# In the castle shadow rest those of Mós: the funerary practices and the dead from the Medieval necropolis of Mós (Torre de Moncorvo, Bragança, Portugal)



À sombra do castelo repousam os de Mós: as práticas funerárias e os mortos da necrópole Medieval de Mós (Torre de Moncorvo, Bragança, Portugal)

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**Abstract** The village of Mós was probably founded between the end of the 9<sup>th</sup> century and the beginning of the 10<sup>th</sup>. Integrated within the process of Christian reconquest, Mós was part of the set of castles and walled sites that benefited from a strategic position on the defensive line of the Douro River. During the construction of a stone wall to support the churchyard of Santa Maria de Mós church, thirty-nine rock graves were identified, which may be dated from the foundation period of the site. Only 25 graves were excavated allowing to recovered 15 individuals in primary position, five ossuary and a small group of **Resumo** Mós terá sido fundada entre o final do século IX e o início do X. Integrada no processo de conquista cristã, fazia parte do conjunto de castelos e de sítios amuralhados beneficiados por uma posição estratégica na linha defensiva do rio Douro. Na sequência dos trabalhos de construção de um muro em pedra, para sustentação do adro da Igreja Paroquial de Mós, foram identificadas em corte 39 sepulturas escavadas no substrato rochoso xistoso, que poderão recuar ao período de fundação do sítio. Do conjunto registado, apenas 25 foram escavadas, exumando-se do seu interior 15 indivíduos em posição primária, cin-

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dispersed bones. The aim of this article is to present data from funerary anthropology and the results of the paleobiological analysis of the exhumed individuals. This study is part of a broader interdisciplinary research project, which will provide greater depth of knowledge on the early medieval populations from the northeast of Trás-os-Montes (Portugal).

**Keywords**: Early Medieval Age; anthropomorphic graves; Christian conquest; castle of Mós; Trás-os-Montes. co ossários e um pequeno conjunto de ossos dispersos. Pretende-se com este artigo a apresentação dos dados da antropologia funerária e dos resultados da análise paleobiológica da amostra exumada. Este estudo faz parte de um projeto de investigação interdisciplinar mais alargado, que permitirá obter um conhecimento mais aprofundado das comunidades alto-medievais do nordeste Transmontano.

**Palavras-chave**: Alta Idade Média; Sepulturas antropomórficas; Conquista Cristã; castelo de Mós; Trás-os-Montes.

# Introduction Geographical location and historical background

The village of Mós, located in the region of Trás-os-Montes (Torre de Moncorvo, Bragança; Figure 1), played a leading role in the defence line of the Douro River during the period of the Christian Conquest. The castle's location on a low hill (Figure 2), surrounded by an oval fence constructed with small schist stones, with an entrance door open to south, and the church on the outside resembles nearby castles from the same period: Freixo de Espada a Cinta, Urros and Alva (Dórdio, 1998). In 1963, the Direção Geral dos Edifícios e Monumentos Nacionais (DGEMN) proceeded with the reconstruction of the wall section. Currently, only small parts of the old castle wall remain, and are in poor condition.

The foundation of the Castel of Mós probably dates to the end of 9<sup>th</sup> or beginning of the 10<sup>th</sup> century, following the campaigns promoted by King Afonso III of Asturias to advance the border line to the Douro River (Barroca, 1990). The construction of these castles was a popular effort in response to the frequent Muslim incursions. After the consolidation of the Portuquese position in the peninsular kingdoms, Mós was one of the first defences in the conflicts with León and Castile. Its strategic importance was confirmed by the Foral Charter of D. Afonso Henriques in 1162, and again by Afonso III in 1248. There are several references to the development of Mós: a donation letter from D. Sancho I, dated from May 1200; the inquiries of 1258 and a royal letter of D. Afonso IV dated from 1335 (Dórdio, 1998: 18). From the mid-14<sup>th</sup> century onwards, Mós seems to have entered into decline and



Figure 1. Geographical location of Mós.



Figure 2. Location of the Castle and the church of Santa Maria de Mós.

the depopulation of the village occurred. A *Couto de homiziados* (outlaw land) is mentioned in Mós before 1450 and the council asked the crown for new privileges, because the town was very depopulated due to the wars and great plagues (Moreno, 1986: 122 *in* Dórdio, 1998: 18). During the Modern period, Mós went into total decline and did not survive to the administrative reforms in the 19<sup>th</sup> century, whereby it became the small village that continues at present.

