Bioarchaeology of the Near East, 19:83–90 (2025)
Short fieldwork report

Human remains from Khramis Didi Gora, Georgia, 2025

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Khramis Didi Gora is a Late Neolithic settlement located in Kvemo Kartli Plain (South Caucasus, Georgia), at the confluence of the Khrami and Debeda rivers (**Figure 1**). Recent radiocarbon dating, which was undertaken using animal bones and teeth, provided a date range between 5684 and 5369 cal. BC (95.4% probability). Excavations at this site were initiated by the Georgian Museum in 1972 and continued until 1986, being directed first by Dr. Aleksandre Javakhishvili and then by Dr. Tamaz Kiguradze. Excavations revealed this site as the largest known Late Neolithic settlement in the South Caucasus (Menabde et al. 1978). After a gap of a few decades, in 2023 Mariam Eloshvili (Ilia State University) resumed excavations at the site.

The settlement presents an oval mound that features nine recorded archaeological strata characterised by mudbrick architecture, confirming the presence of a unique building complex with continuous construction phases. Each time damage occurred the mudbricks underwent renovations, indicating that life on the hill continued uninterrupted throughout the Late Neolithic (Menabde et al. 1978). Previous research conducted at Khramis Didi Gora highlighted a complex social life on the hill, which is based on material culture: diverse bone and lithic tools, pottery production, and anthropomorphic figurines found in the buildings.

During the latest phase of archaeological investigations at Khramis Didi Gora initiated in 2023, the team started cleaning the old trench identified as 600m² and examined the southern profile to document the stratigraphy (Eloshvili et al. in print). After the 2023 season at Khramis Didi Gora a new excavation was started in 2025, with the opening of a 10×10 meter trench on the north-west part of the hill. The settlement is mostly occupied by Neolithic strata, although there are later disturbances. Bronze Age and Medieval burials were also uncovered, carved into Neolithic levels, which damaged the construction of Neolithic dwellings and other structures. During the May-October season of 2025, 29 burials were excavated. The skeletons after

https://doi.org/10.47888/bne-1909

cleaning were stored at the Anthropological Laboratory of the Ivane Javakhishvili Institute of History and Ethnology, under the supervision of Nino Tavartkiladze. This report presents a preliminary study of the burials from Khramis Didi Gora, focussing on two graves that differ from the general pattern due to their position.

The cemetery is composed primarily of individual pit graves and oval-shaped stone cists. Most graves were cut into Neolithic layers, the soil being a soft, brown, clay-rich sediment. A consistent pattern appears across the assemblage: the majority of individuals lie supine with hands crossed or folded over the abdomen, and most graves follow a west-east orientation, with the head placed to the west and the face directed east. This burial pattern strongly resembles Christian mortuary practice, especially in the graves N4, N8, N11, N12, N13, N17, N18, N20–24, and N26.

However, several exceptions occur. Some individuals lie in flexed positions, either on the left or right side, as seen in N5, N6, and N7. A few graves preserve evidence of wooden coffins, such as N3, N17, and N18, where fragments of wood appeared near the body. Three burials are stone cists, with oval shaped stone settings. Only one grave, N1, contains clearly associated faunal remains: fragments of animal bone in the eastern part of the grave and a complete goat/sheep skull beneath the cover. Grave N2 does not contain any bones at all. Graves N3 and N27 contain bone or artefact fragments that likely belong to backfill material, not grave goods.

Figure 1. Location of Khramis Didi Gora. Drawing by E. Davitashvili.

Collective or disturbed burials appear only in a few cases. N1 contains two individuals: one in a contracted position facing west, and another likely swept toward the north. N27 represents a secondary burial, with disarticulated bones scattered in the grave fill. N9 preserves only a skull, and N19 collapsed from the profile, leaving only loose bones without anatomical position.

The majority of graves contain no grave goods, reinforcing the overall Christian character. Exceptions are very few and relate to intrusive material in fill (obsidian, pottery, clay figurine fragments) rather than intentional deposition.

