Bioarchaeology of the Near East, 19:91–98 (2025)
Short fieldwork report

Human remains from Beshtasheni, Georgia, 2012-2016

Ana Davitashvili*[1], Weronika Tomczyk[2], Karolina Juszczyk[3], Jacek Hamburg[4]
[1] Department of Bioarchaeology, Faculty of Archaeology, University of Warsaw, ul. Krakowskie Przedmieście 26/28, 00-927 Warszawa, Poland
e-mail: a.davitashvili@uw.edu.pl (corresponding author)
[2] Ecology, Evolution, Environment and Society Program and Department of Anthropology, Dartmouth College 3 Tuck Mall, Hanover NH, 03755 USA
[3] University of Warsaw, ul. Krakowskie Przedmieście 26/28, 00-927 Warszawa, Poland
[4] Kutaisi Archaeological Science Station, Krukowski Polish-Georgian Interdisciplinary Research Center 9 Tamar Mepe Street, 4600 Kutaisi, Georgia

The Beshtasheni cemetery is situated in southern Georgia, in the Tsalka region, near the modern village of Beshtasheni (41°38'37"N, 44°06'30"E; Narimanishvili 2019; **Figure 1**). The site is a cemetery dated predominantly to the Late Bronze–Early Iron Age (the second half of the 2nd millennium BCE to the beginning of the 1st millennium BCE). Systematic excavations were conducted between 2012 and 2016 by a Georgian-Polish archaeological team under the supervision of Dimitri Narimanishvili and Jacek Hamburg. During these archaeological seasons, researchers documented 45 graves (N12–N56). The grave-numbering continued the system established during the 1990s investigations by the Tsalka–Trialeti Archaeological Expedition, which recorded 11 burials (N1–N11; Narimanishvili et al. 2015; **Figure 2**).

This report presents an overview of the human skeletal remains recovered from Beshtasheni and a summary of all dental pathologies recorded during the fieldwork, but does not elaborate on detailed contextual analysis. In our analysis we build on previous work at the Beshtasheni cemetery by incorporating additional burial contexts (Narimanishvili et al. 2015, 2017; Hamburg & Pawłowska 2017). Most of the burials consisted of individual pit graves, although four multiple burials were also present at the site with two individuals in each (N25, N29, N43, and N54). Some of them (N16, N18, N53, N56) did not include any remains at all, while others (N15, N26, N37, N38, N55) contained only animal bones. The graves were generally simple pits, covered either with stone slabs or with an earth-and-stone embankment. In some instances (such as Burial N27), the concentration of threshing stones on the

https://doi.org/10.47888/bne-1910

graves' surfaces suggests the presence of a threshing board as a cover of the burial (Narimanishvili et al. 2015).

The body orientation was recorded for all burials with preserved human skeletal remains. Individuals were predominantly placed in semi-flexed or flexed positions, lying on the left or right side. Orientation was most frequently north-south, with minor deviations (northwest to southeast) for five burials (N17, N18, N21, N22, and N24).

The general preservation of skeletal remains, both human and animal, was poor due to acidic soil, groundwater activity, advancing bank erosion along the nearby Chilli-Chilli River, and seasonal streams cutting across the site from north to south, following the natural slope of the terrain. Almost all of the burials yielded highly fragmented skeletal elements prone to further breakage during the excavation process, and nine burials (N13, N14, N24, N28, N35, N36, N47, N48, N51) yielded only isolated teeth, as enamel is a more resistant tissue to diagenetic alteration (Hilson 1996). For this reason, researchers carried out the initial osteological examinations on-site, as the recovery process tended to damage the skeletons.