#### The necropolis of Mós

The necropolis of Mós is located in the churchyard of Santa Maria de

Mós church (16<sup>th</sup> century). During the construction of a retaining wall for the churchyard in 2007, several graves dug into the rock were exposed (Figure 3). The archaeological work was carried out by an archaeological company (Arqueohoje, Lda.) over a total area of 50 m<sup>2</sup>. It should be emphasized that the excavation only focused on the area affected by the construction of the wall, while the necropolis was much more extensive.

Some of the graves identified were partially covered by the church, meaning that they are older and likely associated with a possible primitive church. Based on the radiocarbon dating of Individual 2 (2-Mós/20/13), we know that the necropolis



Figure 3. Churchyard section where we can see several graves from the Necropolis of Mós.

was used, at least, until the 14<sup>th</sup> century (BETA-496536: 600+/-30 BP\_1296-1409 Cal AD; 654-541 Cal BP) (95.4%). However, compared to other similar necropolises, such as Moreira de Rei (Trancoso), the funerary space may have been reused until, at least, the mid-19<sup>th</sup> century, when burials in churches were forbidden.

#### Methods

To estimate the minimum number of individuals in secondary contexts (MNI), we used the methodology proposed by Herrmann et al. (1990, adapted by Silva, 1993). In the case of non-adults, recommendations of Silva (1996) were followed.

Adult sex estimation was based on the skull (Ferembach et al., 1980; Buikstra and Ubelaker, 1994), iliac bone, using the Diagnose Sexuelle Probabiliste software (DSP2 v2; Bružek et al., 2017), metric analyses of long bones (Wasterlain, 2000) and of calcaneus and astragalus (Silva, 1995). In adults, age at death was estimated on the os coxae, according to Buckberry and Chamberlain (2002), observation of the auricular surface (Lovejoy et al., 1985), pubic symphysis surface (Brooks and Suchey, 1990), and fusion of the sternal end of the clavicle (MacLaughlin, 1990). In non-adults, this parameter was obtained through dental development (AlQahtani et al., 2010), diaphysis length and fusion of the epiphyses of long bones (Ferembach et al., 1980; Scheuer and Black, 2000; Cardoso, 2005). Individuals younger than 20 years old were considered non-

adults, and young adults, between 21 and 30 years old. Stature was estimated based on femurs and humeri according to Mendonça (2000), and metatarsals, using Santos (2002) formulas, both developed in Portuguese collections. Cranial and mandibular non-metric traits were scored based on Hauser and De Stefano (1989), and for the postcranial skeleton recommendations of Saunders (1978), Finnegan (1978), and Saunders and Rainey (2008) were adopted. For the dental morphology analysis, ASUDAS protocol was followed, according to Turner et al., 1991 and considering the recommendations of Marado et al., 2017.

Among the paleopathological analysis, all bone changes were thoroughly described, and differential diagnosis proposed. For the degenerative joint pathology, the methodologies proposed by Assis (2007) were used, and to classify entheses in the different insertions of ligaments and tendons, the proposal of Mariotti et al. (2007) was followed.

*Cribra orbitalia,* porotic hyperostosis and linear enamel hypoplasias (LEH), all indicators of physiological stress, were recorded. In the present sample, the dentition was better preserved than the bones, so data from LEH were very important to understand the health condition of the individuals in the community during their childhood.

Dental pathologies are among the most commonly observed diseases in bioarchaeological contexts. Common pathological conditions of the oral cavity were recorded: cariogenic lesions, periapical disease, periodontal disease, dental *calculus*, and *ante mortem* tooth loss. Despite not being a pathology, dental wear was also recorded because it can be used to understand the development of certain pathological conditions, based on Smith (1984), adapted by Silva (1996).

For the registration of dental *calculus*, the guidelines of Martin and Saller (1956), adapted by Lamarque (1991), were used. In the samples under study, periodontal disease was recorded following the method proposed by Ogden (2008), which classifies alveolar recession between 0 and 4 degrees. Cariogenic lesions were classified according to their size (Lukacs,1989) and place of origin (occlusal, lingual, buccal, mesial and distal). *Ante mortem* (AM) tooth loss was recorded when the alveolus was totally or partially reabsorbed and *post mortem* (PM) loss when a tooth was absent but the alveolus present and showing no evidence of resorption.

