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Phoenician-Punic Inhumations from Othoca Necropolis (Santa Severa, Santa Giusta - Or)

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Introduction

The city of Othoca was founded by Phoenicians, probably in the 2nd half of the 8th cent. BC, on the NE shore of the Santa Giusta lagoon (Fig. 1), in the area where lies nowadays the town that bears the same name (Del Vais, 2010). Of the ancient settlement, several habitation remains have been identified in the NE sector of the town, whereas the necropolis is located at the Southern periphery, in the areas named Santa Severa and Is Forrixeddus. The funerary area, identified in the 2nd half of the 1800s and subjected to many excavation campaigns until recent years under supervision of the Soprintendenza Archeologica per le province di Cagliari e Oristano and the University of Cagliari, contained several burials spanning Phoenician, Roman Republican and early Imperial ages, whereas fewer finds pertained to the Punic age; in Archaic times (7th to 1st half 6th cent. BC) the dominant funerary ritual is cremation, with primary and secondary deposition, more often inside simple oval pits dug into the ground. In Punic Age (2nd half of the 6th cent. to 238 BC), instead, under Carthaginian influence, the practice of inhumation inside different kinds of burials spreads. In the necropolis, however, some instances of inhumation burials that can be attributed to Archaic times have been recorded, which is rather rare on the island, at the moment documented only at Tharros, Pani Loriga and Monte Sirai, and generally explained as a precocious African penetration in Sardinia (Del Vais and Fariselli, 2010).

Fig. 1. Geographic location of Othoca. (Santa Giusta-OR.).

Materials and Methods

In this paper we present the human skeletal remains coming from two important burials set up in Phoenician times, excavated by Giovanni Tore in the 1980s just to the South of the Santa Severa church. Tomb XXXI, a lithic cist of Archaic age, contained three overlapping inhumations, with bodies laid supine with their head facing West, accompanied by grave goods such as pottery and other personal items dating to the 1st half of the 6th cent. BC (Del Vais, 2010). Tomb XXX, a built chamber, is made with large regular blocks of sandstone, laid without mortar inside a 4-meters deep pit (Del Vais, 2010). The burial, at the moment a unique case in Sardinia, showed on the walls red, black and yellow painted motifs, today almost completely vanished. Several inhumated and cremated bodies were retrieved, mostly still articulated, in association with a few animal bones, currently being studied, and rich grave goods and ornaments. The analysis of the materials suggests an uninterrupted utilization of the tomb from Archaic to Late Punic Age, with an episode of reuse in Roman Republican times. The skeletal materials of both tomb XXXI and XXX, represented by 870 fragments cataloged so far, has been subjected to standard routine operations as cleaning and labelling; the remains were on average in poor conditions, so that wherever possible it was necessary to refit the bone elements before proceeding to the actual osteological examination. For sex determination, different methods were used (Acsádi and Nemeskéri,

1970; Pearson, 1917-1919), although some of the most diagnostic skeletal portions were not available. Age at death in adult individuals was estimated based on the pubic symphysis morphology (Brooks and Suchey, 1990), on the degree of cranial sutures'resorption (Lovejoy and Meindl, 1985) and the degree of toothwear (Brothwell, 1981; Lovejoy, 1985). For subadults, age diagnosis was carried out through the observation of the degree of dental development and eruption (Übelaker, 1989), of the average long bone length (Stloukal and Hanakova, 1978; Scheuer and Black, 2000) and of the epiphyseal fusion (Ferembach *et al.,* 1979). With appropriate instruments, the main anthropometric measurements were taken, calculating then the corresponding indexes. It was possible to determine average stature on a limited number of individuals, for which classic methods were used (Manouvrier, 1893; Trotter and Gleser, 1952; Olivier, 1960; Meadows and Jantz, 1992). Finally, in the best preserved remains, musculoskeletal stress markers (Mariotti *et al.*, 2004-2007; İşcan and Kennedy, 1989) and pathology indicators (Ortner and Putschar, 1985; Capasso, 2001; Rubini and Zaio, 2008) were carefully examined. Unfortunately, the bones were fragmentary and incomplete, so that analysis was particularly long and difficult.

Results

In tomb XXXI three individuals were identified, laid in layers and named, from top down, A, B and C. Two are females, one subadult (A) and one adult (C), the third individual (B) is a male.