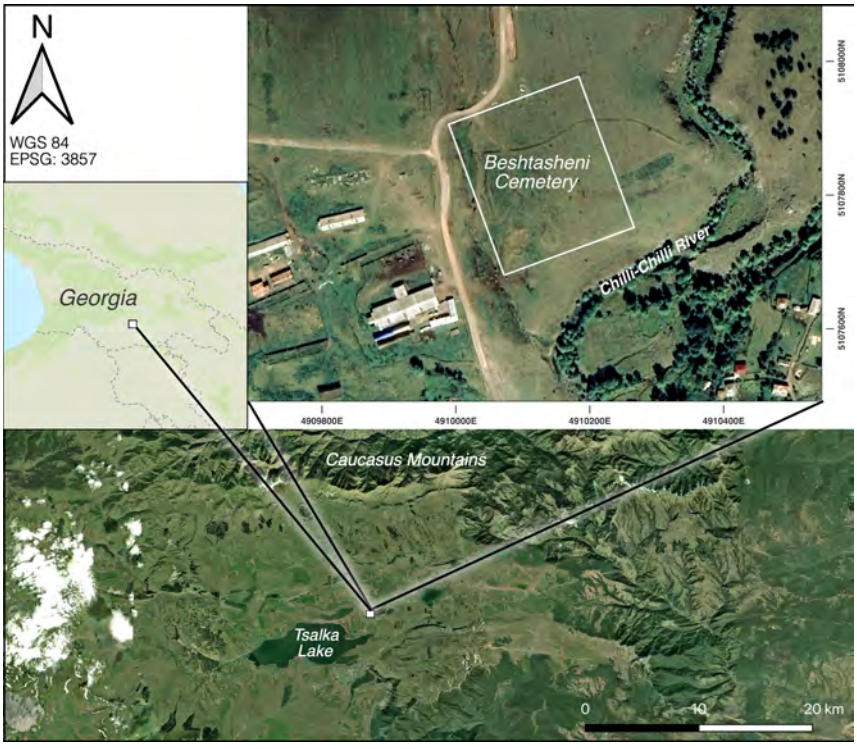

Figure 1. The location of Beshtasheni cemetery. Figure by K. Juszczyk.

BABAO/IFA standards (Brickley & McKinley 2004) were used for recording basic skeletal and dental inventories. Subadult age-at-death estimation followed AlQahtani et al. (2010) and Scheuer et al. (2010), while adult age was assessed using Brooks and Suchey (1990), Buckberry and Chamberlain (2002), Gunst et al. (2003), and Lovejoy (1985). Sex estimation was based on the methods of Phenice (1969) and Buikstra and Ubelaker (1994). When analyzing bone pathologies, the diagnostic protocols summarized by Ortner (2011) were applied.

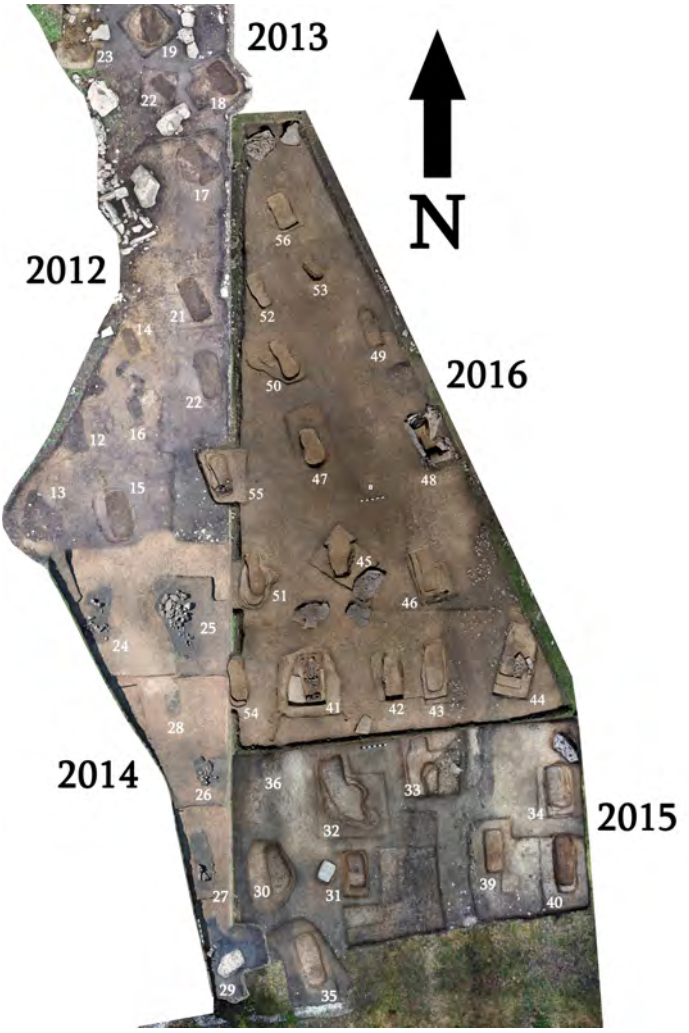

Figure 2. Plan of the part of the cemetery excavated between 2012 and 2016. Ortophotography by D. Narimanishvili and R. Bieńkowski.

