Check for updates

Received: 21 February 2024 | Revised: 3 September 2024 | Accepted: 5 September 2024

DOI: 10.1002/oa.3352

RESEARCH ARTICLE

Violence and sharp force trauma in Nusaybin/Girnavaz Mound/Türkiye Late Roman–Early Islamic human remains

Tolga Köroğlu[1] | Ayla Sevim Erol[1] | Mert Ocak[2] | Kaan Orhan[3]

[1]Faculty of Humanities (DTCF), Department of Anthropology, Ankara University, Ankara, Turkey

[2]Faculty of Dentistry, Basic Medicine Sciences (Anatomy), Ankara University, Ankara, Turkey

[3]Faculty of Dentistry, Department of Dentomaxillofacial Radiology, Ankara University, Ankara, Turkey

Correspondence
Tolga Köroğlu, Faculty of Humanities (DTCF), Department of Anthropology, Ankara University, 06100 Sıhhiye, Ankara, Turkey.
Email: tkoroglu1989@gmail.com

Abstract

Girnavaz Mound (Höyük), located in modern Türkiye, was studied between 1982 and 1991. The mound, inhabited from the Late Uruk Period to the Neo-Assyrian Period, was later abandoned and repurposed as a cemetery during the Late Roman–Early Islamic Period. Anthropological studies on skeletons from this cemetery analyzed 148 individuals from this period, revealing notable trauma in five individuals. This study examines the skeletal remains of four individuals with perimortem sharp force trauma and one individual with an in situ arrowhead injury. Macroscopic and CT analyses indicated that both perimortem and antemortem trauma were intentional. The skull and body bones of four individuals displayed incision trauma likely inflicted by sword-like cutting weapons, suggesting murder and decapitation, possibly as a form of execution. One individual had an arrowhead lodged in the tibia, indicating the person lived for some time with the injury and was buried with the arrowhead. This study aims to infer the period's political conflicts and cultural structures based on the trauma evidence. The findings suggest that the observed trauma may be linked to massacres and murders resulting from regional conflicts. This study offers exemplary insights into the mechanics and analysis of sharp force and perimortem trauma. Additionally, it sheds light on the social and historical context of the period.

KEYWORDS

Anatolian history, anthropology, decapitation, perimortem, violence trauma

1 | INTRODUCTION

Archaeological sites are recognized as a unique resource for understanding the lifestyles of ancient human communities and for reconstructing past cultures. These sites offer archaeologists the opportunity to trace past civilizations and understand the evolution of societies. Within this framework, bioanthropological studies, which constitute a special area of interest for anthropologists, are carried out on human skeletal remains recovered from archaeological sites.

Human skeletal remains have an important role in bioanthropological studies as silent witnesses to various events throughout history. They provide unique insights into the lifestyles of ancient populations, past conflicts, rituals, and the dangers of daily life. Some bone trauma found on human skeletons provides anthropologists with the opportunity to understand past violence and social dynamics.

To analyze the bone trauma found in human skeletal remains properly, it is essential to define several terms. Trauma encompasses harm, irritation, or inflammation in soft and bone tissues caused by impacts on the human body, whether intentional or stemming from diverse events. Trauma can be categorized into three groups based on the causative factors and nature: blunt force trauma, sharp force trauma, and ballistic trauma (Davidson et al., 2010, s. 360). Sharp force trauma has been characterized by analyzing various aspects such as the definition of the trauma, the morphology of the injury, the type, and the distribution of defects. Sharp force trauma has been caused by sharp-edged instruments (Klepinger, 2006, s. 102). Generally, sharp force trauma encompasses stabbing or cutting injuries. Stab

 © 2024 John Wiley & Sons Ltd.

wounds and incised wounds differ in terms of their depth and length. Incised injuries are longer and shallower, whereas stab wounds are deeper. Differentiating between them solely based on skeletal remains can be challenging. Stab wounds can be caused by accidental falls on sharp objects or deliberate acts of violence. Although a variety of tools can cause sharp force trauma, knives and saw-like instruments are commonly encountered. The blade of the weapon typically creates a V-shaped cut mark on the bone (Klepinger, 2006, s. 116).

Bodily dismemberment, particularly human decapitation, holds significant symbolic meaning in the iconography, mortuary practices, and political agendas of numerous cultures (Talalay, 2004). This violence is pervasive across different periods and regions worldwide, often associated with factors such as economics, territorial disputes, morality, or religious beliefs (Khudaverdyan, 2017).

Understanding the timing of fractures observed on skeletal remains holds great importance in the fields of anthropology and forensic medicine. By examining the structure of the bone tissue, various categories are established to determine whether the fractures occurred before, during, or after the death of the individual. These categories are known as antemortem, perimortem, and postmortem trauma. Antemortem trauma refers to injuries that took place before the individual's death (Sauer, 1998; Galloway et al., 2014, s. 49). In skeletal analysis, identifying antemortem trauma can be challenging unless there are visible signs of bone healing. The healing process is highly variable and depends on factors such as the individual's age, overall health, location of the injury, and its severity (Galloway, 1999; Galloway et al., 2014, s. 51).

The system of classification exhibits subtle distinctions from the approach employed by pathologists, as it specifically delves into the attributes of bone tissue and its response to external forces. Consequently, the perimortem interval, occurring at or around the time of death, denotes the bone's freshness and its characteristic green bone response, which may persist for several weeks or even months postmortem. To illustrate, in cold or freezing conditions, a body can endure preservation for extended periods, lengthening the perimortem interval, whereas in arid desert climates, decomposition accelerates, markedly reducing the postmortem interval (Galloway, 1999, s. 13). Antemortem injuries, occurring well before death and unrelated to the fatal incident, typically manifest some degree of healing, exemplified by a fracture callus or the consolidation of fracture margins. Conversely, postmortem injuries, occurring after death when the bone is no longer fresh, exhibit jagged fracture margins stemming from the loss of moisture content during the decomposition process (Galloway, 1999, s. 16). Generally, the temporal aspect of bone trauma should be considered in the classification process, whenever feasible. This contextual information aids the medical examiner or pathologist in comprehending not only the circumstances surrounding the decedent's death but also events during their lifetime and after the final disposition of the body.