XXXI/A. These remains can be attributed to a subadult female, average height 150,24 cm. Her cranium shows a mid-sized mastoid and orbital ridges not very prominent; the mandible is gracile, and the mandibular angle wide. The diameter of the femur's head is 40 mm, a value considered indicative of a female. Toothwear and particularly the 3rd molar still erupting at time of death suggest an age between 16 and 24, confirmed by the iliac crest, which is not yet fused, and by the vertebrae showing clearly the blood vessels'tracks; cranial sutures are also mostly open.

XXXI/B. Adult male, average height 164,52 cm. His long bones are generally robust if compared with individuals A and C, and the *linea aspera* is very prominent. The mandibular body is robust and the symphysis high. Toothwear degree suggests an age around 25/30; unfortunately, it was impossible to examine the surface of the pubic symphysis, illegible due to bad preservation.

XXXI/C. The few remains recovered allowed to identify a female. Age and sex determination in this case was based on a limited number of diagnostic traits, since the remains were incomplete. The long bones, overall gracile, and the small and pointy mastoid, are typically feminine. Isolated teeth show intense and irregular wear, with exposure of the dentin and the formation of concavities. These indicators together suggest for individual C an age of 45/55 years.

From musculoskeletal stress markers it was inferred that individuals A e B conducted an intermediately intense physical activity with their upper limbs. The mature female C, instead, appears different in that there is indication of more intensity of muscular work with her lowe limbs, with osteophytes on her femur and on her tibia.

Concerning pathology, clear traces of osteoperiostitis were found on diaphyses of lower limbs in all individuals; some cases of herniated disc and small osteophyte formations were also recorded. Individual A particularly showed signs of a serious pathology in her left tibia. The bone shows an evident alteration both in its volume and its general morphology: in the proximal epiphysis, there is a bone formation that surrounds the tibial epiphysis and the patella (Fig. 3). Consequent to this was the loss of mobility (ankylosis) to the knee joint. X-rays on the tibia, performed at the Imaging Diagnostic Center, University Clinic, Cagliari, suggests the hypothesis of a lesion due to a serious trauma. Individual A was laid with the left leg, the pathological one, flexed; this further underlines that is was impossible for the young woman to stretch her leg (Fig. 2). In the same

Fig. 2. *Tomb XXXI: individual A (photo G.Tore).*

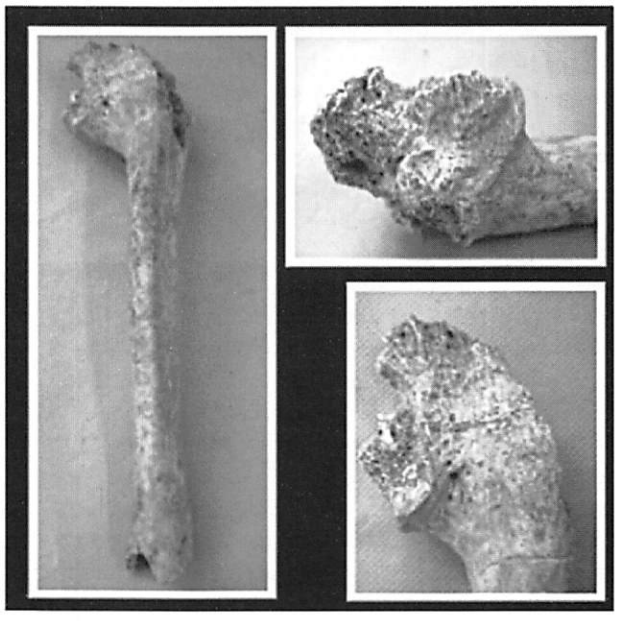

Fig. 3. *Tomb XXXI: serious pathological condition on the left tibia, individual A.*

individual, other pathologies recorded are: in the femur, the torsion of the diaphysis'axis; traces of enthesopathy in the distal epiphysis, popliteal triangle; in the right clavicle, concavities at the insertion point of the rib-clavicle ligament; three vertebrae in particular, two thoracic, one lumbar, show lesions in a postero-medial and postero-lateral location, in the posterior quadrant, which can very likely be referred to a herniated disc. The general picture suggests that the young woman, to compensate for the unstable support from her left leg, exerted a strong pressure on her arms and thoracic belt in order to sustain herself and walk. As concerns teeth, the three individuals have caries, enamel erosion with dentin exposure, and indicators of parodontopathies.

