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INFERRING INDIGENOUS LIFE: THE HUMAN GROUP OF BAUCINA, SICILY (CA. VII–V CENTURIES BCE)

ABSTRACT: *The anthropological study of archaeological skeletal remains is a fundamental approach to defining the state of health and well-being of ancient populations. In this perspective, this work illustrates the first results of the study of a sample attributed to an indigenous Sicanian population from the necropolis of Baucina (Palermo, Sicily), a settlement dated between 7th–5th centuries BCE. The remains were found inside a large artificial cave tomb which is distinguished by its monumentality and number of occupants, which amounts to fifty-nine individuals, a significant number for a population of this period. Consequently, it was decided to proceed with the study of the sample, applying anthropological methodologies for the definition of demography, paleopathological aspects, enthesal changes and non-metric traits. The results obtained provide important data concerning individual pathologies and variants of the skeletal morphology, both in adults and non-adults: for instance, individuals show osteomas, porous skeletal lesions, musculoskeletal stress markers. This study represents one of the first concerning the bio-anthropology sphere of Sicanian communities, reporting new insights regarding the lifestyle and health status in Baucina.*

KEY WORDS: *Bio-Anthropology - Sicans - Paleopathology*

INTRODUCTION

The island of Sicily has long been a focal point of interest across various fields of study, particularly in historical research. This interest largely stems from the island's complex history of succeeding dominations, which have imbued it with a richly multicultural heritage.

Considering the multiple influx of people during the Bronze and Iron Ages, the earliest documented colonization of Sicily was by the Greeks. According to Thucydides in his *History of the Peloponnesian War*, they arrived in 734 BCE, finding the island divided into areas controlled by distinct ethnic groups: Sicans, Sicels, and Elymians. Our foggy awareness about early inhabitants

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of Sicily comes from Greek historians such as Thucydides, Herodotus, and Diodorus Siculus. However, these sources – focused on the origins of these indigenous groups – are often incomplete, contradictory, and reflect varying hypotheses. While the exact origins of Sicily's first peoples remain uncertain, their presence is undoubtedly the result of the large demic movements that characterized Sicily starting from the ancient Bronze Age and culminated in the first millennium BCE.

In recent decades, numerous scholars (e.g., Albanese Procelli 2003, 2010; Spatafora 1996, 2016; Vassallo 2009, 2010, 2019) have conducted studies to shed light on Sicily's ancient past. These investigations – mainly archaeological – have enriched our understanding of early indigenous populations and their interactions with other cultures (namely, Greeks and Punics), with archaeological excavations revealing valuable information about these groups. But a very concrete possibility of understanding the ancient peopling of the

island is emerging from archaeogenetic (Catalano *et al.* 2020; Modi *et al.* 2022; Sineo *et al.* 2025), archaeometric (Sineo *et al.* 2025), and anthropological studies (Bellomo *et al.* 2017; Di Salvo *et al.* 2012; Lauria, Sineo 2023, 2025; Miccichè *et al.* 2017).

This study aims to contribute to the reconstruction of ancient Sicilian population dynamics through the bioanthropological analysis of human osteological remains from the necropolis of Baucina, located in the central-western part of the island and inhabited by a Sicanian community. Despite Sicily's rich archaeological record, bioanthropological research has long been underrepresented, in part due to longstanding biases that underestimated the scientific value of biological data. By applying anthropological methodologies, this research seeks to provide new insights into the health status, occupational activity and demographic structure of the Sicanian population that inhabited the area of Baucina (Palermo). Furthermore, to explore biological affinities between individuals and reconstructing habitual posture,