In this context, the bioanthropological analysis of bone trauma has become a critical tool for anthropologists to trace violence and interactions in human history. Sharp force trauma can result from different contexts, such as warfare, murder, ritual practices, or accidents, and their analysis offers valuable insights into the internal dynamics of past societies. Furthermore, the study of such trauma can provide important clues for understanding the social structure of a community, power relations, and social norms. In this study, various bone trauma and war tool injuries were observed on some of the human skeletal remains studied. Also, this study aims to explain the causes of these injuries, the way they occurred, and why they were inflicted following bioanthropological and historical concepts. The main theme of this study is to explore potential connections between the social and political structure of the society, disagreements, conflicts, unwritten societal rules, punishment methods employed within the society, and the observed skeletal findings.

1.1 | Historical concept of the region

Nusaybin has a history of 6500 years as one of the most significant ancient settlements in the Upper Mesopotamia region. Present-day Nusaybin is situated on the Turkish side of the Syrian border. It held a crucial position at the crossroads of geographically important trade and cultural networks during prehistoric and historical times, making it the most important social, political, economic, and cultural city in the region until the 11th century. The name of Nusaybin frequently appears in the region's history as it served as a connecting point for trade routes linking the Mediterranean and Anatolia via lower Mesopotamia and Iran, extending to the Black Sea coasts and the Caucasus in the north. It was also a hub for cultural exchanges. Throughout different periods and communities, the settlement in this region has been referred to by various names. During the Sumerian period, it was known as Nirbo; Aramis during the Babylonian period; Nabila, Kenge, and Nas-ü-Bina during the Hurrian-Mitanni period; and Navala, Nabula, and Nashabina during the Assyrian period. In the Torah, the place is referred to as Sobha, whereas Greek geographers named it Socoras or Mygdonius (Erkanal, 1983; Kütük, 2012; Nusaybin, 2021; Şimşek, 2019). The origin of the city's name has been linked to military terms, given its establishment as a military headquarters on a strategic land since ancient times. Some sources suggest that the name of the city means "Army Post" in Hebrew or Chaldean. In Syriac, the name translates to "Place of the Colons" in the plural form (Kütük, 2012).

The ancient Mesopotamian and Syrian visual media display a profound connection to warfare, where violence is predominantly portrayed. Although it is essential to acknowledge that violence can stem from sources other than war, it becomes apparent that the most impactful representations and expressions of violence in this region are primarily associated with armed conflicts. Acts such as torture, killing, and various forms of oppression and aggression find their most prevalent and comprehensible context within the domain of warfare. Additionally, these visual media also depict other forms of violence, including scenes of contextual encounters and duels between animals and humans. These depictions often hold religious and cultic significance and occupy a significant portion of the imagery found on cylinder seals. These seals exhibit friezes featuring alternating depictions

10991212, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/oa.3352 by Ankara University Library, Wiley Online Library on [01/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

of animals and men engaged in combat and confrontation (Nadali, 2020, s. 633).

The region of Nusaybin and its surrounding areas have been situated within the boundaries of various regions throughout history, including Mesopotamia, Babylonia, Assyria, Commagene, Osrhoene, Bet Nahreyn, and al-Cezire. These lands, irrigated by the Euphrates and Tigris rivers originating from the Eastern Anatolian mountains, are among the oldest human settlements where the earliest civilizations emerged. Although Western sources refer to these lands as Mesopotamia, meaning "between two rivers," the Arabs divided the same region into two parts, naming it Sevad or Iraq to the south and al-Cezire to the North (Çevik, 2007).

The region faced conflicts with the Byzantine Empire in the north and west, Iranian-origin states in the east, and Arab-Islamic states, such as the Umayyad and Abbasid Dynasties, which began to dominate the region in the south. Despite these challenges, various powers sought to establish their authority in this region The Roman-Sassanid conflict, which lasted for a century in Anatolia before the establishment of the Byzantine State in 330 AD, holds significant importance in Anatolian history. The conflict began with the establishment of the Sassanid State, led by Ardashir I, in 224 AD. The Sassanids launched a large-scale attack to reclaim the territories once held by the Parthian Empire in Anatolia. In response, the Roman Emperor Severus Alexander arrived in Antioch with a substantial Roman army, marking the beginning of the Roman-Sassanid struggle in Anatolia during the mid-third century. The conflicts between the Eastern Roman Empire (Byzantine) and the Sassanids persisted for a long time until the Islamic armies entered Anatolia in 636 AD (Vasilev, 1943, s. 143).

In addition to the geopolitical significance of Nusaybin, the conflicts between the Byzantines and the Sassanids over the control of the region have also had commercial implications. Nusaybin, being a typical Mesopotamian settlement, has been a place where various beliefs have been represented to some extent since ancient times. During the late Roman period, the pagan, Christian (Chaldean, Jacobite, Nestorian, etc.), and Jewish populations in the region fluctuated because of political shifts. With the Islamic armies gaining control over the region, an increase in the Muslim population of Nusaybin was observed (Kütük, 2012).

The region experienced a relatively peaceful period until it was conquered by the Islamic state during the reign of Caliph Osman. This period marked the beginning of Arabization and Islamization with the migration of Arab tribes into the region. During the reign of Caliph Ali, internal conflicts and sectarian disputes within the Islamic state were also intensely experienced in this region. In the Umayyad and Abbasid periods, Nusaybin was known to be a refuge for rebels who revolted against Damascus and Baghdad. It was also a strategic center for expeditions to the Azerbaijan region during the Abbasid period (Kütük, 2012).

As evident from the explanations above, the balance of power in the region has constantly fluctuated. The dominant powers in the region differed in terms of religion, ethnic origins, management styles, and cultural practices.