As for tomb XXX, it has not been as easy to determine the MNI, due to the highly fragmentary materials, and due to the long reuse of the funerary chamber, which caused the earlier individuals to be moved aside to make room for the more recent, with the consequent loss of anatomical connections and the dispersal of the skeletal remains. For this reason, in the framework of a still preliminary analysis, only the bones best represented were examined: tibiae for adults and femurs for subadults. This led to the estimation of at least 14 individuals, of which 4 adults, 2 males and 2 females, 2 adolescents and 8 infants. Whereas for adults it was impossible to determine age at death for the lack of sufficient diagnostic elements, for subadults the standard methods were used. By combining such methods, an average age of about 10 and 15 was estimated for the two adolescents, whereas the remaining infants are within an age range between 0 and 3. The analysis of musculoskeletal stress markers generally indicates for adults of tomb XXX an intense activity of the muscles soleus, gluteus maximus and the quadriceps and Achilles'tendons. The overall evidence would lead to hypothesize a more intense muscular work for the lower limbs; however, the absence of musculoskeletal stress markers for the upper limbs could be due to the absence of intact or well preserved skeletal materials. In the adult individuals from tomb XXX, there is a clearly high frequency of joint alterations, mostly located in the lower limbs and vertebrae. In the subadults, there is instead more frequently *cribra cranii* e *cribra orbitalia*, mostly concentrated in the parietal region and on the orbital roof; some cases of cracking of the cortical bone in the long bones, cranial vault and pelvis.

Discussion

The biological average age at death of the individuals suggests a high occurrence of infant mortality; the several cases of *cribra cranii* e *cribra orbitalia* can be attributed to multiple causes (thalassemia, sickle-cell anemia, iron-deficiency anemia and so on). We cannot rule out the presence of malaria in a marshy, humid and unhealthy territory that affected severely the populations'health conditions. Among the individuals of tomb XXXI, a high frequency of osteoperiostitis can be observed, unlike what was established for tomb XXX, where alterations of arthrosic nature are prevalent (Fig. 4). In both tombs, several cases of herniated discs were recognized in thoracic and lumbar vertebrae, whereas the incidence of dental pathologies is limited. Factors such as age, repeated bio-mechanical stress on the joints and an unhealthy environment can favor the onset of these diseases. The study carried out resulted in an MNI of 17 individuals; in Tab.1 the distribution of the sample by sex and age is summarized. The sample population is represented by individuals of low stature and small bodies, even though the muscle insertion points are rather prominent. The analysis of musculoskeletal stress markers indicates a generally more intense activity performed with the lower limbs, which would point to prolonged walking on rough terrain or a lifestyle characterized by specific work motions that requested an intense use of muscles. This study also provided additional osteometric data on Phoenician and Punic individuals: despite the high number of Sardinian sites pertaining to these phases, there is a still scarce record, both for the loss of skeletal materials from early excavations, which concerned starting in the 1800s the main necropolises, and

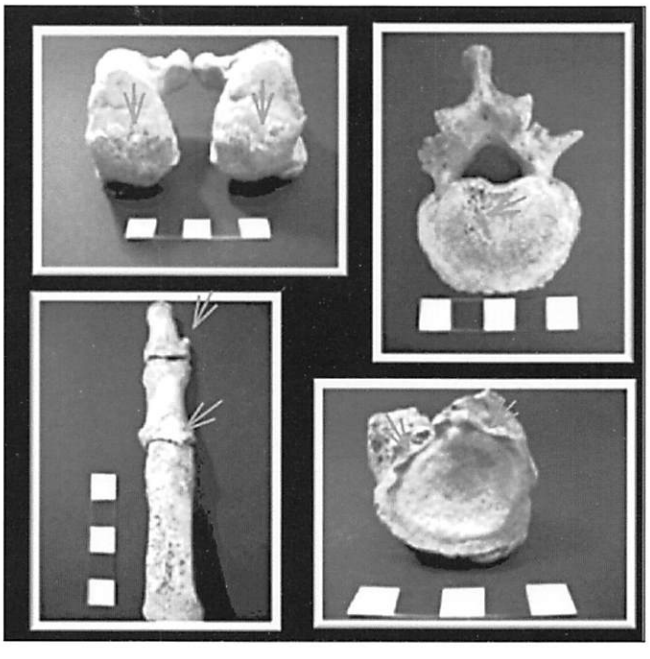

Fig. 4. *Arthrosic alterations, individuals tomb XXX.*

	SEX				AGE AT DEATH			
TOMB	F	M	INDET.	TOT.	INFANT	ADOLESCENT	ADULT	TOT.
TXXXI	2	1		3		1	2	3
TXXX	2	2	10	14	8	2	4	14

Tab. 1. *Summary for individuals from tombs XXX and XXXI, divided by sex and age ranges*

for the frequent ancient and modern violations that caused remarkable damage to the burial contexts.

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