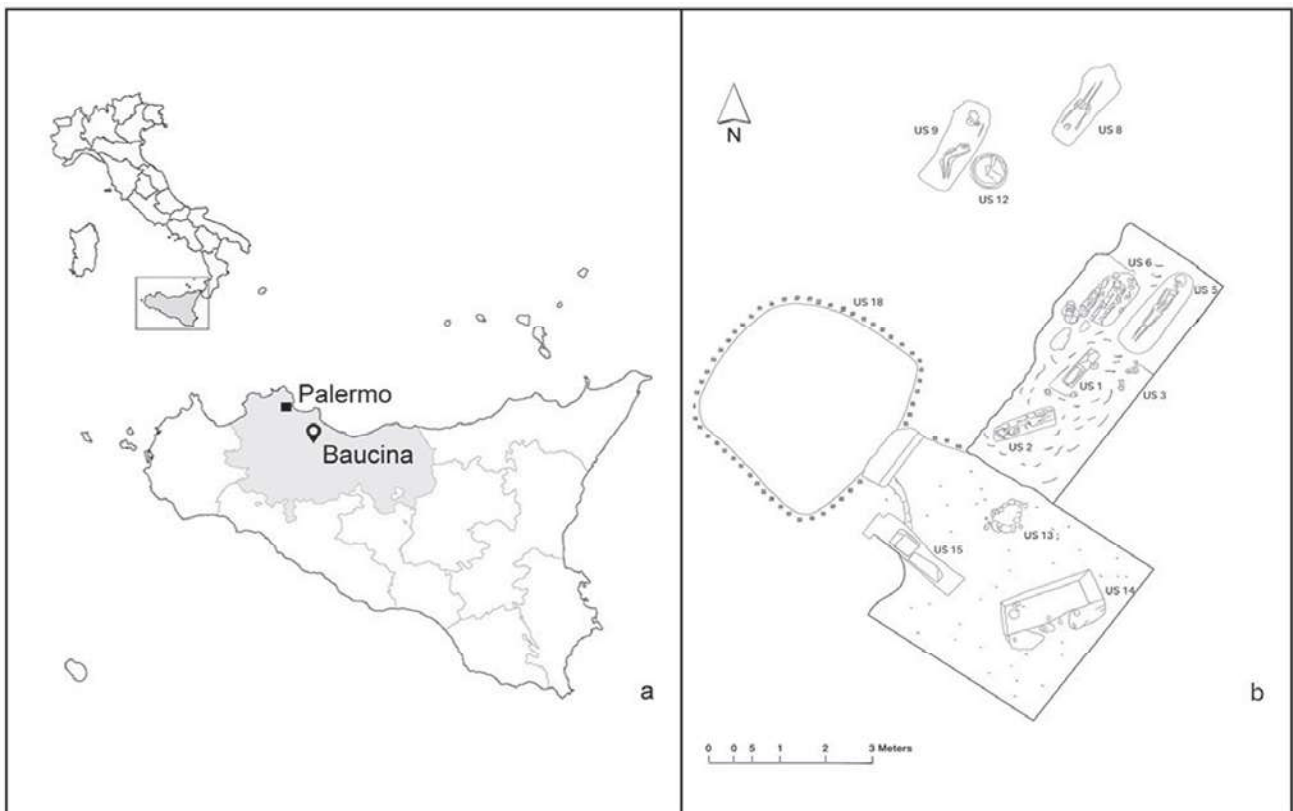


FIGURE 1: A, geographic map of Sicily; b, topographic map of the archaeological site of Baucina, modified from Belvedere *et al.* (2016).

we evaluated and analyzed nonmetric traits of the skeleton. The study underscores the importance of integrating osteological data with archaeological context to deepen our understanding of biological complexity of early Sicilian societies.

Archaeological context

The necropolis of Baucina is situated on a hilltop between the Milicia and San Leonardo rivers, approximately 15 km from the Tyrrhenian Coast, located between Mount Falcone (695.1 m) and Mount Carozza (745.9 m) (Bordonaro 2011) (*Figure 1a*). The excavation essay conducted in 2014 extended ca. 45 m² along the southern slope of Mount Falcone and revealed fifteen burials arranged next to each other without particular order (*Figure 1b*). The types of tombs represented are as follows: a quadrangular artificial cave tomb (US 18); within *kalypteres*; an *enchytrismòs* tomb; ground burial; a primary cremation in ground burial. The coexistence of several burial types, including those of Greek tradition (monosome burials and incineration with grave goods), the presence in the grave goods of Greek ceramics and pottery with painted decoration, and the presence of a bronze coin inside the artificial cave tomb – exclusively Greek in use – makes it possible to ascertain the existence of contacts and relations between Greeks and Indigenous peoples, with the acquisition of forms of burial different from the Sicanian traditional ones. Moreover, numerous fragments of Punic amphorae also testify to trade relations with the coastal cities of Solunto and Panormo.

Absolute dating and archaeogenomic evidences

The initial chronological attribution of the settlement was based on the presence of grave goods found, which were typologically dated between the 6th–5th centuries BCE. More recently, absolute dating by 14C AMS analysis has been conducted on a subset of individuals who lacked direct archaeological indicators for dating (Sineo *et al.* 2025). Specifically, five individuals were analyzed: three recovered inside the cave tomb and two recovered from external burials. The results indicate that the hypogean complex can be dated to a broader timespan, between the 7th–5th centuries BCE.

Genetic analysis of individuals from the Sicanian cave tomb – which is presumed to be a clan-based burial type – revealed notable mitochondrial DNA heterogeneity, despite evidence of widespread kinship. This is suggested by the recurrent presence of four atypical mitochondrial haplogroups: T2b3+151 (the most frequent), H, H1e8, and T2e7. Additional

haplotypes (such as U3, U5) and haplogroups (H and the rare I4a), suggest genetic continuity with earlier prehistoric Sicilian populations dating back to the Epigravettian period.

In contrast, the external burials – which are of Greek type or simple ground burials – reflect only a partial overlap with the genetic variability observed in the cave tomb group.

Thus, this study (Sineo *et al.* 2025) has revealed genetic differences between the two funerary contexts and, as the authors report <<Certainly, these data are preliminary, and only the complete typing of the entire hypogaeum will allow for a clearer definition of the correct parental relationships, and particularly the phylogenetic relationships between the indigenous people, those influenced by Greek ritual behaviors, and the colonizers within the Baucina area and the identified chronological period>>.

MATERIALS AND METHODS

The human osteological sample analyzed came from the partially artificial cave tomb "US 18" of the necropolis of Baucina, whose opening was in 2014. Upon discovery, archaeologists immediately noted clear evidence of multiple looting episodes (Belvedere *et al.* 2016). These disturbances had caused significant disarticulation of the skeletal remains, posing substantial challenges for subsequent anthropological analysis.

Due to the difficulty of re-associating individual bones with their original skeletons, a systematic approach was adopted post-excavation. The first step was the dry-cleaning of the skeletal elements, followed by a restoration phase of the fragmented ones with reversible glue. As the second step, the remains were sorted into anatomical regions. The Minimum Number of Individuals (MNI) was calculated for each of these skeletal regions (*Tables 1a–1b*), and each bone segment was labelled sequentially (as "Bau-1, Bau-2," etc.) to facilitate organization and further study.