Overall, the assemblage included 39 human individuals in total. Sex could be estimated for 17 individuals (eight males and nine females), whereas 22 were indeterminate owing to poor preservation. Adults constitute the majority of the sample, representing 28 individuals (72% of the assemblage), whereas subadults are much less frequent, occurring in only five cases (10% of the total). The youngest identified individual from burial N22 was estimated to be approximately 4–5 years old. The oldest individual comes from burial N21, with age-at-death estimated at 45–50 years. Six burials could not be assigned to specific age categories due to very poor preservation (**Table 1**).

The individuals recovered from the Beshtasheni cemetery exhibit a range of dental pathologies. The observed conditions include dental caries, also observed on the roots (**Figure 3**), calculus, enamel hypoplasia and dental wear. In several burials, dental pathologies could not be assessed due to poor skeletal preservation. This is the case for burials N20, N30, N32, N42, N43 (both individuals), N45, and N47. Even among the remaining individuals, dental preservation was often incomplete, and not all teeth were available for examination.

Because of these preservation issues, applying statistical analysis would be problematic. The presentation of aggregated statistics by number of individuals is methodologically inappropriate, as individuals differed considerably in the number of preserved teeth, leading to unequal probabilities of observing dental pathologies. For this reason, quantitative statistical comparisons were not undertaken. Instead, detailed descriptions of dental conditions for each observable tooth are provided in **Table 2**.

The frequency of associated grave goods varied considerably between the burials. The most common artefacts include pottery (pitchers, pots, jars, trays, ring askos,

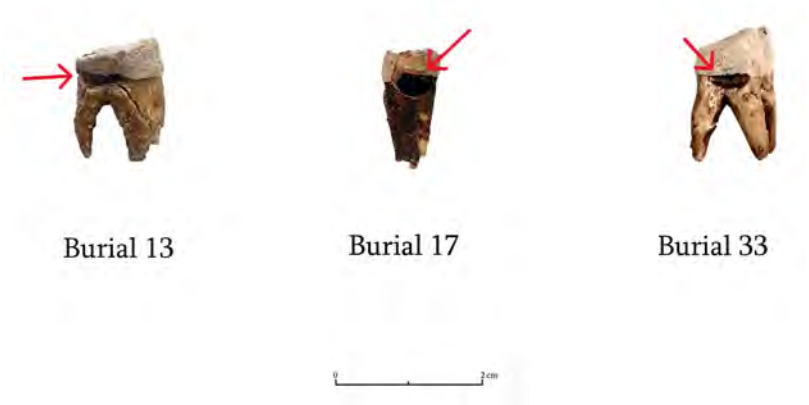

Figure 3. Examples of dental root caries. Burial 13: M^2, left, distal view; Burial 17: P_2 right, lingual view; Burial 33: M_2, right, distal view. Figure by D. Gagoshidze.

Table 1. General overview of skeletal remains. Abbreviations: M = male; F = female; N/A = not applicable; No. = burial number; N = number of individuals.

