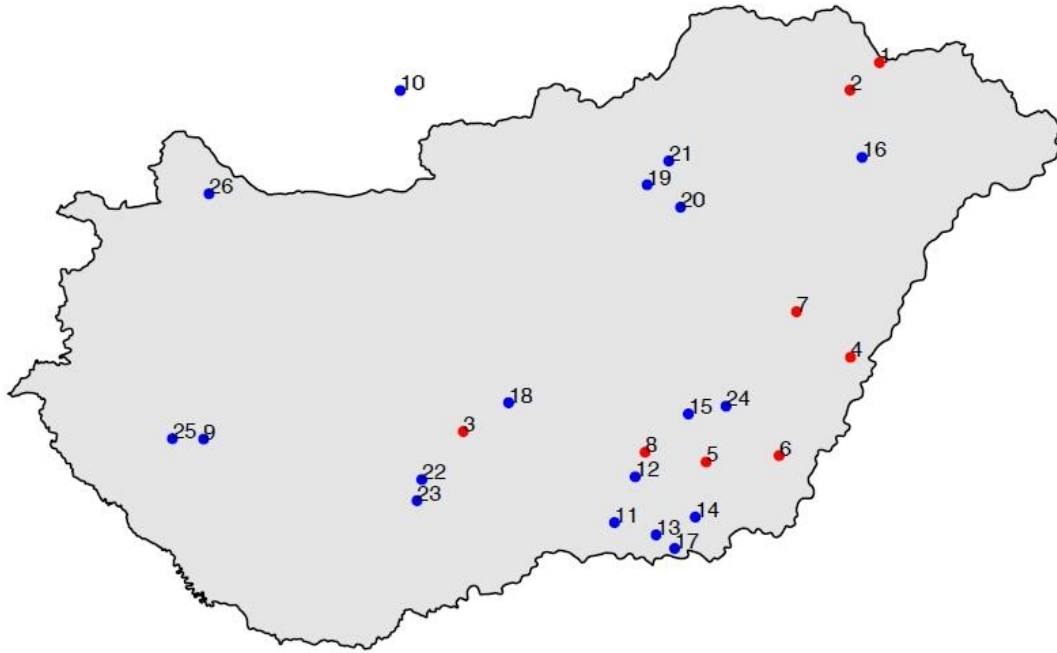


Supplementary text

Archaeological background

Detailed archaeological and anthropological description of each studied graves are provided in S1 Table.



Location of the Hungarian conqueror cemeteries. Red dots indicate cemeteries reported in this study, blue dots indicate cemeteries from which HVR sequences were reported in (Csősz et al., 2016; Tömöry et al., 2007). Numbers indicate the following sites: 1. Karos, 2. Kenézlő-Fazekaszug-II, 3. Harta-Freifelt, 4. Magyarhomoróg, 5. Orosháza-Görbicstanya, 6. Szabadkígyós-Pálliget, 7. Sárrétudvari-Hízóföld, 8. Szegvár-Oromdűlő, 9. Balatonújlak-Erdődűlő, 10. Levice-Géňa, 11. Kiskundorozsma-Hosszúhát, 12. Baks-Iskola, 13. Szeged-Óthalom, 14. M43 no. 25 site Makó-Igási járandó, 15. Szentés-Derekegyháza, 16. Nyíregyháza-Oross Megapark, 17. Kiszombor, 18. Izsák-Balázspusztá, 19. Aldebrő-Mocsáros, 20. Besenyőtelek-Szörhát, 21. Eger-Szépasszonyvölgy, 22. Fadd-Jegeshegy, 23. Mőzs-Szárazdomb, 24. Örménykút, 25. Zalavár-Kápolna, 26. Lébény-Kaszás

1., Karos-Eperjesszög I-II-III

A more detailed description of the three Karos cemeteries is also given in [1]. The site of Karos-Eperjesszög is located in Northeast Hungary, in the so-called Bodrogek (Borsod-Abaúj-Zemplén County). In the first half of the 10th century AD, this area served as the palatial center and burial place of the Hungarian conquerors. The three cemeteries are situated on low sandhills that are approximately 200 meters from each other.