This approach enabled the creation of a comprehensive inventory for each anatomical district, containing the following information: number of inventory, type of bone, state of preservation, side, sex and, age class. The state of preservation was recorded as follows: complete, almost complete, proximal epiphysis + diaphysis, diaphysis + distal epiphysis, fragmented.

The MNI of non-adult and adult individuals was calculated following Ubelaker (1974) and White (1953).

Sex determination was carried out by macroscopic examination of cranial features following Ferembach *et al.* method (1980), and mandibular morphology according to Loth and Henneberg method (1996).

Estimation of age-at-death has been made evaluating the persistence of the epiphyseal line in the appendicular skeleton (Belcastro *et al.* 2019), specifically on femurs. Age class was attributed following the Buikstra and Ubelaker's classification (1994): Infant (birth – 3 years), Child (4–12 years), Adolescent (13–20 years), Young adult (21–34 years), Mature adult (35–50 years), Old adult (>50 years). Concerning non-adult, age-at-death was refined using metric methods based on the length measurements of long bones from both upper and lower limbs (Cunningham *et al.* 2016; Maresh 1970; Ubelaker 1989) along with observation of epiphyseal fusion stage (Schaefer *et al.* 2009).

It is important to note that pelvic bones were not used for sex or age estimation due to their poor preservation.

Entheseal changes were recorded using the scoring system proposed by Mariotti *et al.* (2007) and the Coimbra method (Henderson *et al.* 2013, 2016, 2017).

Paleopathological conditions were diagnosed through macromorphoscopic examination of the

skeletal elements, guided by established manuals and literature (Aufderheide, Rodríguez-Martín 1998; Buikstra 2019; Calhoun 1991; Lewis 2018; Mann, Hunt 2013; Ortner 2003; Rinaldo *et al.* 2018).

Nonmetric skeletal traits were assessed using presence/absence analysis, following criteria outlined by Barnett (1954), Görhning (2021), Mann *et al.* (2016), and Mann and Hunt (2019).

RESULTS

The inventory of prehistoric skeletal remains from the Baucina necropolis includes 1930 adult elements and 230 non-adult elements (*Tables 1a-1b*). The MNI of the entire population amounts to 59, including fifty adults and nine non-adults. Restoration of the cranial fragments yielded 34 crania, of which 15 were identified as female, 10 as male, and 9 of undetermined sex, including 2 non-adult individuals. The analysis of adult mandibles has returned 11 females and 11 males. Due to the commingled nature of the assemblage, a precise estimation of age-at-death was not possible for adult individuals. Instead, adult were assigned to age classes following Buikstra and Ubelaker (1994), using femoral epiphyseal fusion as an age marker. The femur, being

TABLE 1A: Minimum Number of Individuals (MNI) of adult bones.

BONE	MNI – right	MNI – left	TOTAL	NUMBER OF ELEMENTS ANALYZED
Cranium	–	–	32	32
Mandible	–	–	32	54
Vertebrae	–	–	386	386
Clavicle	37	26	63	63
Scapula	29	31	60	71
Humerus	23	19	41	68
Ulna	25	19	52	55
Radius	32	26	58	63
Os coxae	–	–	47	47
Femur	17	23	40	61
Tibia	15	16	31	47
Fibula	22	22	44	55
Patella	24	27	51	52
Calcaneus	25	28	53	53
Talus	34	38	72	72
Metacarpals	173	140	313	313
Metatarsals	224	214	438	438
Total				1930

the most frequently recovered long bone in the sample, was selected for this analysis. Using the method of Belcastro *et al.* (2019), it was found that degree 3 of epiphyseal line persistence in the femoral head was the most frequent (50% degree 3, 30% degree 2, 20% degree 4 – scored on 20 available proximal epiphysis) suggesting a predominant presence of young adult age class (21–34 years). Concerning non-adults, age-at-death was estimated using long bones length measurements. The results indicate an age range from approximately 1.5 years to late adolescence. The latter was confirmed by the observation of proximal epiphyseal fusion stage on three ulnae.

Paleopathological examination revealed several noteworthy findings. Porous skeletal lesions (PSLs) have been recorded, including porotic hyperostosis (PH), *cribra orbitalia* (CO), *cribra femoris* (CF) and *cribra humeri* (CH). CO and PH were observed with frequencies of 58.8% and 32.35%, respectively. CH is not present in adults, but it is present on two right and two left non-adult humeri. CF is present on three left and two right adult femurs, and three right and two left non-adult femurs. Both CO and PH were found in the healing phase, assessed using the method of

Rinaldo *et al.* (2019). Additionally, three osteomas were identified: two in a single individual, located on the frontal bone and within the frontal sinus, and one in the occipital bone of another individual. One case of concha bullosa was also observed in the cranial region.

In the postcranial skeleton, paleopathological analysis revealed two probable cases of avascular traumatic necrosis, affecting the proximal end of a left femur and a left talus, both fully remodeled. Periostitis was observed in 20% of right tibias and 26.08% of left tibias, in both active and healing phases. Concerning anatomical variants, a total of 12 platynemic cases (5 right, 7 left) and 16 platymeric cases (9 right, 7 left) have been observed. Regarding the vertebral column, osteoarthritis and Schmorl's nodes affected multiple vertebrae.