# Results

40 graves were identified during the archaeological intervention and 39 were open in the rocky schist substrate. A total of 25 graves were excavated but only in 20, shape was possible to classify. The majority exhibited an anthropomorphic configuration (n=14/20, 70%), with schist slabs coverage (n=22/25, 88%) (Figure 4). Only seven graves presented head *stela*, all of them anepigraphic (Figure 5).

All graves had West-East canonical orientation and were devoid of funerary



**Figure 4.** Anthropomorphic grave with schist slabs coverage from the Necropolis of Mós.



**Figure 5.** Anthropomorphic grave with an anepigraphic stela in the head from the Necropolis of Mós.



**Figure 6.** Male individual (3-Mós/8/8) with an iron spearhead over the right iliac bone from the Necropolis of Mós.

goods. Grave 8 was an exception, presenting a male individual with an iron spearhead over the right iliac (Figure 6), allowing to propose its link with the cause of death of this individual, and not a grave offering. Unfortunately, the right iliac was not preserved, preventing any observation.

# Demographic and biological profile of the individuals

The Mós sample is composed of 15 individuals (10 adults and 5 non-adults) exhumed in primary position and five associated ossuaries. These, include a minimum number of 23 individuals, 13 adults, three non-adults and seven undetermined. So, at least 38 individuals are represented in

the 25 graves excavated. The majority of individuals are adults (61%; n=23).

The bad state of preservations of the bones only allow the sex estimation of 35% of the adults (n=8/23), with two males and two females (n=4/10) from primary burials, and two males and two females from secondary contexts (n=4/13).

Regarding the age at death, the poor preservation of bone remains also limited the analysis. In the case of primary burials, age at death was estimated in nine individuals, four adult individuals (n=4/10) and in all non-adults (N=5) (Figure 7), the majority in the age group of 5 to 9 years (n=4/5).

In the case of the individuals from the ossuaries, 16 were observable (N=16/23),

but only in eight it was not possible to estimate age at death (n=8/16). Most adults are represented in the age group from 20 - 29 years (n=4/13) and non-adults are distributed in the age group 5 - 9 and 10 - 14 years (n=2/3) (Figure 7).

In the total observable sample, the most represented age group are the non-adults aged between 5 and 9 years (n=5/31;16%) and young adults (n=5/31; 16%). It was not possible to estimate age at death in 45% of individuals (n=14).

# Morphology: stature and robusticity

Due to the high bone fragmentation, it was only possible to estimate stature in three adults exhumed from primary context (n=3/10; Table 1). The stature of male individuals, despite the different applied methods, vary between 156cm and 166cm.



**Figure 7.** Age at death profile from the total sample unearthed from the necropolis of Mós. Legend: PB – Primary burials; Oss – ossuaries.

**Table 1.** Stature estimatation of adult individuals from the primary burials from the Necropolis of Mós.

Indivídual	Sex	Bone	Measures	Stature	Method
1-Mós/2/12	Μ	First metatarsal (left)	Length (max.) (lab.)	1567.40mm (±55.3 mm)	Santos (2002)
2-Mós/20/13	U	Femur (right)	Length (max.) (field)	(F)154.58cm (±5.96cm) /(M)155.83cm (±6.96cm)	Mendonça (2000)
3-Mós/8/8	Mós/8/8 M Humerus (left) Length ( (field		Length (max.) (field)	166.31 cm (±8.44cm)	Mendonça (2000)

M-male; F-female; U-unknown; Lab.- measured in the laboratory; Field-measured in the field.

# Non-metric bone and dental morphology

Only Individual 1 (grave 2) and two skulls from the ossaries allowed the observation of non-metric traits. None presented metopic suture. Data of dental morphology analysis performed in 134 teeth, are presented in Table 2. Among the obtained results, only one individual (non-adult 13) presents cusp 6 in both lower first molars, and individual 12 exhibit *Carabelli's* cusp both upper first molars. Due to its rarity, it is worth mentioning the presence of parastyle trait (Grade 4) in the upper left second molar of Individual 4 (Figure 8).



**Figura 8.** Parastyle in the upper left second molar of Individual 4 (4-Mós/3/10).

# Paleopathological analysis

The pathological profile was difficult to assess due to the nature of the assemblage. However, a small number of bone pathologies were identified (Table 3). Regarding traumatic pathology, four traumas were recorded, all remodeled. Active periostitis with new bone formation was observed in a fragment of a humerus from the ossuary (n=1/9; 1-Mós-Oss/10/37) and in some fragments of the skull (parietal) of Individual 9 (n=1/7). In female skull 13, two benign osteomas of the "button" type (4mm/each) (Figure 9) were observed in the frontal bone (left).