No.	Year	Taxon	Sex	Age-at-death	Burial type	N	Position
N12	2012	Human		16-20	Pit	1	
N13	2012	Human		20-24	Pit	1	
N14	2012	Human		25	Pit	1	Semi-flexed, right side
N15	2013	Pig	N/A	N/A	Pit	1+	N/A
N16	2013	-	N/A	N/A	Pit	N/A	Empty
N17	2013	Human		35-40	Pit	1	
N18	2013	-	N/A	N/A	Pit	N/A	Empty
N19	2013	Human	F	18-25	Pit	1	Semi-flexed, left side
N20	2013	N/A	N/A	N/A	Pit	N/A	N/A
N21	2013	Human		45-50	Pit	1	Flexed, right side
N22	2013	Human		4-5	Pit	1	Semi-flexed, left side
N23	2014	Human		40-45	Pit	1	N/A
N24	2014	Human		35-45	Pit	1	N/A
N25 (1)	2014	Human	F	25-30	Pit	1	N/A
N25 (2)	2014	Human	M	25	Pit	1	N/A
N26	2014	Pig	N/A	N/A	Pit	1+	N/A
N27	2014	Human		20-30	Pit	1	
N28	2014	Human		A	Pit	1	
N29 (1)	2014	Human		16-22	Pit	1	
N29 (2)	2014	Human		16-22	Pit	1	
N30	2015	Human			Pit	1	
N31	2015	Human	M	30-40	Pit	1	Semi-flexed, right side
N32	2015	Human		A	Pit	1	
N33	2015	Human	F	18-22	Pit	1	
N34	2015	Human	F	30-40	Pit	1	Semi-flexed, right side
N35	2015	Human		17-25	Pit	1	
N36	2015	Human		18-25	Pit	1	
N37	2015	Pig	N/A	N/A	Pit	1+	N/A
N38	2015	Pig	N/A	N/A	Pit	1+	N/A
N39	2015	Human	F	35-45	Pit	1	Semi-flexed, left side
N40	2015	Human	M	20-24	Pit	1	Semi-flexed, right side
N41	2016	Human	M	20-24	Pit	1	Semi-flexed, right side
N42	2016	Human	F	N/A	Pit	1	
N43 (1)	2016	Human	F	23	Pit	1	Semi-flexed, right side
N43 (2)	2016	Human	M	19-25	Pit	1	Semi-flexed, right side
N44	2016	Human		20-30	Pit	1	
N45	2016	Human	M	25	Pit	1	Semi-flexed
N46	2016	Human	F	25	Pit	1	
N47	2016	Human			Pit	1	
N48	2016	Human			Stone cist	1	
N49	2016	Human	M	22	Pit	1	Semi-flexed, right side
N50	2016	Human		20	Pit	1	
N51	2016	Human			Pit	1	
N52	2016	Human		40-45	Pit	1	
N53	2016	-	N/A	N/A	Pit	1	Empty
N54 (1)	2016	Human	F	20-30	Pit	1	
N54 (2)	2016	Human	M	18-22	Pit	1	
N55	2016	Pig	N/A	N/A	Pit	1+	N/A
N56	2016	-	N/A	N/A	Pit	N/A	Empty

Table 2. Observed dental pathologies at the Beshtasheni cemetery. N = number of preserved teeth.

Burial	N	Caries	Calculus	Hypoplasia	Dental wear
N12	7	1/7	0/7	0/7	0/7
N13	8	3/8	0/8	0/8	2/8
N14	30	0/30	0/30	0/30	12/30
N17	17	2/17	0/17	0/17	0/17
N19	27	4/27	0/27	0/27	7/27
N20	0	0	0	0	0
N21	17	0/17	0/17	0/17	6/17
N22	20	0/20	0/20	0/20	0/20
N23	13	1/13	0/13	0/13	5/13
N24	9	0/9	0/9	0/9	5/9
N25 (1)	28	0/28	0/28	0/28	14/28
N25 (2)	27	1/27	1/27	2/27	6/27
N27	31	0/31	0/31	0/31	0/31
N28	4	0/4	0/4	0/4	0/4
N29 (1)	24	0/24	0/24	0/24	0/24
N29 (2)	14	3/14	0/14	0/14	0/14
N30	0	0	0	0	0
N31	9	1/9	0/9	0/9	8/9
N32	0	0	0	0	0
N33	23	6/23	3/23	5/23	14/23
N34	11	2/11	0/11	3/11	7/11
N35	10	0/10	0/10	1/10	3/10
N36	3	1/3	0/3	0/3	1/3
N39(1)	19	4/19	0/19	0/19	19/19
N39(2)	5	1/5	0/5	0/5	5/5
N40	23	1/23	0/23	1/23	6/23
N41	26	6/26	4/26	9/26	11/26
N42	0	0	0	0	0
N43 (1)	0	0	0	0	0
N43 (2)	0	0	0	0	0
N44	4	1/4	1/4	0/4	2/4
N45	0	0	0	0	0
N46	27	0/27	0/27	5/27	8/27
N47	0	0	0	0	0
N48	1	0/1	0/1	0/1	1/1
N49	32	0/32	0/32	0/32	5/32
N50	5	0/5	0/5	3/5	0/5
N51	1	0/1	0/1	0/1	1/1
N52	5	0/5	0/5	0/5	5/5
N54 (1)	13	9/13	4/13	0/13	4/13
N54 (2)	4	2/4	1/4	0/4	2/4

pedestal vessels), metal garment elements (pins, belts, rosettes, bracelets, rings), beads (reddish and white cornelian, blue paste), as well as metal weapons (daggers, knives; Hamburg & Pawłowska 2017), and obsidian tools and basalt stones (Narimanishvili et al. 2015, 2017).