Markers of musculoskeletal stress were also noted, reflecting moderate occupational activity. These included marginal lipping, osteophytosis, and bony spurs, which affected various bones, particularly those involved in diarthrosis joints. Enteseal changes were recorded for clavicles, humerus, radius, ulna, femur, tibia, patella and calcaneus, calculating the frequency of each degree (Tables 2–3).

TABLE 1B: Minimum Number of Individuals (MNI) of non-adult bones.

BONE	MNI – Right	MNI – Left	NUMBER OF ELEMENTS ANALYZED
Cranium	–	–	2
Mandible	–	–	7
Vertebrae	–	–	86
Clavicle	2	4	6
Scapula	2	5	7
Humerus	9	8	21
Radius	7	13	32
Ulna	7	9	16
Ileus	1	4	5
Ischius	3	3	6
Pubis	7	2	9
Femur	5	7	23
Tibia	8	7	26
Calcaneus	6	5	12
Talus	2	3	5
Metacarpals	–	–	26
Hand phalanges	–	–	39
Metatarsals	–	–	57
Foot phalanges	–	–	13
Total			230

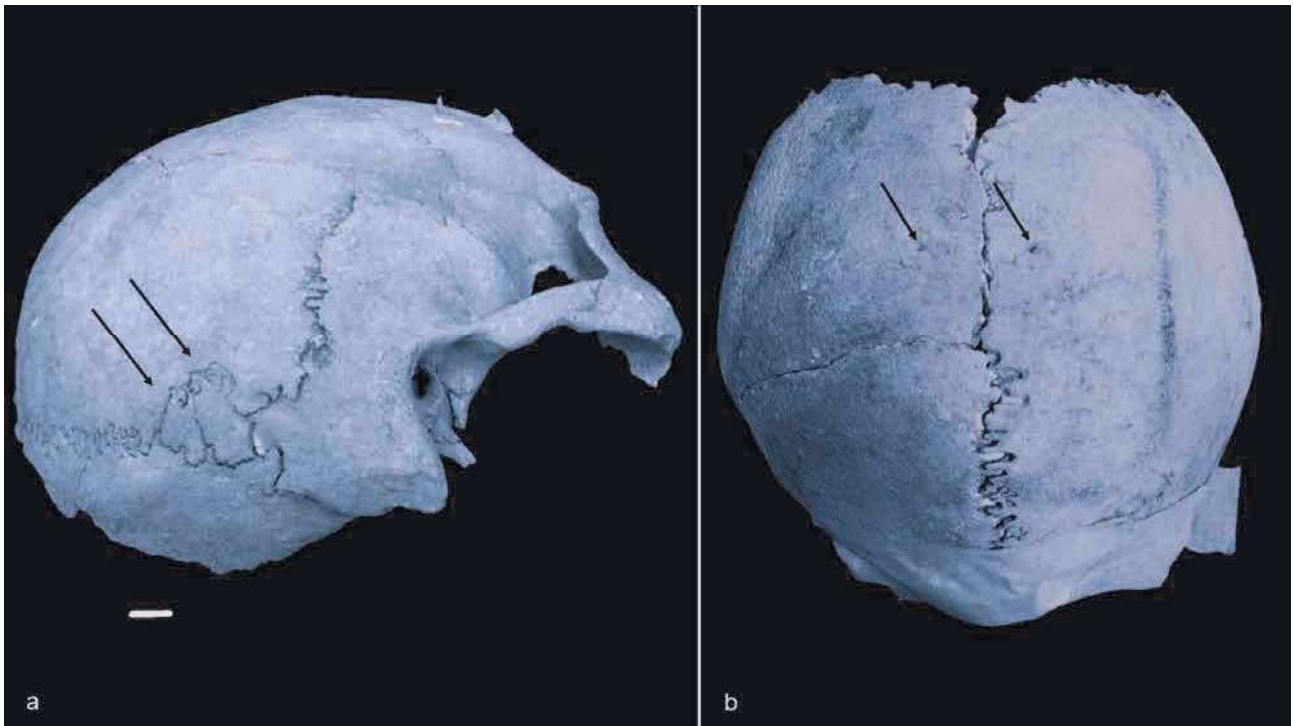


FIGURE 2: A, two right asterion ossicles (black arrows); b, parietal foramina (black arrows). Scale bar 1 cm.



FIGURE 3: A, Porier's facet on a left adult femur (black arrow); b, Allen's fossa on a right adult femur (black arrow). Scale bar 1 cm.

Regarding nonmetric traits, the most frequent concerning the cranium (*Table 4*) are lambdoideal, asterion (*Figure 2a*), coronal, subasteric ossicles and parietals (*Figure 2b*), zygomatic, supraorbital infraorbital, etmoidal, mastoideal, postcondylar foramina. The most frequent postcranial non-metric traits (*Table 4*) are cleft/bifid arch, paracondylar process, partial bridging,

double foramina transversaria, cervical bidid spinous process, septal aperture, rhomboid fossa, Allen's fossa (*Figure 3b*), femoral raised variant, tibial squatting facet, patellar vastus notch, single and double medial articular facets of the calcaneus, Stieda's process.