2 | MATERIALS AND METHODS

2.1 | Girnavaz mound

The Girnavaz Mound, situated in the Nusaybin district of Mardin in the southeastern region of Turkey (see Map 1), is regarded as one of the most significant archaeological sites between 1982 and 1991. Prof. Dr. Hayat Erkanal conducted excavations. First introduced by A.T. Olmstead, Girnavaz Höyük was later studied in detail by K. Kessler and K. Sornig. It is associated with the city names Nabula in Assyrian sources and Navala in Old Babylonian documents (Erkanal, 1983). There were four distinct cultural layers in Girnavaz Mound. The oldest layer dates back to the Late Uruk Age (3400 BCE–



MAP 1 Location of Girnavaz Höyük on the map of Turkey (taken from the Google Earth program). [Colour figure can be viewed at wileyonlinelibrary.com]

10991212, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/oa.3352 by Ankara University Library, Wiley Online Library on [01/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

3000 BCE). The third layer dates back to the Early Dynastic Period II (2750 BCE–2600 BCE), commonly referred to as the Archaic Sumerian Period (Köroğlu, 2018). The second layer is known as the Old Assyrian Period (2000 BCE–1800 BCE), and the first layer is associated with the Mid and Neo Assyrian Periods (1360 BCE–608 BCE). At the topmost layer of the mound, lies a cemetery that was utilized during the Late Roman and Early Islamic Periods (638 CE–1099 CE). The region was conquered by the Islamic State during the reign of Caliph Omar (634 CE–644 CE). Although Nusaybin was part of the Eastern Roman Empire, it came under Islamic rule after the Islamic State established its supremacy (el-Belâzurî, 1988; Tokuş, 2018). The dating of skeletal materials relies on ornaments discovered within the graves. Although the grave shapes align with Islamic burial traditions, grave goods were also found. In Islamic burial customs, the practice of leaving grave goods was abandoned as a pagan ritual. This suggests a transitional phase where some regional pagan traditions persisted alongside Islamic practices (Erkanal, 1983, 1989; Köroğlu, 2022).

Two burial types were encountered in the cemetery. The first type consists of a simple pit grave in the soil. The second type is a mudbrick cist. These graves were often used for multiple individuals, meaning they could be reused for other family members after a certain period. In such cases, the skeleton of the previous individual would be moved to a corner, and sometimes, the collected bones were plastered with mud (Erkanal, 1983; Köroğlu, 2022).

2.2 | Demography

Archaeological excavations in the Late Roman–Early Islamic Period of Girnavaz Mound yielded the skeletal remains of 148 individuals. Among these, 25 were fetuses or infants, 33 were children, and six were adolescents. There were 84 adults, comprising 35 males, 46 females, and three of unknown sex (Table 1).

The skeletons' sex has been determined using bioanthropological analyses of cranial and post-cranial bones, following established methods (Brothwell, 1981; Buikstra & Ubelaker, 1994; Phenice, 1969). Additionally, metric measurements are utilized for sex estimation (Çöloğlu & İşcan, 1998). Age estimation methods derived from the pelvis are also employed for individual age determination (Buckberry & Chamberlain, 2002; Rösing et al., 2005; WEA, 1980).

2.3 | Radiological method

As part of this study, cone-beam computed tomography scans of three cranial skeletons were obtained using high-resolution and full-head mode. This imaging technique allows for the examination of the microanatomy of the cortical and trabecular bone in three dimensions across the coronal, sagittal, and transverse axes. Romexis Viewer (ver. 6.0.1.812) is employed for the linear 2D analyses conducted in this study.

3 | RESULTS

In this study, the skeletal materials were initially repaired and subjected to morphological analysis, followed by age estimation, sex estimation, and pathological analyses.



FIGURE 1 The skeletal remains of individual G-133. [Colour figure can be viewed at wileyonlinelibrary.com]

Age groups	Young adult *n*	Middle adult *n*	Old adult *n*	Adult *n*	Total *n*	Total %
Fetus–newborn					25	16.89
Child					33	22.30
Juvenile					6	4.05
Male	2	18	9	6	35	23.65%
Female	11	10	14	11	46	31.08%
Unknown				3	3	2.03%
Total					148	100.00

TABLE 1 Girnavaz Mound Late Roman–Early Islamic Period paleodemographic distribution.

10991212, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/oa.3352 by Ankara University Library, Wiley Online Library on [01/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

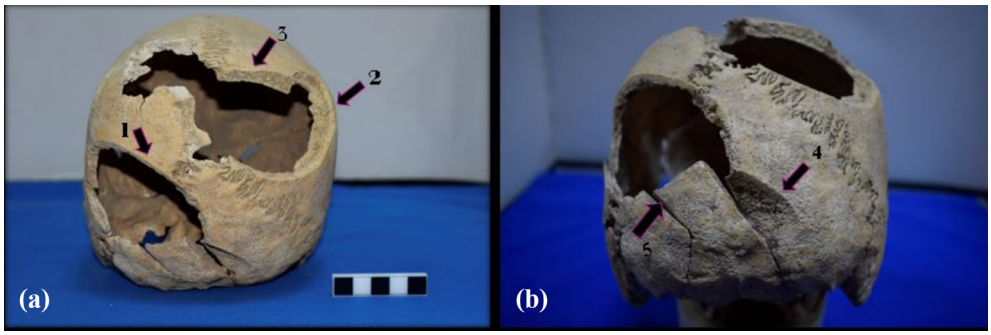


FIGURE 2 Skull of individual G-133. Left figure (a) shows (1), (2), and (3) incision marks. Right figure (b) shows (4) and (5) incision marks. [Colour figure can be viewed at wileyonlinelibrary.com]



FIGURE 3 Skull of individual G-133. The figure shows (6) incision mark. This blow was less severe than the others. After the blow, the stabbed tool left a cut mark and a notch-shaped mark on the bone tissue. This wound is probably the last blow. [Colour figure can be viewed at wileyonlinelibrary.com]



FIGURE 4 The ulna of Individual-133. As a result of reflex movement to protect the head and face, the cut mark is seen at the distal end. [Colour figure can be viewed at wileyonlinelibrary.com]

3.1 | Individual G-133

The skeletal remains of this individual consist of a nearly complete skull, along with bone fragments including arm and leg bones, mandibula, and ribs (Figure 1). The masculine features of the skull and mandibula and the prominent muscle attachments on the body bones confirm the male sex of the individual. The presence of facies auricularis (Buckberry & Chamberlain, 2002), sutural fusion (WEA, 1980), and tooth wear (Rösing et al., 2005) indicates an approximate age of around 50 years.

