

Human remains from Qar-e-Eskeletha, Iran, 2019

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The Lar basin is located north-east of Tehran in the Central Alborz near Damavand mountain (**Figure 1**). After Arabic conquest of Iran this area was a part of Tabaristan, which was ruled by the Zoroastrian Dabuyid dynasty until 761 CE (Amoli 1969) and remained relatively isolated for the following centuries due its location. The area of the Lar basin was first surveyed by Naser Pazuki (2003) and then by Mohammad Sepehr Siri (2019) who identified 40 archaeological sites, mainly dating to the historical periods (**Figure 2**). One of the identified sites, LT107, is Qar-e-Eskeletha, a cave located at the source of the Alarm stream (**Figure 3**) on a relatively inaccessible mountain



Figure 1. Location of Qar-e-Eskeletha. Drawing by Z.H. Dastjerdi.

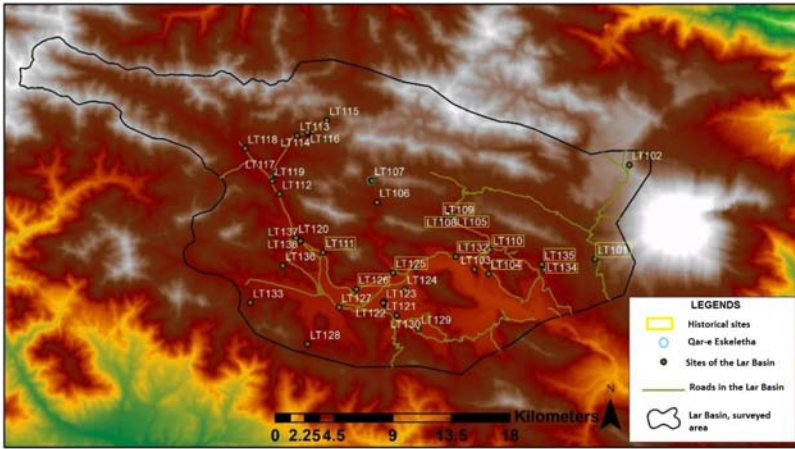


Figure 2. Archeological sites in the Lar basin (after Siri 2019).



Figure 3. Entrance to Qar-e-Eskeletha. Photograph by M.S. Siri.

slope ($35^{\circ}59'06''N$, $51^{\circ}51'02''E$, 3085 m). A few pottery fragments retrieved from Qar-e-Eskeletha have been dated to the Parthian period (Figure 4) as well as to the Middle Islamic period (Siri 2019). The closest settlement at Tang-e Alarm is located at the confluence of the Alarm to Lar river (LT125 on the Figure 2) and it has been dated to the Parthian period as well. The cave is currently used by local shepherds as a shelter.

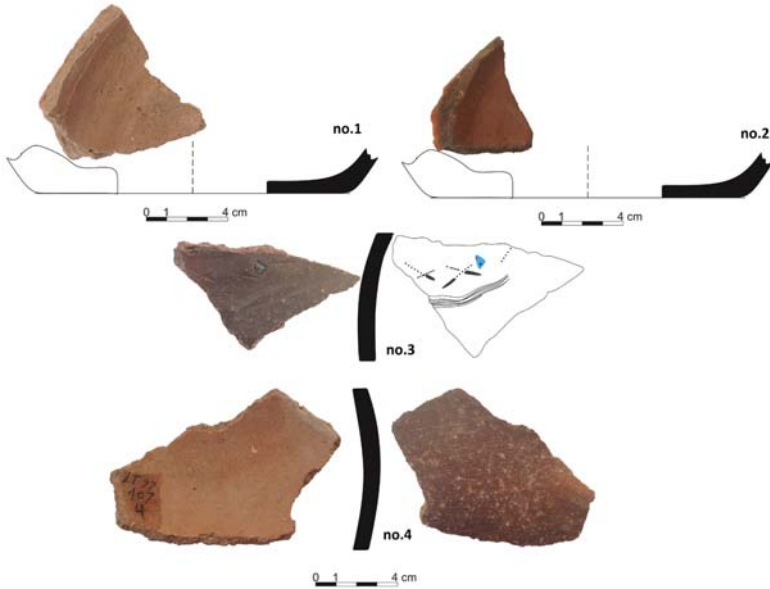


Figure 4. Pottery fragments retrieved from the cave (after Siri 2019).