**Figure 9.** Two benign osteoma "button" types in the frontal bone (left) of a female individual from de ossuary 1 (1-Mós-Oss/10/13).

We named "others" to a group of lesions/manifestations that are not distinctive of a specific pathology. In this group, three cases of external auditory exostosis (three adults: one male and two undetermined individuals), characterized by an excessive growth of the bony portion of the ear canal were included (Tables 3 and 4). These lesions have been associated with continued exposure of the ear canal to cold water, triggering an inflammatory reaction (Velasco-Vasquez et al., 2000; Crowe et al., 2010). This lesion can give us information about the activities of these communities, such as diving and fishing. Mós is an inland village but flanked by the streams of Santa Marinha

Dental traits	FDI	N	%
Labial convexity (+= ASU 1-4)	11.21	2/7	28.5%
Shoveling (+ = ASU 2-6)	11.21 12.22 31.41 32.42	1/8 1/3 0/9 0/8	12.5% 33.3% 0% 0%
Interruption grooves (M,D,MD,Med.)	11.21 12.22	0/6 0/3	0% 0%
Tuberculum dentale (TD) (+=2-6 ASU)	11.21 12.22 13.23	0/6 0/3 2/6	0% 0% 33.3%
Distal accessory ridge (+=ASU 2-5)	13.23 33.43	1/6 1/6	16.6% 16.6%
Metacone (+=ASU 3-5)	16.26 17.27 18.28	12/13 10/11 1/3	92.3% 90.9% 33.3%
Hypocone (+=ASU 3-5)	16.26 17.27 18.28	12/13 8/11 0/2	92.3% 72.7% 0%
Metaconule (C5) (+=ASU 1-5)	16.26 17.27 18.28	2/11 0/11 1/3	18.1% 0% 33.3%
Carabelli's trait (+=ASU 2-7)	16.26 17.27 18.28	4/12 0/8 0/3	33.3% 0% 0%
Parastyle (C2) (+=ASU 1-6)	16.26 17.27 18.28	0/12 1/10 0/2	0% 10% 0%
Enamel extensions (+=ASU 1-3)	14.24 15.25 16.26 17.27 18.28	1/4 0/0 2/9 3/5 0/1	25% 0% 22.2% 60% 0%
Peg (+=ASU +)	12.22 18.28	0/4 0/3	0% 0%
Odontome (+=ASU +)	14.24 15.25 34.44 35.45 38.48	0/6 0/1 0/5 0/4 0/3	0% 0% 0% 0%
Lingual cusp variation (+=ASU 2-9)	34.44 35.45	0/6 2/4	0% 50%
Groove pattern (+=ASU Y)	36.46 37.47 38.48	5/8 1/9 1/3	62.5% 11.1% 33.3%

Dental traits	FDI	Ν	%
Groove pattern (+=ASU X)	36.46 37.47 38.48	3/8 8/9 2/3	37.5% 88.8% 66.6%
Groove pattern (+=ASU +)	36.46 37.47 38.48	0/8 0/9 0/3	0% 0% 0%
Distal trigonid crest (Present/Absent) (+=ASU +)	36.46 37.47 38.48	1/11 2/9 0/3	9% 22.2% 0%
Protostylid (+=ASU 1-6)	36.46 37.47 38.48	2/10 0/10 0/3	20% 0% 0%
Cusp 5 (+=ASU 1-5)	36.46 37.47 38.48	9/10 0/9 1/3	90% 0% 33.3%
Cusp 6 (+=ASU 1-5)	36.46 37.47 38.48	2/10 0/9 0/3	20% 0% 0%
Cusp 7 (+ASU 1-4)	36.46 37.47 38.48	0/10 0/9 0/3	0% 0% 0%

**Table 2.** Frequency of dental traits present in permanent teeth of the individuals from the sample from Mós.

and Mós, where people certainly fished and bathed in medieval time. However, we cannot exclude that we may be dealing with cases of migrants coming from the coast. Another hypothesis is the climatic conditions of a mountainous area, flanked by steams and close to the Douro River: severe winters, associated with cold wind and humidity.

