

BIOLOGICAL ANTHROPOLOGICAL EXAMINATION OF A FEW IRON AGE BURIALS FROM PILISMARÓT-BASAHARC¹

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Pilismarót-Basaharc is a biritual Iron Age cemetery in Hungary. In this study the preliminary results of the anthropological investigations are summarized. We selected a few graves to present the human remains as representative examples. During the analysis, we primarily focused on biological age, morphological sex and paleopathological alterations that can be observed on the bones, as well as different anatomical variations.

INTRODUCTION

Given the importance of the archaeological material, we here offer a detailed description of the anthropological remains from the Iron Age cemetery in Pilismarót-Basaharc, located in the Danube Bend in nowadays Hungary, of the selected individuals, as well as a brief overview of the burial site at the current state of research.

METHODS

In the case of children, biological age was estimated by the diaphyseal measurements of long bones (Bernert/Évinger/Hajdu 2008; Stloukal/Hanáková 1978), the degree of ossification (Schinz/Case 1952) and the development of the teeth (Schour/Massler 1941; Ubelaker 1989). Regarding adults, age estimation was based on the surface alterations of the facies *symphysialis ossis pubis* (Brooks/Suchey 1990) and the sternal rib ends (DiGangi et al. 2009; Iscan/Loth/Wright 1984; 1985) as well as the obliteration of the cranial sutures (Meindl/Lovejoy 1985). Sex determination was carried out using the method of K. Éry, A. Kralovánszky and J. Nemeskéri (Éry/Kralovánszky/Nemeskéri 1963). The skull and the long bones were measured according to R. Martin and K. Saller (Martin/Saller 1957), then classified in accordance with V. P. Alekseev and G. F. Debets (Alekseev/Debets 1964). Stature was calculated based on the method of T. Sjøvold (Sjøvold 1990). The anatomical variations were identified in accord with R. W. Mann, D. R. Hunt and S. Lozanoff (Mann/Hunt/Lozanoff 2016). The pathological alterations were identified by the macromorphological observations established by D. J. Ortner (Ortner 2003), A. C. Aufderheide and C. Rodríguez-Martín (Aufderheide/Rodríguez-Martín 1998) and T. Waldron (Waldron 2009). The oral pathologies were examined according to J. E. Buikstra and D. H. Ubelaker (Buikstra/Ubelaker 1994), D. R. Brothwell (Brothwell 1981), B. H. Smith (Smith 1984), S. E. Lavigne and J. E. Molto (Lavigne/Molto 1995), A. H. Goodman and J. C. Rose (Goodman/Rose 1990), J. F. Metress and T. Conway (Metress/Conway 1975), M. L. Powell (Powell 1985) and B. Bonfiglioli, V. Mariotti, F. Facchini, M. G. Belcastro and S. Condemi (Bonfiglioli et al. 2004). The cremains were analysed with the method of J. Nemeskéri and L. Harsányi (Nemeskéri/Harsányi 1968) and D. H. Ubelaker (Ubelaker 2009).

¹ Archaeological facts related to this paper are presented in the article by E. Jerem and K. Tankó in this volume.