Although the cave has been known since 1999, when Mohammad S. Siri, the head of Pardis mountaineering group at that time, explored it for the first time and reported the discovery of human remains to the Research Institute of Cultural Heritage, no systematic research has been undertaken, except for a brief assessment of human skeletal remains by Farzad Fooruzanfar who interpreted this site as a *dokhma*, a Zoroastrian ossuary. Originally, human remains were found scattered in the different parts of the corridors and niches of the cave. The archival pictures of the cave, taken in 1999, show dense scatters of human elements (**Figure 5**) but most of them were no longer present during the 2019 survey (**Figure 6**), most likely due to the growing human presence and activity at the cave.

The assemblage of human remains retrieved from Qar-e-Eskeletha during the 2019 survey included 160 elements: 20 long bones, 1 patella, 13 elements from the shoulder girdle, 9 elements from the pelvic girdle, 35 vertebrae, 64 ribs and rib fragments, 6 foot elements, 1 hand element, 8 cranial fragments, two mandibles and one isolated tooth. No complete crania were retrieved and the number of foot and hand bones is much lower than expected in a random assemblage. The minimum number



Figure 5. Human remains in Qar-e-Eskeletha, 1999. Photograph by M.S. Siri.



Figure 6. The cave during the survey in 2019. Photograph by M.S. Siri.

of individuals (MNI) and the most likely number of individuals (MLNI), calculated following the formula presented by Chapman (see Nikita & Lahr 2011), was estimated using adult clavicles (three right, five left, one pair, MNI=7, MLNI=11) and subadult ilia (two right, four left, and one pair, MNI=5, MLNI=6.5). Therefore, the general MNI is 12 and the general MLNI is 17.5. Taking into account the low number of retrieved elements and high number of individuals, high dispersal rate of human remains within the cave may be suggested.



Figure 7. Evidence of scavenging, distal tibia. Scale bar 1cm. Photograph by A. Sołtysiak.

The only retrieved adult pelvis belonged to a 40–45 year old female (sex was assessed using the greater sciatic notch; age-at-death was assessed using the auricular surface, following Meindl & Lovejoy 1989). Metric measurements of long bones suggest that both male and female elements were present in the assemblage. More precise age-at-death estimation using dental developmental stage (AlQahtani et al. 2010) was possible for one maxilla that belonged to a 7-years-old child. Although skeletal remains of subadults of variable ages-at-death were present in the assemblage, no neonate elements were identified. However, it is possible they may have been simply overlooked during collection of the bones.

Some elements were modified by taphonomic agents that are expected in a cave environment, like some crystalline deposits and staining of different colour (from white to brown). However, the most striking feature observed in the assemblage was widespread evidence of scavenging by carnivorous mammals (**Figure 7**). Carnivorous scavenging was especially clear on long bones (19/20 affected, one element with non-specific damage) and in elements representing the shoulder and pelvic girdles (15/21 affected, other four with non-specific damage), but also minor elements like ribs and vertebrae exhibited some more or less clear marks of animal teeth. A specific pattern of scavenging has been observed in two adult femora (**Figure 8**), with both condyles and greater trochanters missing, which corresponds to grade 2 in a 5-grade proximal end scavenging scale and to grade 3 in a 4-grade distal end scavenging scale (Sołtysiak 2010, Tables 8-9).



Figure 8. Pattern of scavenging in femora. Scale bar 1cm. Photograph by A. Sołtysiak.

The overall frequency of tooth-marks at Qar-e-Eskeletha is very high compared to other human skeletal assemblages from the Near East (Sołtysiak 2010), including also a collection of elements from a Zoroastrian Tower of Silence in Tepe Qaleh Khalachan where only 4% of bone fragments exhibited furrows or punctures typical for scavenging (Sołtysiak & Mousavinia 2018). Tooth-marks were evident also in a small assemblage of human remains retrieved from a Medieval underground structure at Tahyagh (Sołtysiak & Sharahi 2017), but surprisingly no evidence of scavenging was observed in human remains from Kan-Gohar, another cave site in Iran (Najafi et al. 2018). It is possible that Qar-e-Eskeletha was more accessible to wild animals than Kan-Gohar. The high frequency of tooth-marks suggests that Qar-e-Eskeletha was not a place where defleshed and dry bones were stored for any reason, but rather some people died there or their bodies were carried from elsewhere, disposed without burial, and not watched anymore (cf. Sołtysiak & Fetner 2017).