Among physiological stress indicators, *cribra orbitalia* and porotic hyperostosis were observed (Figure 10), and results are summarized in Tables 5 and 6.

Among the individuals with teeth (N=15/38), nine adults and six nonadults, linear enamel hypoplasia were **Table 3.** Summary of the pathologies observed in the individuals from primary burial context from the Necropolis of Mós.

Indivídual	Sex	Age at death	Pathologies	Description
1-Mós/2/12	Male	40-50 years	a) Trauma	a) Trauma in the left frontal, remodelled with 35 mm.
		·	b) Others	b) Porosity in the superciliary arches.
9-Mós/5/1	NO	Unknown	a) Infection b) Others	<ul><li>a) Porosity and thickening observed in some fragments of the cranial vault.</li><li>b) Slight external auditory exostosis in both temporal bones.</li></ul>

NO-non observable.

Table 4. Pathologies observed in the ossualles from the Necropolis of Mos
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Ossuary	Bone	Laterality	Sex	Pathologies	Description
1-Mós_Oss/10/10	Cranium		Male	a) Trauma b) Others	a) Healed lesion in the right frontal with 17 mm); b) External auditory exosto- sis, with porosity associated
					– Left temporal.
1-Mós_Oss/10/13	Cranium	_	Female	a) Neoplastic lesions	a) Two osteoma type "but- ton" in the frontal (4mm/ each).
1-Mós_Oss/10/37	Humerus	Right	NO	a) Trauma; b) Infection	<ul> <li>a) Old trauma line observed in the proximal part;</li> <li>b) Active periostitis ob- served in a diaphyseal fragment.</li> </ul>
2-Mós_Oss/9/25	Cranium	_	NO	a) Others	a) External auditory exos- tosis with porosity – left temporal.
2-Mós_Oss/9/45	Humerus	Left	NO	a) Trauma	a) Old lesion in the poste- rior and distal part.

NO-non observable.

observed in nine (n=9/15; 60%), involving 107 permanent teeth. Adult individual 9 (Mós/5/1), of undetermined age and sex, presents three lines in the lower left canine (FDI 33) which correspond to three distinct episodes of stress. Individual 12 (Mós/12/11), with an age at death between 4.5 and 6.5 years (AlQahtani et al., 2010), presents 4 or 5 lines in the anterior permanent dentition, both in the upper and lower teeth, revealing several periods of physiological stress that he survived.

In the ossuaries sample, it was possible to observe the joint areas of some



Figure 10. Frequency of cribra orbitalia and porotic hyperostosis in the sample of Mós.

Table 5. Individuals from p	rimary burials with	n specific physiological	stress indicators	exhumed
from the Necropolis of Mós	ò.			

	<b>Sov</b>	Aco at doath	Physiological stress indicators		
ID .	Sex	Age at death	СО	PH	
1-Mós/2/12	Male	40-50 years old	А	Р	
7-Mós/22/14	Female	Unknown	NO	А	
8-Mós/7/1	Female	Unknown	А	А	
9-Mós/5/1	NO	Unknown	А	Р	
10-Mós/1/1	NO	Unknown	NO	А	
11-Mós/4/9		8.5-9.5 years*	NO	А	
12-Mós/12/11		4.5-6.5 years*	NO	А	
13-Mós/1/5		6.5-8.5 years*	NO	A	
15-Mós/17/1c		8.5-9.5 years*	NO	Р	

\*AlQahtani et al., 2010; CO-Cribra orbitalia; PH-porotic hyperostosis; P-present; A-absent; NO-non observable.

bone pieces (n=6), and only a proximal hand phalanx, display alterations of grade 1 (Table 7). The only present vertebra (lumbar vertebral body) has a *Schmorl* nodule (1-Mos-Oss/10/18).

Like other pathologies, the observation of non-articular degenerative disease had limitations due to the poor state of preservation of the bones (Tables 8 and 9). Only Individual 1 allowed the observation of entheses (n=1/10). Both humerus and the femur show great robusticity, osteophyte formations (OF:1-4mm/grade 2) and some porosity (OL) (pores < 1mm Ø). These changes suggest a high continuous mechanical

D	Niciona	<b>S</b> av	Ago at doath	Physiological stress indicators		
	INF.INV.	INI.IIIV. JEX	Age at death	СО	PH	
	1	Male	Unknown	NO	Р	
	8	NO	Unknown	NO	Р	
1-Mós-Oss/10	9	NO	Unknown	NO	А	
	10	NO	Unknown	NO	Р	
	11	NO	Unknown	NO	Р	
	12	NO	Unknown	NO	Р	
	13	Female	41-50 anos	NO	А	
	32	Male	Unknown	NO	А	
3-Mós-Oss/4	1	NO	Unknown	NO	А	
2-Mós-Oss/9/2	2		14.5-15.5 years*	NO	А	
5-Mós-Oss/12/1	1		Unknown	NO	А	

**Table 6.** Individuals from ossuaries with specific physiological stress indicators exhumed from the Necropolis of Mós.