Among them, two graves were interesting: N14 and N15. Burial N14 lies in trench G13A and represents a primary pit grave containing an individual in a fully extended supine position. The grave follows a west-east orientation, but the individual's face is turned north, which contrasts with the typical east-facing pattern seen across the cemetery. The hands rest folded on the chest. The iron ring and part of the cloth were placed at the skull, left side near the ear.

A second, disturbed skeleton, identified as Burial N15, was found in the lower part of Grave N14, positioned in proximity to the legs of the individual buried in Grave N14. The bones are fragmentary, disarticulated, and poorly preserved, making reconstruction of the original position impossible. Stratigraphic and spatial relationships indicate that N15 already lay in the ground and was disturbed during the intru-

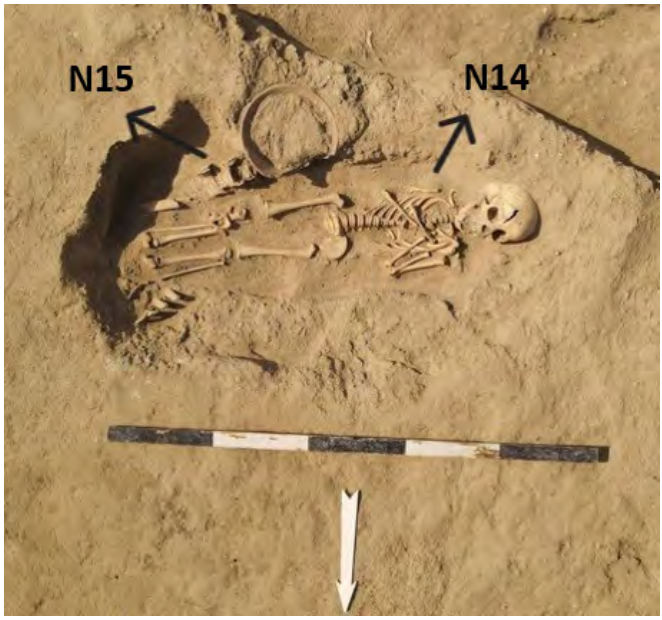

Figure 2. Burials N14 and N15 *in situ*. Photograph by M. Eloshvili.

sion and construction of N14, rather than forming a deliberate double burial (**Figure 2**). The burial included seven bluish beads, which were found by sieving (**Figure 3**).

Material finds in the fill add further complexity. A pottery vessel was discovered above the head of N15, and several bluish beads appeared scattered in the soil around both burials. The pottery bowl is a very classical and characteristic feature of the EBA Kura-Araxes Culture. The bowl is black-red burnished, with a broken little handle-like attachment (**Figure 4**).

The unusual combination of mixed material culture, disturbed skeletal arrangement, and atypical body orientation prompted us to investigate these burials in greater detail, including radiocarbon dates and stable carbon and nitrogen isotope analysis to explore the diet. In addition, we estimated age-at-death, sex, and identified skeletal pathologies following the protocol by Brickley and McKinley (2004). Each skeleton was recorded for completeness, preservation status, and bone and dental metrics, and biological sex and age-at-death were assessed. For subadult individuals, age estimation was based on dental development and eruption patterns (AlQahtani et al. 2014), diaphyseal bone lengths, and degrees of epiphyseal fusion (Scheuer et al. 2010). Adult age-at-death was estimated from the sternal rib end (İşcan & Loth 1986; Dudar 1993).

The skeletons N14 and N15 represent entirely different periods. Burial N14 produced a radiocarbon date of 972±28 BP (FTMC-DI71-1), which calibrates to 1021–1158 cal. AD (95.4%) and fits well within the Medieval period documented at the site. Burial N15 is much older, with the conventional date of 4435±34 BP (FTMC-DI71-2), calibrated to 3331–2926 cal. BC (95.4%), placing this individual in the Early Bronze Age.

Figure 3. Beads from burial N15. Photograph by G. Chilingarashvili.