DISCUSSION

The study of commingled human remains poses many difficulties in terms of reconstructing the population dynamics of ancient communities, given the frequent impossibility of determining the skeletal conformation individual per individual. Nonetheless, their study represents an important value for bio-anthropological and archaeological research, to obtain a more comprehensive understanding of ancient populations' life.

The demographic structure of the Sicanian population of Baucina necropolis reveals a population predominantly composed of adult individuals, with non-adults representing only a minor portion of the total assemblage (approximately 15.2%). Among the adults, the reconstruction of cranial and mandibular remains indicates a majority of female individuals. The high

frequency of young adults (21–34 years) – as inferred from epiphyseal fusion analysis of the femoral head (Belcastro *et al.* 2019) – suggests a significant mortality peak in early adulthood. This pattern may be attributed to intensive physical activity, nutritional stress, trauma, or other environmental and occupational factors affecting health and longevity. The relatively low presence of individuals from the mature adult (35–50 years) and old adult (>50 years) age classes could either reflect underrepresentation due to taphonomic loss or a real demographic trend indicating limited life expectancy. It is also worth highlighting that the pelvic bones could not be included in the demographic analysis due to their poor state of preservation. The commingled and heavily disturbed nature of the burial context, coupled with the fragmentation or absence of many pelvic elements, made it impossible to apply standard morphological methods for sex and age estimation based on the pelvis. In a similar way, this bias involved the crania. Previously to the anthropological analysis, the restoration phase has been implemented, and it has returned 34 crania, but sometimes it has not been possible to reconstruct the entire skull, causing the absence of dimorphic indicators useful for the determination of sex.

Pertaining to the paleopathological aspect, some interesting cases have been found. The most frequent pathological condition found on the sample is porotic skeletal lesions (PSLs), namely porotic hyperostosis (PH), *cribra orbitalia* (CO), *cribra femoralis* (CF) and *cribra humeralis* (CH). CO and PH were recovered on 20 crania (58.8%) and 11 crania (32.35%) respectively, sometimes accompanied by diploe thickness. To record, the authors have followed the method proposed by

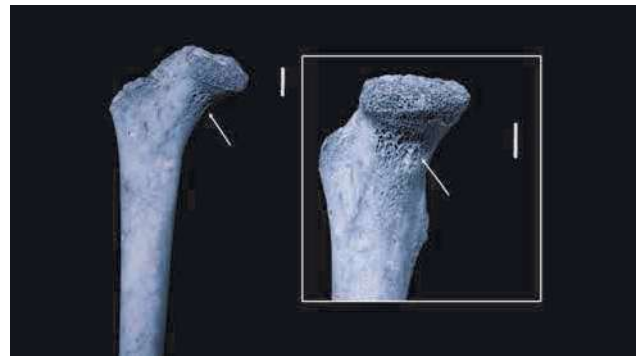


FIGURE 5: *cribra femoralis* (white arrows) in a right non-adult femur. Scale bar: 1 cm.

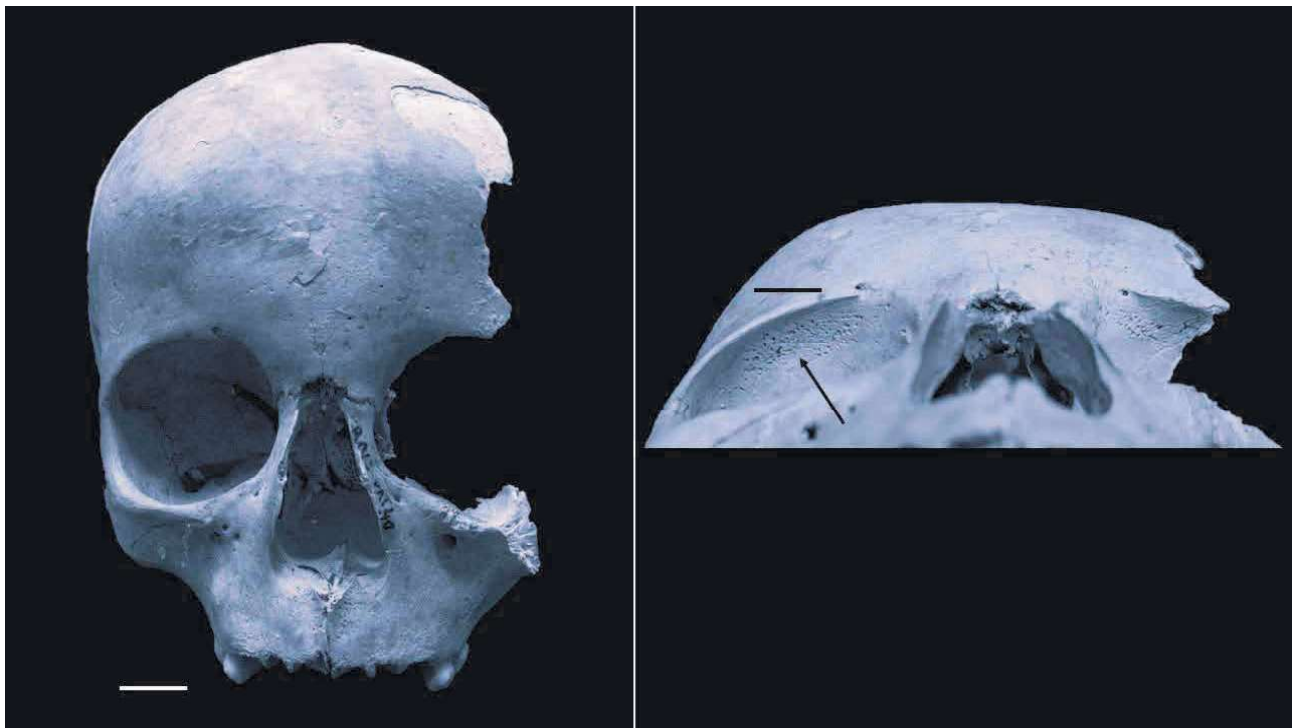


FIGURE 4: Non-adult "Bau 20" *cribra orbitalia* (black arrow). Scale bar: 1 cm.