To summarize, our preliminary bioarchaeological analyses indicate that the Beshtasheni cemetery served as an important burial ground for the Late Bronze-Early Iron

Age populations, but additional studies are needed to fully capture their health, demographics, and potential migratory patterns. These research objectives will be focal points of the collaboration established in 2025 between the University of Warsaw and the Krukowski Polish-Georgian Interdisciplinary Research Center, which combines previous osteological work with radiocarbon dating, stable isotope analysis, ancient DNA analysis for selected burials (if allowed by poor preservation of bones), and the establishment of environmental baselines through strontium isotope analysis of modern plants.

Acknowledgments: We sincerely thank Arkadiusz Sołtysiak for his continuous support, extensive guidance, and numerous discussions and suggestions that were crucial to the development of this research. We also thank Dimitri Narimanishvili, director of the Beshtasheni expedition, for providing access to the archaeological and osteological materials and for his ongoing cooperation. We are grateful to David Gagoshidze for assistance with the preparation of Figure 3.

References

Al-Qahtani S.J., Hector M.P., Liversidge H.M. (2010), *The London atlas of human tooth development and eruption*, American Journal of Physical Anthropology 142 (3):481-490.

Brickley M., McKinley J. (2004), *Guidelines to the standards for recording human remains*, Southampton: Institute of Field Archaeologists.

Brooks S., Suchey J.M. (1990), *Skeletal age determination based on the os pubis: A comparison of the Acsádi-Nemeskéri and Suchey-Brooks methods*, Journal of Human Evolution 5:227-238.

Buckberry J.L., Chamberlain A.T. (2002), *Age estimation from the auricular surface of the ilium: A revised method*, American Journal of Physical Anthropology 119:231-239.

Buikstra J.E., Ubelaker D.H. (eds.) (1994), *Standards for data collection from human skeletal remains*, Fayetteville: Arkansas Archeological Survey.

Gunst K., Mesotten K., Carbonez A., Willems G. (2003), *Third molar root development in relation to chronological age: A large sample-sized retrospective study*, Forensic Science International 136(1-3):52-57.

Hamburg J., Pawłowska K. (2017), *Metal garment elements from the Late Bronze Age – Early Iron Age cemetery at Beshtasheni (Eastern Georgia)*, Polish Archaeology in the Mediterranean 26(1):601-618.

Hillson S. (1996), *Dental anthropology*, Cambridge: Cambridge University Press.

Lovejoy C.O. (1985), *Dental wear in the Libben population: Its functional pattern and*

role in the determination of adult skeletal age at death, American Journal of Physical Anthropology 68(1):47-56.

Narimanishvili D. (2019), *Cyclopean fortresses in Georgia*, Tbilisi: D&D Limited.

Narimanishvili D., Karelidze G., Hamburg J. (2015), *New data from Beshtasheni Late Bronze Age – Early Iron Age cemetery* [in:] "Metsamor: The chronicle of fifty years of excavations", A. Philiposyan (ed.), Yerevan: Armenian Ministry of Culture & the National Academy of Sciences, pp. 104-116.

Narimanishvili D., Vadachkoria R., Tamazashvili K., Juszczyk K., Tomczyk W. (2017), *Archaeological excavations at Beshtasheni Late Bronze Age – Early Iron Age Cemetery (2015–2016 results)*, Armenian Journal of Near Eastern Studies 12(2):120-145.

Ortner D.J. (2011), *Human skeletal paleopathology*, International Journal of Paleopathology 1(1):4-11.

Phenice T.W. (1969), *A newly developed visual method of sexing the os pubis*, American Journal of Physical Anthropology 30(2):297-301.

Scheuer L., Black S., Schaefer M.C. (2010), *Juvenile osteology: A laboratory and field manual*, London: Academic Press