Karos-Eperjesszög I: Contained approximately fifty burials, most of which were destroyed during agricultural works before Tibor Horváth could excavate thirteen graves in 1936.

Karos-Eperjesszög II: This second cemetery was found on the center sandhill. A total of seventy-three graves were uncovered by László Révész between 1986 and 1988 [2].

Karos-Eperjesszög III: This third cemetery is south of Karos-Eperjesszög II and was excavated between 1988 and 1990[2]. A total of nineteen graves were uncovered by László

Révész and Mária Wolf. Dated with ^{14}C , coins and findings the three Karos cemeteries were used from the last decade of the 9th century AD until the mid-10th century AD. The high number of male burials, weapons and insignia of rank indicates that the wealthiest graves must have belonged to the leaders of the princely retinue [3] but the ratio of children and elderly individuals (Supplementary Table 10) indicate a vital community. The archaeological remains of all three Karos cemeteries were examined and published in [2], and the human skeletons were studied by [4].

2., Kenézlő-Fazekaszug I-II

The site is located close to Karos in Borsod-Abaúj-Zemplén County, along the river Tisza. The site was excavated in 1914 by András Jósa [5] and in 1927 by Nándor Fettich [6]. A total of fifty graves have been uncovered, all of which are dated to the Hungarian Conquest Period (10th century AD). The cemetery was used in the early 10th century AD probably by the military retinue and their families and servants. Anthropological examination of the skeletons was carried out by Lajos Bartucz [7], András Bíró and Erzsébet Fóthi [8]. Most of the skulls display europo-mongolid characteristics.

3., Harta-Freifelt

The site is situated one kilometer from Harta (in Bács-Kiskun County) in the field called Freifelt. The joint excavation was carried out in 2002 by Rozália Kustár and Péter Langó (Kalocsa Museum and the Archaeological Institute of HAS) [9]. A total of twenty-two undisturbed graves were discovered, dating to the first half of the 10th century AD. Archeological and anthropological analyses have not been published yet.

4., Magyarhomoróg-Kónya-domb

The cemetery is located at the northern border of the Magyarhomoróg village (in Hajdú-Bihar County). A total of five hundred and forty graves were excavated by István Dienes and László Kovács [10], which were dated between the 10th and 12th centuries AD.

5., Orosháza-Görbics tanya

The cemetery is located on the outskirts of Orosháza (in Békés County). Three graves were excavated in 1961 by István Dienes, which were dated to the 10th century AD. Anthropological analysis was performed by Gyula Farkas and Pál Lipták [11].

6., Szabadkígyós-Pálliget

The southern-Hungarian site of Szabadkígyós-Pálliget is located in Békés County. Seventeen graves from the 10th century AD were discovered in 1968 by Irén Juhász and Csanád Bálint. The archaeological finds were studied and published by Csanád Bálint [12], while the human remains were examined by Edit Lotterhof [13].

7., Sárrétudvari-Hízóföld

Two hundred and sixty two graves from the Hungarian Conquest Period were uncovered at the Hízóföld outskirts of Sárrétudvari (in Hajdú Bihar County). The site was excavated between 1983 and 1985 by the lead archaeologist, Ibolya M. Nepper [14]. The human osteological analyses were carried out by Sándor Oláh [15]. The earliest graves in the cemetery were the burials of the wealthy class, representing the first generation of the Hungarian Conquest Period. Several weapons were also excavated, which indicates that primarily the armed warriors of the nearby Bihar castle and their families were buried there. The cemetery was used until approximately 970 AD.

8., Szegvár-Oromdűlő

The site is located east of Szegvár (in Csongrád County). The cemetery, dating to the 10th and 11th centuries AD, was excavated from 1983 to 1996 by Gábor Lőrinczy [16]. A total of three hundred and seventy two graves were discovered, and a detailed anthropological analysis was done by Antónia Marcsik [17], while an archaeological analysis was done by Livia Bende and Gábor Lőrinczy.

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