Rinaldo *et al.* (2018), a combination of the methods of Stuart-Macadam (1985) and Salvadei *et al.* (2001) for evaluating the degree of severity and healing of the lesions. By the macromorphoscopic observation, following the photographic support proposed by Rinaldo *et al.* (2018), results that all the adult individuals manifest a healing process both of the *cribra orbitalia* and porotic hyperostosis, while the only individual that manifests a severity status (Figure 4) is the juvenile one, 6 ± 2 years old, scored by the preservation of maxillary bone and teeth, following AlQahtani *et al.* (2010). The origin of PSLs is generally related to a period of physiological stress during skeletal growth and development, in fact PSLs are considered childhood lesions (Aufderheide and Rodriguez-Martín 1998; Lewis 2018; Mangas-Carrasco, Lopez-Costas 2021; Mensforth *et al.*, 1978; Schultz 2001; Stuart Macadam 1985) that develop on an immature skeleton and are preserved into adulthood (Stuart-Macadam 1985). Therefore, the PSL finding on the cranial sample of Baucina could lead to the hypothesis that the environmental or nutritional conditions that caused these skeletal markers occurred during childhood and were resolved during the growth. Clearly, this remains only a hypothesis, it is not possible to be able to infer more specifically, having only one non-adult skull available. Concerning CF and CH, the recording of severity and healing status has been made with the photographic support proposed by Mangas-Carrasco and López Costas (2021). The aetiology of post-cranial *cribrae* is currently not clear, but it is probably related to physiological stress or nutritional deficiencies during the development (Mangas-Carrasco, López Costas 2021). Although few cases have been

found on Baucina sample (Figure 5), they are mainly attributable to non-adult individuals. Therefore, considering all the PSLs, we may hypothesize their occurrence during infancy, possibly related to a physiological stress period.

Related to the cranial area, one case of concha bullosa (CB) has been found. CB is the pneumatization of the nasal turbinates (Zinreich *et al.* 1988) whose growth is generally asymptomatic (Calhoun *et al.* 1991). It represents an anatomical variant that could lead to pathological phenomena of the osteomeatal complex; the Baucina case represents one of the most ancient case in Sicily (Fiorentino *et al.* 2025), as we will report on a more specific case-report soon.

Three individuals manifest osteomas: "Bau 11" on the frontal bone (Figure 6), "Bau 18" on the left parietal bone and "Bau 19" both on the frontal bone and in the frontal sinus. Every case is represented by a button-like morphology that does not exceed 0.5 cm in diameter. In particular, the most interesting phenomenon is represented by "Bau 19", related to the important significance represented by the osteoma of the paranasal sinuses (Varotto *et al.* 2019). This condition will be investigated more in depth soon, to understand if it is an osteoma, an osteoid osteoma or an osteoblastoma. Nonetheless, this case is one of the most ancient recorded on Sicilian prehistoric populations.

Concerning the adult vertebral column, 133 cervicals, 173 thoracics and 32 lumbar have been analyzed. The most common skeletal marker of biomechanical stress is osteoarthritis (Figure 7a), which has been found in each category in the form of marginal osteophytosis (Figure 7b), and surface osteophytosis of

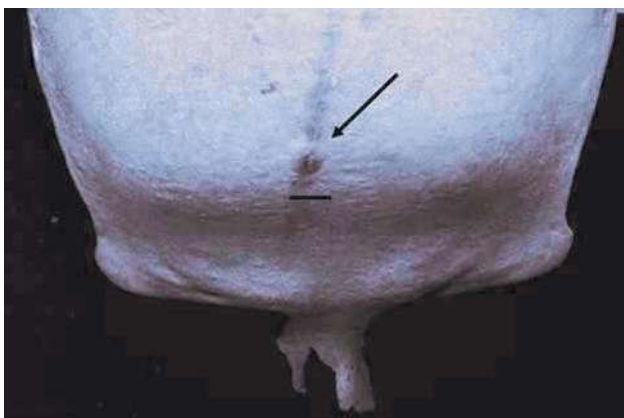


FIGURE 6: Osteoma (black arrow) on the frontal bone of an adult individual (Bau 11). Scale bar: 1 cm.