\*AlQahtani et al., 2010; CO-Cribra orbitalia; PH-porotic hyperostosis; P-present; A-absent; NO-non observable.

stress probably resulting from habitual activities, but also from two other factors: age at death and sex (Table 12).

In the ossuary sample, it was only possible to classify the enthesis of *M. gluteus maximus* from four femurs (n=4/12;33.3%), all with a medium/high robusticity, but only two, with grade 2 of osteophyte formation. None presented osteolytic formations (OL) (Table 9).

#### Dental pathology

The ante mortem loss (AM) could only be observed in two adults from primary context (Individuals 1 and 8; Table 14). Among the obtained results, antemortem tooth loss of the lower central incisors (n=2/12) of Individual 1, stands out. In the ossuary sample (Table 15), in the mandible 24 (2-Mós-Oss/9) all lower incisors and the left canine (n=8) were loss *antemortem*.

All adults (n=9) exhibit some degree of dental wear, with a mean of 3.6 (n=63/66). Among them, male Individual 1, with an age at death estimated between 40 and 50 years, show a high degree of tooth wear, between grades 3 and 8 (=5.4), higher in the upper anterior dentition and accentuated on the lingual part (Figure 11). This atypical wear, may be related to malocclusion or non-masticatory use of teeth.

In five non-adults, only three (n=3/6), aged between 5 and 16 years, presented occlusal wear (grade 1) in the permanent dentition (n=6/50). In the deciduous dentition, four individuals (n=4/6), revealed a mean occlusal wear of =1.8 (n=26/31).

Crove /le dividual	Bana	Latavality	Carr	Degenerative joint disease		
Grave/individual	Bone	Laterality	Sex	Joint	Grade	
Mós_Oss/10/7	Femur	Left	Male	Proximal	0	
Mós_Oss/10/5	Hand phalanges	Left		Distal and proximal	1	
Mós_Oss/10/18	Lumbar vertebra (undetermined)	_		Body (superior part)	0	
Mós_Oss/9/30	Tibia	Right	NO	Proximal	0	
Mós_Oss/9/33	Сохае	Left	NO	Acetabulum	0	
Mós_Oss/4/2	Humerus	Right	NO	Distal	0	

#### Table 7. Bones with preserved joints observed in the ossuaries of Mós.

NO-non-observable.

Table 8. Entheses analysis of Individual 1 from the Necropolis of Mós.

Individual	Decion	Pono	Sida	Enthosos	Scoring degrees			
maividudi	Region	in bone side		Entheses	Rb	OF	OL	
1-Mós/2/12	Shoulder	Humerus	R	M. deltoideus	2	2	1	
Male 40-50 years	Hip	Femur	R	M. gluteus maximus	3	2	1	

R-right; Rb-robusticity; OF- Osteophytic formation; OL-Osteolytic formation.

Oss/arrayo/Nr	Car	Functional	Pana Cir	Cida	Frethance	Scoring degrees			
Oss/grave/ivr.	Sex	complex	Done	Side	Entrieses	Rb OF		OL	
Mós_Oss/9/19	NO	Hip	Femur	R	M. gluteus maximus	2	1	0	
Mós_Oss/9/37	NO	Hip	Femur	R	M. gluteus maximus	2	2	0	
Mós_Oss/9/42	NO	Hip	Femur	L	M. gluteus maximus	2	1	0	
Mós_Oss/2/1	NO	Hip	Femur	R	M. gluteus maximus	2	2	0	

Table 9. Long bones with entheses from the ossuaries of the Necropolis of Mós.

R-right; L-left; Rb-robusticity; OF- Osteophytic formation; OL-Osteolytic formation; NO-non-observable.