Six incision marks were identified on the posterior part of the skull of this individual (see Figures 2 and 3). The first is a circular and penetrating trauma, with a maximum diameter of 83 mm, located on the left parietal bone near the lambdoidal suture. The second, measuring 38 mm in diameter, is situated in the parietal region of the skull. The third is a large penetrating fracture located posterior to the right parietal bone, involving the right line of the lambdoidal suture and the external protuberance of the occipital bone. Its widest diameter measures 80 mm. The fourth is a 24-mm diameter compression fracture classified as a basilar fracture. The fifth cut mark is found on the occipital bone, measuring 43 mm in length. The sixth one is a notch-type incision, 40 mm in length, extending from the left parietal to the temporoparietal suture. Additionally, apart from the skull trauma, a cut mark is identified on the distal portion of the right ulna (see Figure 4). This particular cut mark can be explained by the spontaneous act of raising the arms to protect the head, sacrificing the limbs for defense while safeguarding the more vital head region.

3.2 | Individual G-38

The skeletal remains of this individual consist solely of the skull, lacking any parts of the post-cranial bones. Based on the slender occipital region, the size of the tuber parietals, and the thinness of the bone (WEA, 1980), it is likely that the skull belongs to a female individual. Age estimation cannot be determined.

10991212, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/oa.3352 by Ankara University Library, Wiley Online Library on [01/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

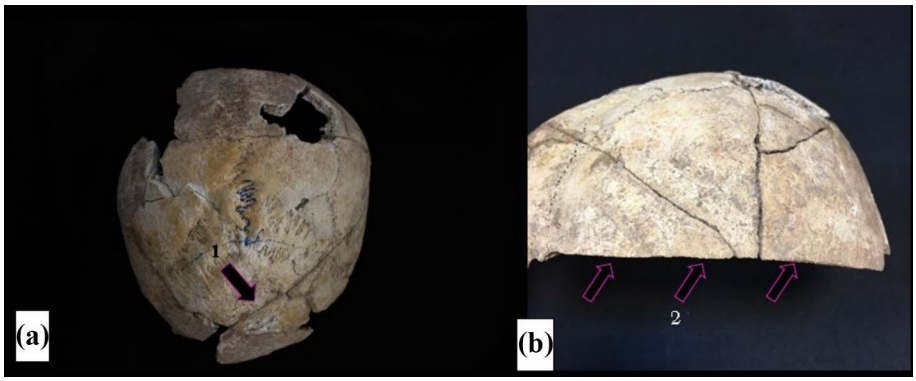


FIGURE 5 Sharp force cutmark of Individual-38 seen two different cutmarks. (a) Posterior view of the skull. The first cut mark extends from the occipital to the right parietal bone. (b) Left lateral view of the skull. The second cut mark is taken horizontally on the right parietal bone. [Colour figure can be viewed at wileyonlinelibrary.com]

Three cut marks are identified on this individual (see Figures 5 and 6). The first is a fragmented penetrating fracture of the left parietal bone, measuring 100 mm in length when viewed from the lateral aspect of the cranial skeleton. The second cut mark is a linear fracture, 74 mm in length, involving the posterior part of the left parietal bone and the occipital bone. The third cut mark is a 25-mm-long crescent-shaped incision located to the left of the foramen magnum, classified as a basilar fracture. As the incision marks are found in the posterior parts of the skull, it is evident that the individual received all the blows from behind. Furthermore, because of the incomplete nature of the skull, there is a possibility that the number of incisions is at least three, and it may be even higher. The presence of the third incision in the basilar part of the skull indicates a potential attempt at decapitation.

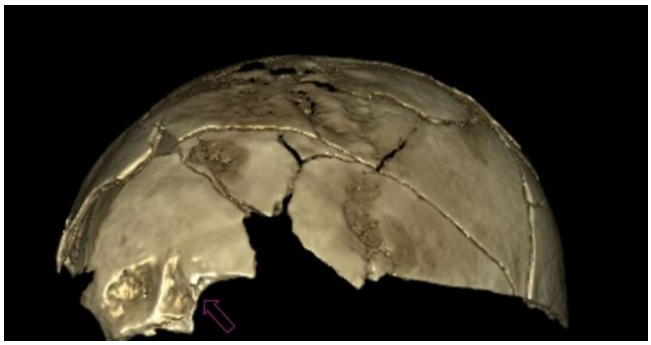


FIGURE 6 Individual-38 Romexis View. This shows the small cutmark (third) on the basal part of the skull. [Colour figure can be viewed at wileyonlinelibrary.com]

3.3 | Individual G-40

Because of the fact that Individual G-40 remains only consist of the right pars petrosa, located in the basilar part of the skull, encompassing the auricle and the mastoid process beneath the ear, the sex and age of the individual could not be estimated. An incision is observed in this region, horizontally cutting through the ear and mastoid process, extending toward the skull. The purpose of this incision appears to be decapitation (Figures 7 and 8).

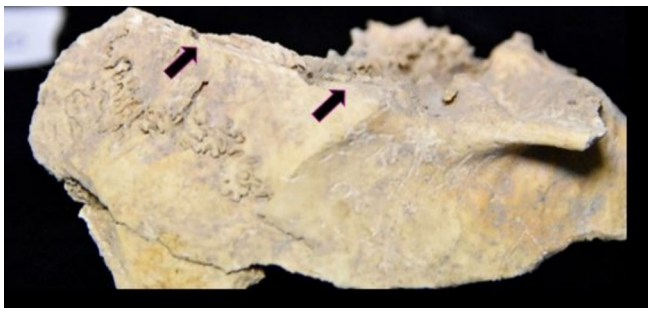


FIGURE 7 Sharp force cut mark on the skull of Individual-40. This cut mark is seen in the mastoid region in the basal part of the skull. The fact that the cut mark is seen horizontally in the basilar part is related to the decapitation applied to the individual. [Colour figure can be viewed at wileyonlinelibrary.com]

3.4 | Individual G-134

The skeletal remains of an adult individual were extracted from this grave (G-134). A skull fragment with an incision mark belonging to another individual was recovered from this skeletal remains. No skeletal remains of the body bones are found, except for the fragments of the skull. Although the skull's slender and thin structure, along with the small mastoids, suggests probable female sex, there is insufficient evidence to make a definitive determination. The skull is composed of nine small parts, primarily comprising the bones that form the posterior side of the temporal region (Figure 9).