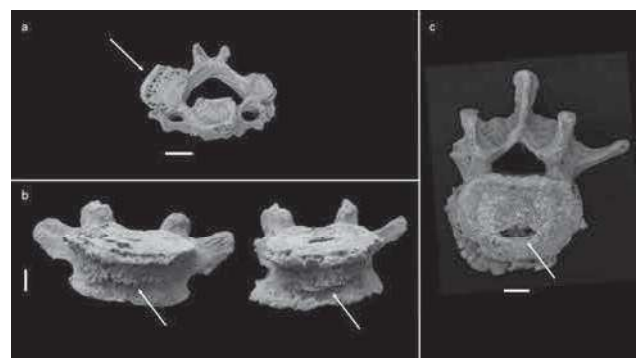


FIGURE 7: A, cervical vertebra with osteoarthritis (white arrow); b, two lumbar vertebrae manifesting marginal lipping, osteophytosis (white arrows) and Schmorl's nodes; c, Lumbar vertebra with Schmorl's node (white arrow). Scale bar: 1 cm.

the articular facets. Some cases of Schmörl's nodes are present (*Figure 7 b-c*), testifying the transport of heavy loads on the spine. The most interesting case regarding the spine is the presence of signs of spinal tuberculosis (Pott's Disease) on two thoracic vertebrae, thus representing the most ancient case of TB in ancient Sicily (Fiorentino *et al.* 2024). This important finding is currently the object of more in-depth research by the authors.

Recording of enthesal changes (*Tables 2-3*, see Supplementary materials) results to be not being exhaustive given the low number of diagnosable elements, except for the patella and the calcaneus. Considering the standard proposed by Mariotti *et al.* (2007), the major frequencies are degree 1c and 2 for the quadriceps tendon and 2 and 3 for the Achille's tendon. The presence of osteophytis – as suggested by the application of the Coimbra method (Henderson *et al.*, 2013, 2016, 2017) resulting in 82.61% for degree

2 of the BFz1 for the left side and 68.42% for the right side – in the ankle area and, in a similar way, in the plantar region (18/28 left cases, 64.28%; 12/24 right cases, 50%), sometimes in form of inferior bony spurs, could suggest movements on rough terrain, probably during long walks. This hypothesis could be implemented by the presence of squatting facets (*Figure 8: a-b*, *Table 4*) both in tibiae (11/25 right elements with presence of distal epiphysis, 44%; 11/22 left elements with the presence of distal epiphysis, 50%, for a total of 46.8%) and talus (10/27 complete left elements, 37.03%; 13/22 complete right elements, 59.09%), and it would be totally coherent with the settlement located on a hilltop position. Physiological stress of the lower limb caused by mechanical activities could be also testified by the presence of various cases of platynemia and platymeria and by cases of traumatic events represented by remodeling of a right femur and a left talus.

TABLE 2: Enthesis scored following Mariotti *et al.* (2007). Numbers in "Right" and "Left" columns are indicative of the number of scored elements.

Bone	Muscle	Right	Left
Clavicula	Costoclavicular ligament	11	10
	Conoid ligament	22	17
	Trapezoid ligament	25	18
	M. <i>deltoideus</i>	21	17
	M. <i>pectoralis major</i>	14	10
Humerus	M. <i>pectoralis major</i>	8	10
	M. <i>latissimus dorsi</i>	8	10
	M. <i>deltoideus</i>	9	14
	M. <i>brachioradialis</i>	16	11
Radius	M. <i>biceps brachii</i>	17	10
	M. <i>pronator teres</i>	8	14
	Interosseous membrane	7	13
Ulna	M. <i>triceps brachii</i>	13	12
	M. <i>supinator</i>	13	15
	M. <i>brachialis</i>	15	15
Femur	M. <i>gluteus maximus</i>	10	9
	M. <i>vastus medialis</i>	9	7
	M. <i>iliopsoas</i>	5	6
Patella	Quadriceps tendon	22	22
Tibia	Quadriceps tendon	11	6
	M. <i>soleus</i>	11	8
Calcaneus	Achilles tendon	13	21

TABLE 3: Enthesis scored following Henderson *et al.* (2013, 2016, 2017). Numbers in "Right" and "Left" columns are indicative of the number of scored elements.

Bone	Muscle	Right	Left
Humerus	<i>Supraspinatus</i>	9	9
	<i>Subscapularis</i>	9	9
	<i>Infraspinatus</i>	9	9
	<i>Teres minor</i>	9	9
	<i>Common Extensor Tendon (CET)</i>	19	12
	<i>Common Flexor Tendon (CFT)</i>	20	13
Radius	<i>Biceps brachii</i>	10	15
Ulna	<i>Triceps brachii</i>	18	16
Femur	<i>Gluteus medius</i>	10	10
	<i>Iliopsoas</i>	10	11
Tibia	<i>Quadriceps tendon</i>	11	6
Calcaneus	<i>Triceps surae</i>	19	22

The hypothesis of a kinship relationship among the individuals is suggested by the funerary context. The artificial cave tomb represents a typical Sicanian burial type, traditionally associated with members of the same family group or clan (Albanese Procelli 2003; Crispino, Cultraro 2021). The analysis of nonmetric traits provides additional bioanthropological evidence that may support this interpretation, given their established application to explore kinship between individuals and

biological distance between populations (Palamenghi *et al.* 2023). In the present case, only three cranial traits (supraorbital foramen, parietal foramen, extrasutural mastoidale foramen) were sufficiently preserved to allow evaluation, offering limited support for possible kinship ties; however, the fragmentary condition of the cranial remains precludes more definitive conclusions.