Non-adult 13 (Mós/1/5), with an age at death between 5 and 9 years, display a grade 1 of occlusal wear on three permanent teeth (n=3/16; 26, 31 and 41-FDI) and between grades 3 and 6 of the deciduous one (n=8; =4.75). This severely worn dentition, allow to suggest an abra-

sive diet, starting early in life. The wear is especially high on the two lower canines (grade 6). In addition, this child had a cariogenic lesion (grade 1) in the deciduous lower right second molar, and dental calculus between grades 1 and 2 in the permanent and deciduous dentition.



**Figure 11.** Severe lingual wear in the upper dentition of an adult male from Mós (Individual 1).

Cariogenic lesions (n=4/61;6.5%)were observed in two adults (n=2/9): three with grade 1, present in the right lower molars of Individual 3 (male), and one of grade 2 in Individual 8 (female). In the permanent dentition of non-adults (n=37/58), no lesions were identified (n=0/37), but in the deciduous dentition of two individuals, an 4-6 years old and 5-10 years old children, respectively, the first upper right molar and the lower second right molar, revealed small cariogenic lesions, in the occlusal and medial interproximal surface (n=2/29; 6.9%) (Table 10). In the permanent teeth (n=12) recovered from the ossuaries, no cariogenic lesions were identified.

Dental calculus is present in seven adult individuals (n=7/9). In three nonadult individuals (n=3/6), only residual deposits were observed. The only exception was Individual 13, aged 6.5-8.5 years, who presented an accumulation of grade 2 in the permanent and deciduous dentition.

Individual	Sex	Age at death	Teeth (FDI)	Local	Grade
3-Mós/8/8	Male	>30	45	Lingual	1
			46	Buccal	1
			47	Lingual	1
8-Mós/7/1	Female	>30	24	Medial	2
12-Mós/12/11		4-6 years old	54	Occlusal	1
13-Mós/1/5		5-10 years old	85	Medial	1

Table 10. Cariogenic lesions identified in the individuals from Mós.

Table 11. Periodontal disease registered in the individuals exhumed from the Necropolis of Mós.

Individual	Sex	Age	Classification	Description
1-Mós/2/12	Male	41-50	3	Alveolar margin is rounded and porous, with
3-Mós/8/8	Male	>30	3	a trough of 2 and 4mm between the alveolus and the tooth (moderate periodontitis)
10-Mós/7/1	Female	>30	4	Alveolar margin is irregular and porous, with an irregular trough > 5mm depth between the alveolus and the tooth (severe periodontitis).

Periodontal disease was observed in three adult individuals (n=3/9; Table 11), and among the ossuaries, the only adult individual with the jaw present lacked periodontitis. No periapical lesions were detected.

## Final remarks

The village of Mós, due to its strategic position, played an important role in the process of the Christian Reconquest and in the centuries that preceded it. The importance of the sites is also revealed by the space dedicated to their dead. The investment given in the construction of the graves and their reuse over the centuries, attested by the ossuaries, are evidence of the importance of persistent places for the dead at Mós. The radiocarbon date of Individual 2 suggests the reuse of the funerary space, at least, until the 14<sup>th</sup> century, but it certainly lasted until the prohibition laws of burials in the churches (19<sup>th</sup> century). These graves were perhaps associated with a primitive temple, probably dating from the foundation of the site (9<sup>th</sup>/10<sup>th</sup> centuries). Most of the graves have an anthropomorphic form, with a Christian orientation, very similar to the necropolis of contemporary sites, such as Moreira de Rei (Trancoso, Bragança). The sample of exhumed skeletons is in a very poor state of preservation, with high fragmentation and alterations of the bone surface. Among the results, signs of physiological stress observed in the dental re-

mains stands out, by revealing that these individuals experienced stress episodes during childhood, but survived several of them. These signs, showed a population marked by episodes that may be associated with malnutrition and/or diseases. The moderate to high degree of occlusal wear and low frequency of cariogenic lesions, allows to suggest a diet low in sugars but relatively high in abrasive material. The pathological manifestations identified in the bones are compatible with several infectious or metabolic diseases. The identified traumatic lesions. in the skull of two male individuals, and the presence of the spearhead in the iliac bone of Individual 3, may indicate interpersonal violence within the community or a confirmation of the military conflicts that were persistent in this border area.

In sum, despite the limited inferences, the present work is a contribution to the knowledge of the population buried in Mós and thus, of the medieval period of Northeast of Trás-os-Montes.

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