The incision mark consists of a horizontal blow near the right temporal bone. The tool used for the incision splits the right mastoid bone in half. Considering that this incision mark starts from the back of the neck area of the individual and extends toward the skull, the intention behind the act appears to be the direct separation of the head from the body.

3.5 | Individual G-9

Based on the robust features of the skull and pelvis, along with thick muscle attachments on the long bones, age determinations show a

10991212, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/oa.3352 by Ankara University Library, Wiley Online Library on [01/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

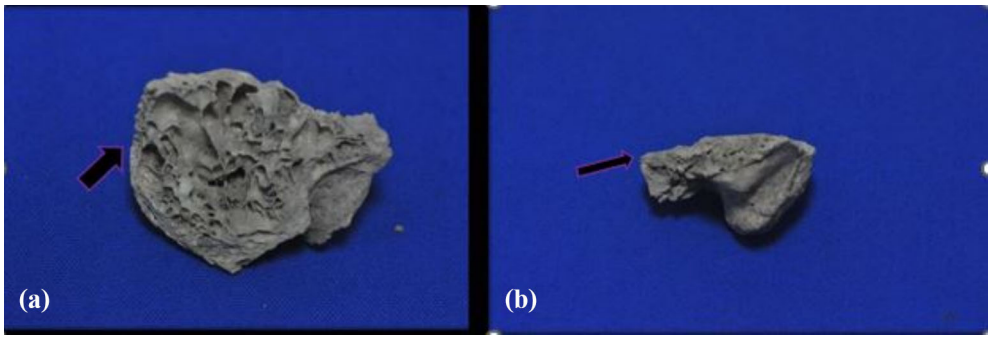


FIGURE 8 Mastoid fragment from Individual G-40. In the left figure (a), the inner part of the mastoid bone is not degraded, proving that it is a perimortem incision mark. The right figure (b) shows that the mastoid bone was cut using a sharp tool. [Colour figure can be viewed at wileyonlinelibrary.com]

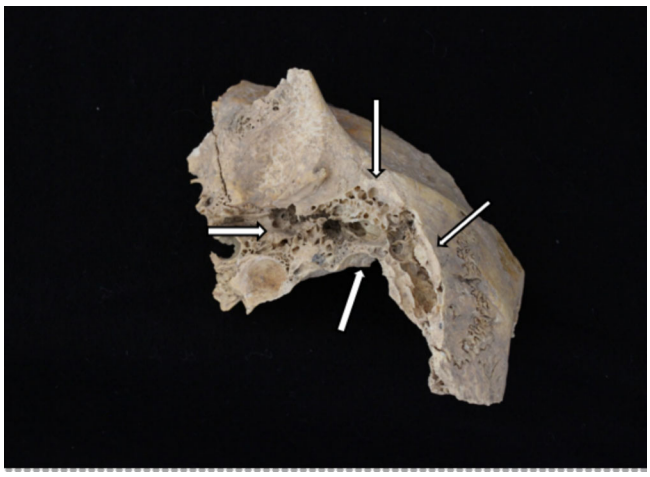


FIGURE 9 Skull of Individual-134. The cut mark is formed by a single blow horizontally to the right temporal bone. The mastoid region is divided into two with a sharp edge. [Colour figure can be viewed at wileyonlinelibrary.com]



FIGURE 10 The puncture mark of the arrowhead. An oval hole is seen on the tibia bone. New bone formations are shown around the hole. [Colour figure can be viewed at wileyonlinelibrary.com]

middle-aged adult male individual. Only the skeletal remains of this individual were recovered from the grave.

This individual has trauma as a result of an arrow striking the posterior part of the left tibia, near the soleal line (see Figure 10). The skeleton was found with the arrowhead still embedded in the bone, which was subsequently removed and delivered to the museum. The arrowhead is made of iron, as reported in an interview with Erkanal (Erkanal, Personal communication). Unfortunately, no photograph of this arrowhead has been found.

The arrowhead lodged in the posterior surface of the tibia bone caused deformation and directly impacted the linea musculi solei, which is located on the upper 1/3 lateral side of the tibia. This region is home to the triceps surae muscle group, which is responsible for plantar flexion of the foot. The triceps surae consists of the double-headed gastrocnemius muscle and the single-headed soleus muscle. The arrow affected the muscle fibers of the medial head of the gastrocnemius and the deeper origin of the soleus (linea musculi solei). In this trauma, which left a circular scar on the bone, the arrowhead was lodged in the bone with a slight downward inclination. The proliferative layers surrounding the hole in the bone tissue indicate that the individual lived with this arrowhead embedded for the remainder of his life.

As a result of this deformation, the individual experiences significant loss of movement and severe pain when attempting to perform plantar flexion with the affected foot. Additionally, the gastrocnemius muscle plays a minor role in knee flexion, so some pain and limited movement may also be present in knee-related activities.

In the surrounding area, other adjacent muscles that lie deep in this region, such as the popliteus muscle (involved in knee flexion), the tibialis posterior muscle (involved in plantar flexion and eversion of the foot), and the flexor digitorum longus muscle (involved in plantar flexion of the toes), are also likely to be affected. Because these movements are interconnected, the impact on one muscle group can have cascading effects on the others.

Considering the vascularity of the affected area, it is highly likely that the posterior tibial artery (a branch of the popliteal artery) situated in this region, which supplies blood to the back of the leg, may have been damaged, potentially leading to significant bleeding.