Among postcranial nonmetric traits, only the configuration of the talar articular facets on the calcaneus (Figure 9: *a-c*) appears to serve as potential indicators of kinship, given its strong genetic component (Bunning, Barnett 1965; Cockerill *et al.* 2024). By contrast, the most frequently observed traits – patellar vastus notch, tibial and talar squatting facets, Poirier's facet, and the calcaneal groove for the tendon of the peroneus longus – are more likely the result of functional adaptations to habitual activity patterns. The implications of these features in relation to activity patterns are currently being investigated in a dedicated study.

The biomechanical profile from Baucina thus reflects habitual activity patterns, possibly structured by gendered or age-base labor division, although such interpretations remain cautious in the absence of clear skeletal associations. Nonetheless, the combined osteological evidence suggests a community adapted to a rugged environment, engaging in labor-intensive tasks likely tied to agro-pastoral subsistence and territorial mobility, a pattern commonly encountered in Iron Age societies.



FIGURE 8: A, squatting facet on a right tibia, anterior side (white arrow). B, Medial and lateral squatting facet (white arrows) on a left talus, superior side. Scale bar 1 cm.

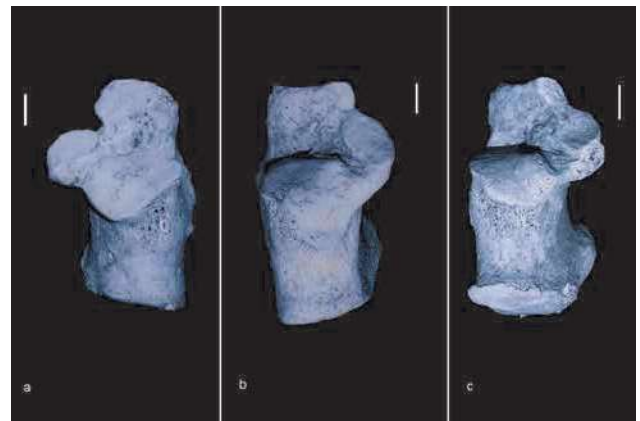


FIGURE 9: variations in subalar joint facet number. A, right calcaneus, type A: three-facet configuration; b, left calcaneus, type B: transitional two-facet configuration; c, left calcaneus, type C: simple two-facet configuration. Scale bar: 1 cm.

TABLE 4: Adult cranial and post-cranial nonmetric traits. "Left" and "Right" columns indicate: Recorded trait / number of elements available; "Total" column indicates the total of recorded traits per type.

Cranial nonmetric traits	Total	Postcranial nonmetric traits	Left	Right	Total
Supraorbital foramen	6	Rhomboid fossa	4/26	6/32	10
Extrasutural ethmoidal anterior foramen	5	Septal aperture	1/19	3/23	4
Parietal foramen	6	Poirier's facet	4/10	5/9	9
Lambdaideal foramen	2	Allen's fossa	2/23	4/17	6
Coronal ossicle	2	Third trochanter	1/23	2/17	3
Epipterice ossicle	2	Raised variant	2/23	4/17	6
Parietotemporal notch ossicle	1	Vastus notch	2/24	9/27	11
Asterion ossicle	4	Tibial squatting facet	11/22	11/25	22
Huschke	2	Talar squatting facet	10/27	13/22	23
Extrasutural mastoidale foramen	6	Stieda's process	2/38	4/34	6
Post-condylar foramen	3	Calcaneal groove for peroneus longus	7/25	6/28	13
Infraorbital accessory foramen	2	Calcaneal articular facet	11/25	6/28	17
Trochlear spine	1	Lateral intermetatarsal articular facet	13/37	7/36	20
Temporal ossicle	1	Cleft/bifid atlas	-	-	2
Subasteric ossicle	1	Partial bridging of the atlas	-	-	1
Double zygomatic foramen	1	Kimmerle's anomaly	-	-	1
Soprameatal spine	1	Atlas's accessory foramen	-	-	1

LIMITATIONS OF THE STUDY

The first limitation is related to the state of preservation and the nature of the skeletal assemblages on a Sicilian indigenous context; in fact, we must consider that the Baucina osteological collection come from a cave tomb and comprise commingled and fragmentary remains. Although the MNI can be calculated, commingling and fragmentation hinders the individuation of bone elements and so it is difficult to establish the demographic distribution of paleopathological lesions for these types of collections.

CONCLUSIONS

Taking into consideration the principal limitation of the study, it is explicit that the demographic results are not representative of the entire population, but they allow to hypothesize that the age-at-death was in the third/fourth decade of life. Pathological signs are not distributed among the population, except porotic skeletal lesions that are diffuse both in adult and non-adult individuals. Other pathological conditions occur only

individually (e.g. Pott's Disease, Concha bullosa, Osteoma) or they manifest as a consequence of traumatic events (e.g. periostitis, necrosis). The recording of enthesal changes and the presence of morphological modification of the skeleton suggest that the individuals carried out activities involving the lower limb, consistent with the position of the settlement. The widespread occurrence of anatomical variants and non-metric traits highlights the kinship relations and variability of the population, probably related to physiological adaptation.

This study represents one of the first concerning the bio-anthropology sphere of Sicanian communities, reporting new insights regarding the lifestyle and health status of the necropolis of Baucina. Furthermore, pathological investigation has reported some of the oldest cases in Sicily. For this reason, the cases of tuberculosis, necrosis, and concha bullosa are currently the object of single case-studies that will be edited soon.

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