletons. All but one individual, the one next to orthostats 3–4 (Santos Rocha 1900.256), were associated with votive items, as described in the previous section. According to him, the most impressive funerary package was recovered with the individual buried next to orthostats 2, 7 and 8. It included a bifacial flint blade and a bifacial flint blade for a knife, which are now part of the permanent exhibition at MMSR (see footnote 2). There is no spatial information on the ob-

| Traits                          | Observation/Grade |
|--------------------------------|-------------------|
| Number of Cusps               | 5                 |
| Groove pattern                | Y                 |
| Presence of C6                | N                 |
| Presence of C7                | N                 |
| Deflecting wrinkle            | NO                |
| Protostylid                   | N                 |
| Mandibular molar pit-tubercle | N                 |

Tab. 3. Non-metric dental traits observed in the only preserved tooth from Megalitho do Cabecinha, a lower first left molar. Legend: NO not observable; N not present.
jects other than the fact that they come from the chamber, except for a few pieces such as the two flint blades and the pot mentioned above.

Although data is scarce, it does support the inference that there was some kind of selection of individuals who were buried in this tomb. The low number of burials (three according to the preserved human bone samples, and four, according to field notes of Santos Rocha), is also noteworthy, as well as the fact that at least three of them were associated with varied and abundant funerary packages, besides the set of funerary items recovered from the tomb that were not found linked with a specific burial. The archaeological assemblages are currently under study, but preliminary data suggests there is a large number of artefacts compared to the number of individuals buried in the tomb.

Human bones from nine of the 21 tombs in this necropolis are nowadays curated in the MMSR. Besides Cabecinha, AMS radiocarbon dates (Tab. 4) and anthropological data are also available for Facho and Cabeço dos Moinhos and will be here used for comparative purposes.

The analysis of the findings from these three dolmens suggests different burial practices. Facho and Cabeço dos Moinhos include unburnt and burnt samples, although the later produced older AMS radiocarbon dates (see Tab. 4). These two collections share a similar age profile as they include remains of both adult and non-adult individuals (Tab. 5). Cabecinha’s sample on the other hand is made up of only unburnt bones of adult individuals. This tomb has the lowest number of individuals and also the smallest chamber. AMS radiocarbon dating confirmed that all human remains in these collections are dated from the first half of the 3rd millennium BCE, corresponding to the Chalcolithic period, with the exception of the unburnt sample of Cabeço dos Moinhos, which revealed a Neolithic chronology (5500–2900 BP).

Some major differences in the architecture (Fig. 5) and grave goods are noted. Cabeço dos Moinhos is, according to Santos Rocha (1895.93), the biggest and richest monument of this necropolis with orthostats of different lithological types. Facho and Cabecinha are smaller tombs with polygonal chambers, and short galleries. The former includes limestone and sandstone orthostats, the latter only sandstone ones. Therefore, besides the diversity in burial practices, architectural differences are also noted. Concerning the grave goods, differences are apparent in Santos Rocha’s descriptions, and a detailed study of all these collections curated in the MMSR is underway. The assemblage of Cabecinha also stands out in the presence of field notes describing the disposition of the bodies, since the burial level of the chamber was found almost intact: they were placed in a crouching or squatting position on the stony floor against the orthostats, buried in sandy sediment and surrounded by small flat limestone slabs. For two of them, it was possible to confirm that they were facing the centre of the chamber (individuals placed against orthostats 3–4 and 5). The assemblage of graves goods was also different between the burials: no votive items were found next to the burial of orthostats 3–4, and different votive packages were found for the remaining three. The richness of the burial next to orthostats 2/7/8 stands out when compared to the others (Santos Rocha 1900.198–199).

Among the biological profiles of the individuals from Cabecinha, the presence of hypotrochanteric fossa, a skeletal variant, is a common trait in all of them (Tab. 6). This depressed area at the back of the femur seems to be a varied manifestation of the attachment area of *gluteus maximus*, a muscle responsible for the movement of the hip and thigh. According to several authors, the development of this fossa may be related to increased develop-
Insights into the funerary practices in the dolmen of Cabecinha (Figueira da Foz, Portugal)

This study investigated the funerary practices in the dolmen of Cabecinha in Figueira da Foz, Portugal. The researchers focused on the skeletal remains from the site to understand the lifestyle, health status, and living conditions of the individuals buried there. The scattered nature of the human remains hindered the observation of pathological changes in the bones and obtaining insights on the general health status and living conditions of these individuals was not possible. However, the paleopathological analyses of the individuals buried in Facho and Cabeço dos Moinhos revealed signs of infections, trauma, articular and non-articular degenerative disease, and physiological stress indicators. The presence of largely remodelled and non-active lesions suggests that these individuals were resilient and survived various health problems.

Final remarks

The major contribution of the present work is in the domain of funerary practices, by integrating the data from the documentary sources with the findings of the bioarchaeological analysis, and the chronology obtained from direct radiocarbon dating of a human bone sample. The study identified a unique funerary behaviour in one dolmen of this necropolis, where apparently only three adult individuals (four according to field notes) were deposited, accompanied by a significant set of artefacts. The femur sample suggests that two individuals were clearly more robust than the third one.

It has to be highlighted that the three dolmens of this Megalithic necropolis, where the human bones were studied using modern osteological methods (Cabecinha, Facho and Cabeço dos Moinhos), reveal different burial practices, confirming the growing heterogeneity of funerary practices of the human communities of the Late Neolithic and Chalcolithic period of today’s Portugal. The study of the remaining human bone collections of this Megalithic necropolis is now underway, and the results will allow us to obtain valuable data about the human populations that lived in Prehistoric times in the more central-west region of the Iberian Peninsula.

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