In terms of neural involvement, the nerve that passes through this region and is susceptible to damage is the tibial nerve. Although it is unlikely, severing this nerve could result in tibial nerve palsy. This condition would cause a loss of flexor reflex in the muscles innervated by the tibial nerve, leading to a lack of flexion of the phalanges in response to stimulation of the plantar aspect of the foot. However, no defects in the phalanges or ankle bones have been observed in this individual.

10991212, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/oa.3352 by Ankara University Library, Wiley Online Library on [01/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

4 | DISCUSSION

Instances of severe bodily harm, such as scalping and decapitation, are unmistakably evident on skeletal remains, serving as distinct indicators of deliberate interpersonal violence (Walker, 2001). Scholars have meticulously delineated and refined these criteria (Bridges et al., 2000; Lambert, 2007; Milner et al., 1991; Smith, 2003, 2008) encompassing activities related to trophy-taking, such as decapitation, scalping, and the removal of limbs or other body parts seized by the assailant(s). Decapitation is confirmed through a combination of factors, such as the absence of the skull and the first one or two cervical vertebrae. Scalping typically, though not universally, leaves traces of incisions on the front, sides, or back of the cranium. In many instances, scalping cases are identified by specific morphological alterations to the endocranial surface resulting from infection during the healing process (Khudaverdyan, 2012; Smith, 2008). The absence or presence of additional elements in a burial may signify trophy-taking; however, they could also arise from burial disturbance or commingling (Milner et al., 1991).

Based on the information provided, several hypotheses can be proposed regarding the incision marks and traumatic injuries observed in the examined individuals:

The presence of incision marks on the skulls suggests that these individuals may have been victims of intentional violence and murder. The incisions could be the result of attacks by different individuals at different times, indicating acts of violence and conflict. Another possibility is that the incision marks were inflicted during small-scale looting incidents in the region. This hypothesis suggests that the individuals may have been targeted for personal gain or robbery, resulting in violent encounters and injuries. Considering the historical context of the region, a hypothesis involving warfare can be proposed. The presence of injuries, such as arrowhead trauma, suggests the involvement of weapons commonly used in combat and warfare. However, the presence of female individuals among the examined skulls weakens the likelihood of a large-scale war, as traditional warfare primarily involved male warriors. Additionally, the number of individuals affected by warfare would typically be higher, and the extent of damage would likely be more extensive. It is important to note that these hypotheses are speculative and would require further evidence and analysis to establish their validity. Additional research, archaeological findings, and historical records could provide more insights into the circumstances surrounding the incision marks and traumatic injuries observed in the examined individuals.

The defensive injury on the forearm bone, along with the incision marks on the back of the skull, indicates the possibility that the victim was attempting to escape. Another possibility relates to the number of attackers involved. In this scenario, the defensive wound on the front would have been caused by one attacker, whereas the incision marks on the rear of the skull could have been inflicted by other attackers. The individual, who sustained a total of seven sword blows, including the ulna, likely perished at the scene of the attack. The injury marks further indicate that the cuts were inflicted around the time of death (perimortem).

Another hypothesis that can be considered is honor killing or execution. Honor killings have been a recurring social phenomenon throughout history, particularly in Middle Eastern societies. The concept of "honor" encompasses behavior patterns rooted in social institutions such as customs and traditions that are adopted, accepted, and expected to be followed by a society or a specific segment of society (Dinç & Hotun Şahin, 2009).

In instances where the centralized government is unable to provide adequate protection and state jurisdiction is inapplicable, the practice of blood vengeance offers a means of safeguarding individuals through the collective action of the group. This is in accordance with the traditional Bedouin legal code, which considers such actions obligatory. Moreover, as documented by the archaeologist and ethnographer Pesach Bar-Adon, who observed instances of blood vengeance among Bedouin tribes in northern Israel and the Golan Heights, the practice entailed both the decapitation of the accused perpetrator and the amputation of his right hand, which was then presented to the avenger's family as evidence of the act's completion (Nagar et al., 2018).

In Islamic criminal law, five offenses are punishable by death: apostasy, blasphemy (which includes insulting the Prophet Muhammad), illegal sexual intercourse, brigandage, and intentional homicide. Intentional homicide, according to Islamic law, is governed by the law of talion, whereby the blood avengers of the victim have the right to demand the execution of the murderer from the judge, claim blood money, or pardon the offender (Lange, 2020). The punishment for behaviors deemed unacceptable in society varied according to the historical period.

Considering the presence of decapitation marks on three of the individuals examined, it is highly plausible that these incisions were made as a form of execution. The act of beheading is historically associated with punishment, capital offenses, and acts intended to uphold societal norms and honor. It is important to emphasize that this hypothesis is speculative and requires further evidence and contextual understanding to support it. Historical and cultural factors, along with additional research and analysis, would be necessary to determine the true motivations and circumstances behind the observed decapitations.

Trauma analyses of some medieval Anatolian populations, including Van/Karagündüz (Özer et al., 1999), Van Kalesi/Old Town (Gözlük et al., 2004), Erzurum/Güllüdere (Sevim, 2007), Müslümantepe (Ay, 2014), Hasankeyf (Acar, 2020), and Dara (Demirelli & Suata-Alpaslan, 2018), indicate that most trauma were occupational accidents and blunt force injuries. In contrast, a notable case from the Van/Dilkaya population involves a 37-year-old male (DK 85 AHT 13) who sustained a sharp force trauma to the left side of the skull, extending from the orbital rim to the frontal region, resulting in the loss of the zygomatic arch. This injury suggests a face-to-face confrontation, as evidenced by sharp force trauma to the distal part of the radius, indicating defensive use of the hands. No healing was observed in these injuries (Şahin, 2019). In the Değirmentepe population (Malatya Province), a young adult male suffered fatal trauma to the left parietal bone caused by a sharp tool, indicative of lethal

10991212, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/oa.3352 by Ankara University Library, Wiley Online Library on [01/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

interpersonal violence. Another individual in the same community exhibited trauma to the cervical vertebrae from a sharp tool (Göker, 2019). Incisional trauma and decapitation, which are rarely found in other studies, are significant both in terms of the number of findings and the quality of the cases. This study provides excellent examples of the mechanics and analysis of sharp force and perimortem trauma, offering insights into the social and historical structure of the period.