The preservation of the subadult individual (N14) was good. Age was estimated through tooth eruption and the state of epiphyseal fusion, resulting in an estimated age of 4±1 years. There are no signs of pathological conditions on the bones. The preservation of the adult skeleton (N15) was poor; only fragmentary portions of the postcranial skeleton were recovered. The sternal end of a rib was preserved, which allowed us to estimate the individual's age at 20–32 years, based on the sternal rib end method (İşcan et al. 1984, 1985). Due to the limited preservation of other bones, additional age estimation methods could not be applied. Also, sex could not be estimated. The right side of the mandible is preserved with I1, I2, C, P1, and P2, and the left side with I1, I2, and C. Dental preservation is good. Tooth wear is minimal, following standard recording procedures (Buikstra & Ubelaker 1994). Calculus is present on I1, I2, C, and P2 on the lingual surface. No caries or abscesses were observed. The right portion of the maxilla was also preserved with I1, I2, C, P1, P2, and

Figure 4. Pottery from burial N15. Figure by D. Gagoshidze.

M1. The right I1 was damaged post-excavation. Tooth wear is minimal, and calculus is present on P1, P2, and M1 on the labial surface.

Measurement of stable carbon and nitrogen isotopes (δ^{13}C and δ^{15}N, respectively) was conducted at Vilnius Radiocarbon using an isotope ratio mass spectrometer (IRMS), following the collagen extraction using a modified Longin protocol following Fetner (2015). The detailed protocol is described elsewhere (Defant et al. 2025). Collagen quality was assessed through C/N values within 2.9–3.6 (Ambrose 1990; DeNiro 1985) and collagen yields above 0.5% (van Klinken 1999). The C/N ratio for burial N14 was slightly lower (2.87). It is, however, most likely not the result of contamination, but differential loss of non-glycine amino acids (Schwarcz & Nahal 2021).

Table 1. Stable carbon and nitrogen isotope values for two individuals from Khramis Didi Gora.

No.	δ^{13}C ‰	δ^{15}N ‰	N%	C%	C/N ratio	Yield %
N14	–17.59	8.66	21.35	52.50	2.87	14.64
N15	–18.58	8.45	15.98	43.22	3.16	8.29

The δ^{13}C value of individual N14 (Medieval period) is slightly higher than in individual N15, suggesting some limited input of C4 food items (e.g., millets) in their diet (**Table 1**). However, direct evidence for millet consumption in Georgia prior to the Late Bronze Age remains limited (Herrscher et al. 2017). The δ^{15}N values in both individuals suggest consumption of protein at a level typical for inland terrestrial diets. The nitrogen values do not indicate unusually high trophic level input, nor any signal of freshwater or marine protein, which typically elevate δ^{15}N beyond 10–12‰ (Schoeninger & DeNiro 1984). Overall, the isotopic signature corresponds to a mixed C_3-based agricultural diet with moderate animal protein intake. Comparison with contemporaneous sites in Georgia reveals regional variation in stable isotope values. At Chobareti (Samtskhe-Javakheti), isotopic and archaeobotanical data indicate a homogeneous mixed diet dominated by C_3 plants, with a substantial contribution of animal protein, including meat and secondary products (Messager et al. 2015). Human δ^{13}C values at this site range from –19.3‰ to –18.1‰ and δ^{15}N from 9.8‰ to 13.9‰. While δ^{13}C values are broadly comparable to those observed in the present study, δ^{15}N values at Chobareti are consistently higher, indicating a greater reliance on animal protein than that documented for the individuals analysed here. In contrast, populations from Kiketi and Tiselis Seri in Kvemo Kartli, near Tbilisi, exhibit lower δ^{15}N values (minimum $\approx$ 8.5‰), closely comparable to those observed in the present study, and suggest diets with a similarly moderate contribution of animal protein (Herrscher et al. 2018).

Acknowledgments: The authors would like to thank Arkadiusz Sołtysiak for his valuable suggestions and comments, which significantly contributed to the development of this research. Also, the Faculty of Archaeology at the University of Warsaw for providing the financial support that made the laboratory analyses possible. Furthermore, we are thankful to Shota Rustaveli National Science Foundation of Georgia which funded the excavation seasons. We are thankful to David Gagoshidze for Figure 4. We warmly thank all members of the excavation team who assisted in excavating, storing, and cleaning the burials, with special thanks to Nana Dalakishvili, Megi Vacheishvili, Nikoloz Kakabadze and Tamar Rcheulishvili for their invaluable help and Elene Davitashvili for the map showing the location of Khramis Didi Gora.

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