Only one deciduous tooth and seven permanent teeth were complete enough to score dental caries with confidence, and in this small collection one deciduous and two permanent teeth had carious lesions, suggesting that the frequency of dental caries could have been relatively high in this population. Ante-mortem tooth loss (AMTL) was also common in two preserved adult mandibles, with six teeth lost in one and four in the other individual. In both mandibles a very specific bilateral AMTL pattern was observed, with the second premolars and first molars lost first (Figure 9), well before the death of both individuals. It may be the result of nonalimentary tooth use, although usually use of teeth as a ‘third hand’ affects the anterior dentition first (Lorkiewicz 2011). However, identification of a specific activity that may have produced such a pattern is not possible in such an accidental collection of isolated elements.

Only a small box of human remains was retrieved during the exploration of Qar-e-Eskeletha, but historical photographs show many more human elements scattered

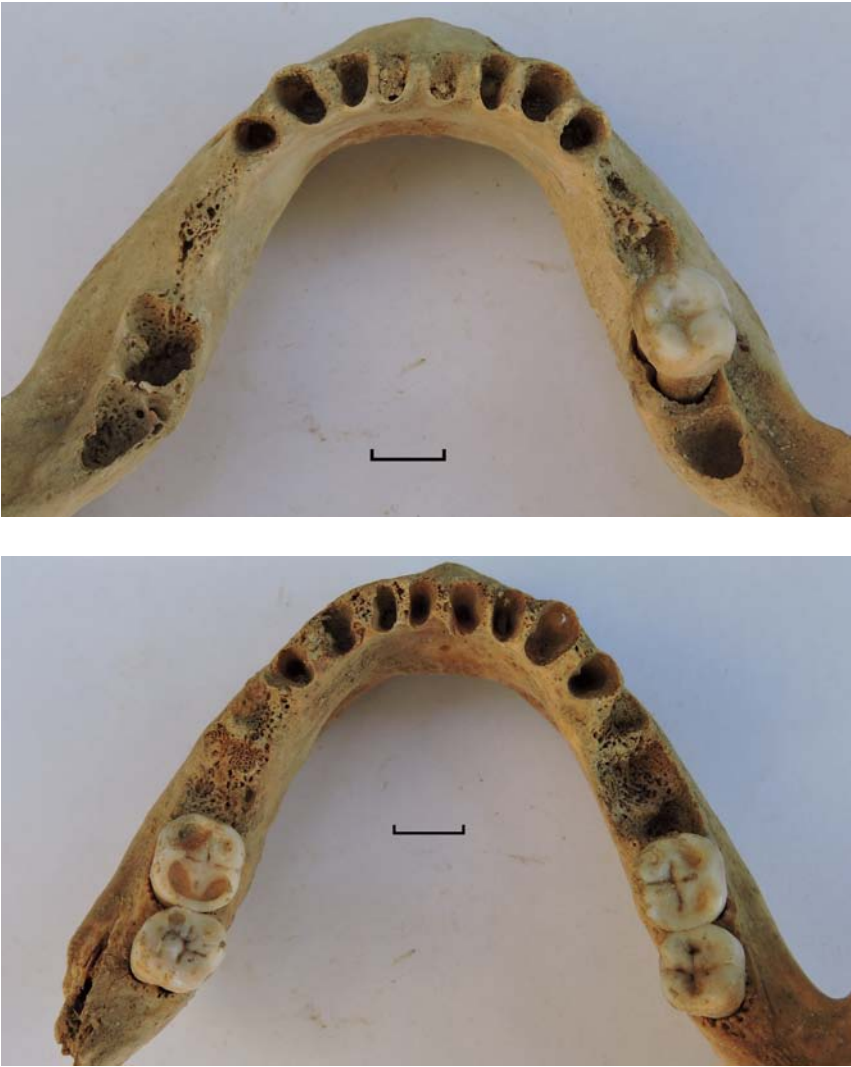


Figure 9. Ante-mortem tooth loss in adult mandibles. Scale bar 1cm.
Photograph by A. Sołtysiak.

in several parts of the cave (Figure 5). It seems therefore that the number of human bodies exposed on the cave floor may have been much higher than the estimated MLNI. It is not likely that these bodies belonged to accidental visitors that were lost in high mountains, and it was rather a catastrophic event when all these individuals died roughly in the same time, analogical to the massacre at Kan-Gohar cave in 1343 CE (Najafi et al. 2018). Especially during the 13th and 14th centuries many regions

in Iran were invaded by Mongols or local warlords and people sought refuge in the mountains or in underground structures (Sołtysiak & Sharahi 2017). However, only radiocarbon dating of human remains from Qar-e-Eskehetha may allow linking this assemblage to any historical event.

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