5 | LIMITATIONS OF THE STUDY

The materials for this study are based on excavations at Girnavaz Höyük (Nusaybin, Mardin, Turkey) conducted between 1982 and 1991. These excavations were halted because of terrorist attacks, interrupting some scientific work. After the death of the excavation director, the authors were unable to access many archives. The main limitation of this study is the lack of access to grave records.

6 | CONCLUSIONS

This study offers significant insights into the phenomenon of sharp force trauma on ancient skeletal remains, elucidating the occurrence of violent events and the underlying sociological dynamics of the Nusaybin region. The analysis of the four skulls indicates that both males and females were subjected to violence, which is likely attributable to social and political turmoil. The presence of multiple blows on one male indicates a probable motive of revenge, whereas the evidence of intentional incisions on the other individuals suggests a possible execution, potentially for decapitation. The arrowhead injury in one male indicates his probable involvement in warfare, which is consistent with the region's documented history of conflict. By examining these traumatic injuries, the research elucidates the nature, direction, and causes of the incisions, thereby contributing significantly to the understanding of incisional trauma and decapitation, which are rare yet crucial findings. This study not only contributes to the advancement of knowledge regarding sharp force trauma and perimortem injury but also provides valuable contextual insight into the social and historical circumstances that prevailed during the period in question.

ACKNOWLEDGMENTS

We would like to thank Prof. Dr. Hayat Erkanal, the head of the excavations at Girnavaz, for his permission to carry out this study. This article is based on a doctoral dissertation titled "Paleopathological Analysis of Kültepe, Girnavaz Höyük and Seyitömer Adult Populations (Köroğlu, 2022)".

DATA AVAILABILITY STATEMENT

The data that supports the findings of this study are available in the supplementary material of this article.

ORCID

Tolga Köroğlu https://orcid.org/0000-0002-8391-2640

REFERENCES

Acar, A. (2020). Hasankeyf Kazısı Antropolojik Analiz. *Arkeometri Sonuçları Toplantısı*, *35*, 51–72.

Ay, N. (2014). *Müslümantepe İskeletlerinin Paleopatolojik Açıdan Analizi*. Ankara Üniversitesi Sosyal Bilimler Enstitüsü. Basılmamış Yüksek Lisans Tezi.

Bridges, P. S., Jacobi, K. P., & Powell, M. L. (2000). Warfare-related trauma in the late prehistory of Alabama. In P. M. Lambert (Ed.), *Bioarchaeological studies of life in the age of agriculture: A view from the Southeast Tuscaloosa* (pp. 35–62). University of Alabama Press.

Brothwell, D. R. (1981). *Digging up bones*. Oxford University Press.

Buckberry, J. L., & Chamberlain, A. T. (2002). Age estimation from the auricular surface of the ilium: A revised method. *American Journal of Physical Anthropology*, *119*, 213–239. https://doi.org/10.1002/ajpa.10130

Buikstra, J. E., & Ubelaker, D. H. (1994). *Standards for data collection from human skeletal remains*. Arkansas Archaeological Survey Research Series.

Çevik, A. (2007). Ortaçağ İslam Coğrafyacılarına Göre Nusaybin. In İ. Özcoşar (Ed.), *Makalelerle Mardin Cilt 1* (pp. 141–156). Mardin Tarihi İhtisas Kütüphanesi Projesi.

Çöloğlu, A. S., & İşcan, M. Y. (1998). *Adli Osteoloji*. İstanbul Üniversitesi Rektörlük Yayınları.

Davidson, K., Davies, C., & Dandolph-Quinney, D. (2010). Skeletal trauma. In S. Black & E. Ferguson (Eds.), *Forensic anthropology 2000 to 2010* (pp. 183–235). CRC Press.

Demirelli, E., & Suata-Alpaslan, F. (2018). Dara Antik Kenti İskeletlerinin Antropolojik Analizi. *Hitit Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *11*(2), 1583–1606. https://doi.org/10.17218/hititsosbil.458453

Dinç, H., & Hotun Şahin, N. (2009). Bir Kadın Sağlığı Sorunu: Töre ve Namus Cinayetleri. *İ.Ü.F.N Hem. Dergisi Cilt*, *17*(2), 123–132.

el-Belâzurî. (1988). Futûhu'l-Buldân, Beyrut 1988; Türkçe trc. el-Belâzurî, (2002) Fütûhu'l-Büldân, çev. Mustafa Fayda, Kültür Bakanlığı, Ankara.

Erkanal, H. (1983). 1982 Girnavaz Kazıları. *V. Kazı Sonuçları Toplantısı*, 131–135.

Erkanal, H. (1989). 1988 Girnavaz Kazıları. *XI. Kazı Sonuçları Toplantısı*, 261–273.

Galloway, A. (1999). *Broken bones: Anthropological analysis of blunt force trauma*. Charles C Thomas.

Galloway, A., Zephro, L., & Wedel, V. L. (2014). Diagnostic criteria for the determination of timing and fracture mechanism. In V. L. Wedel & A. Galloway (Eds.), *Broken bones: Anthropological analysis of blunt force trauma second edition* (pp. 47–58). Charles C Thomas.

Göker, M. (2019). Cafer Höyük Ve Değirmentepe Ortaçağ Topluluklarının Karşılaştırmalı Antropolojik Analizi. In *Hacettepe Üniversite Sosyal Bilimler Enstitüsü Antropoloji Ana Bilim Dalı. Basılmamaış Yüksek Lisans Tezi*.

Gözlük, P., Yiğit, A., & Erkmani, A. C. (2004). Van Kalesi Ve Eski Van Şehri İnsanlarının Sağlık Sorunları. *Arkeometri Sonuçları Toplantısı*, *19*, 51–62.

Khudaverdyan, A. Y. (2012). Bioarchaeological analysis of human skeletal remains of Iron Age from the Shirakavan Cemetery, Shirak Plateau, Armenia. *Advances in Anthropology*, *2*, 224–233. https://doi.org/10.4236/aa.2012.24025

Khudaverdyan, A. Y. (2017). Decapitation of humans and anthropomorphic figurines in the Kura-Araks culture from Armenia. *Mankind Quarterly*, *57*(4), 487–518. https://doi.org/10.46469/mq.2017.57.4.2

Klepinger, L. L. (2006). *Fundamentals of forensic anthropology*. John Wiley & Sons Inc. Publication.

Köroğlu, K. (2018). *Eski Mezopotamya Tarihi*. İletişim Yayınları.

Köroğlu, T. (2022). *Kültepe, Girnavaz Höyük ve Seyitömer Toplumları Erişkin Bireylerinin Paleopatolojik Analizi (Yayımlanmamış Doktora Tezi)*. Ankara Üniversitesi Sosyal Bilimler Enstitüsü.

10991212, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/oa.3352 by Ankara University Library, Wiley Online Library on [01/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Kütük, A. (2012). Bizans İmparatorluğu Döneminde Nusaybin'in Siyasi, Sosyal, İktisadi. In *Mimari ve Kültürel Durumu (IV.-X. Yüzyıl)*. Sosyal Bilimler Enstitüsü Yayımlanmamış Doktora Tezi.

Lambert, P. M. (2007). The osteological evidence for indigenous warfare in North America. In R. J. Chacon & R. G. Mendoza (Eds.), *North American indigenous warfare and ritual violence* (pp. 202–221). The University of Arizona Press. https://doi.org/10.2307/j.ctv1n3x1fb.14

Lange, C. (2020). Torture and public executions in the Islamic Middle Period (eleventh–fifteenth centuries). In M. S. Gordon, R. W. Kaeuper, & H. Zurndorfer (Eds.), *The violence of governments and rulers* (pp. 164–184). Cambridge University Press.

Milner, G. R., Anderson, E., & Smith, M. G. (1991). Warfare in late prehistoric west-central Illinois. *American Antiquity*, *56*, 581–603. https://doi.org/10.2307/281538

Nadali, D. (2020). Representations of violence in ancient Mesopotamia and Syria. In G. G. Fagan, L. Fibiger, M. Hudson, & M. Trundle (Eds.), *Representations and constructions of violence* (pp. 629–653). Cambridge University Press.

Nagar, Y., Cohen, H., & Zissu, B. (2018). Sharp force trauma to a 1,000-year-old skull from the Jerusalem mountains. *International Journal of Osteoarchaeology*, *29*, 1–6. https://doi.org/10.1002/oa.2716

Nusaybin, B. (2021). Tarihçe. Nusaybin Belediyesi: http://www.nusaybin.bel.tr/nusaybin-belediye-baskanligi adresinden alındı

Özer, İ., Sevim, A., Pehlevan, C., Arman, O., Gözlük, P., & Güleç, E. (1999). Karagündüz Kazısı'ndan Çıkarılan İskeletlerin Paleoantropolojik Analizi. *Arkeometri Sonuçları Toplantısı*, *14*, 75–96.

Phenice, T. W. (1969). A newly developed visual method of sexing the os pubis. *The American Journal of Physical Anthropology*, *30*, 297–302. https://doi.org/10.1002/ajpa.1330300214

Rösing, F. W., Graw, M., Marre, B., Ritz-Timme, S., Rothshild, M. A., Rötzscher, K., Schmeling, A., Schröder, I., & Geserick, G. (2005). Recommendations for the forensic diagnosis of sex and age from skeletons. *Journal of Comparative Human Biology*, 75–89.

Şahin, S. (2019). Dikaya (Orta Çağ) İnsanlarının Yapısı. *Antropoloji Dergisi*, *37*, 50–71.

Sauer, N. J. (1998). The timing of injuries and manner of death: Distinguishing among antemortem, perimortem and postmortem trauma. In K. Reichs (Ed.), *Forensic osteology* (pp. 321–332). Charles C. Thomas.

Sevim, Ayla, Gözlük, Kırmızıoğlu Pınar, Yiğit, Ayhan, Özdemir, Serpil, Durgunlui, Özlem (2007). "Erzurum/Güllürede İskeletlerinin Paleoantropolojik Açıdan Değerlendirilmesi". *22. Arkeometri Sonuçları Toplantısı*. 141–160.

Şimşek, B. (2019). *İlk Dönem İslam Tarihinde Nusaybin ve Akademisi*. Samer Yayınları.

Smith, M. O. (2003). Beyond palisades: The nature and frequency of late prehistoric deliberate violent trauma in the Chickamauga Reservoir of East Tennessee. *American Journal of Physical Anthropology*, *121*, 303–318. https://doi.org/10.1002/ajpa.10232

Smith, M. O. (2008). Adding insult to injury: Opportunistic treponemal disease in a scalping survivor. *International Journal of Osteoarchaeology*, *18*, 589–599. https://doi.org/10.1002/oa.968

Talalay, L. E. (2004). Heady business: Skulls, heads, and decapitation in Neolithic Anatolia. *Journal of Mediterranean Archaeology*, *17*(2), 139–163.

Tokuş, Ö. (2018). Fethinden Selçuklulara Kadar Nusaybin. *Iğdır Üniversitesi Sosyal Bilimler Dergisi*, (14), 167–201.

Vasiliev. (1943). *Bizans İmparatorluğu Tarihi. (Translated by A.Müfid Mansel)*. Maarif Matbaa.

Walker, P. L. (2001). A bioarchaeological perspective on the history of violence. *Annual Review of Anthropology*, *30*, 573–596. https://doi.org/10.1146/annurev.anthro.30.1.573

WEA. (1980). Recommendations for age and sex diagnoses of skeleton. *Journal of Human Evolutions*, *9*, 517–549. https://doi.org/10.1016/0047-2484(80)90061-5

How to cite this article: Köroğlu, T., Erol, A. S., Ocak, M., & Orhan, K. (2024). Violence and sharp force trauma in Nusaybin/Girnavaz Mound/Türkiye Late Roman–Early Islamic human remains. *International Journal of Osteoarchaeology*, e3352. https://doi.org/10.1002/oa.3352

10991212, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/oa.3352 by Ankara University Library, Wiley Online Library on [01/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License