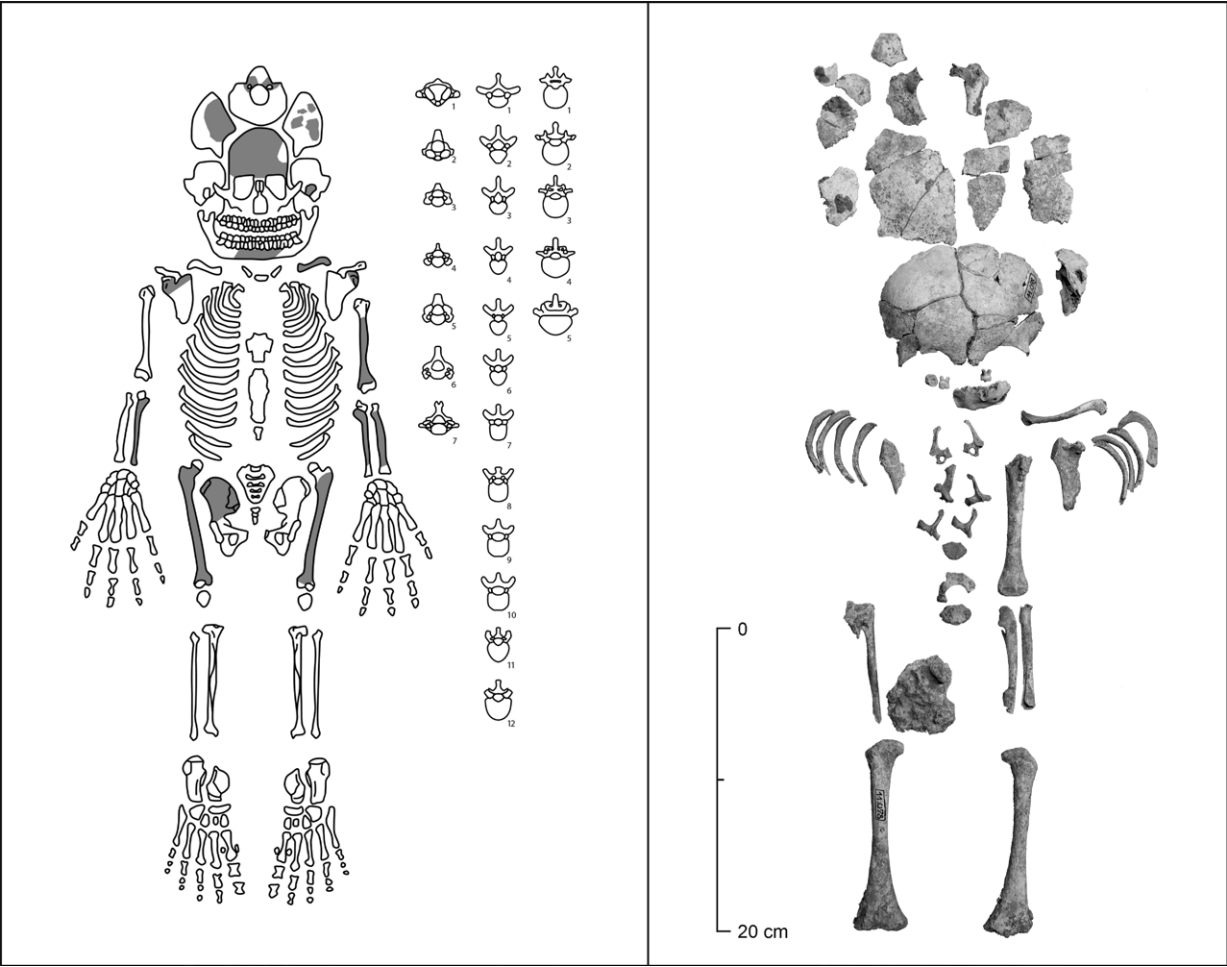


Fig. 1. Skeletal remains of a child from Grave 53.

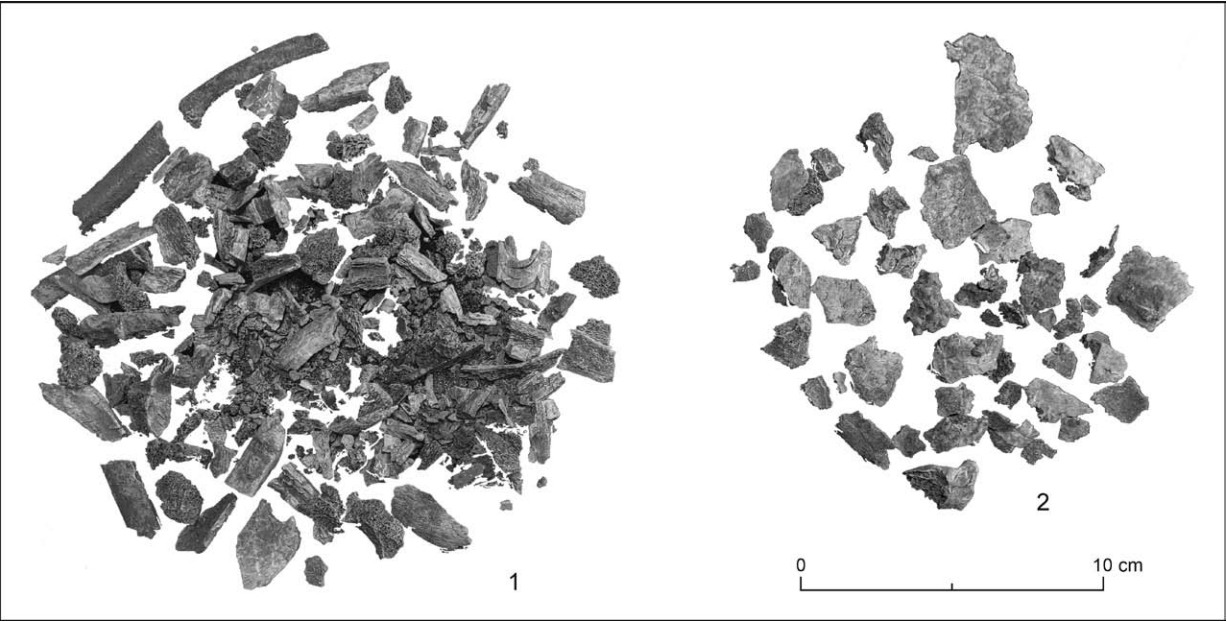


Fig. 2. Cremains from Grave 265.

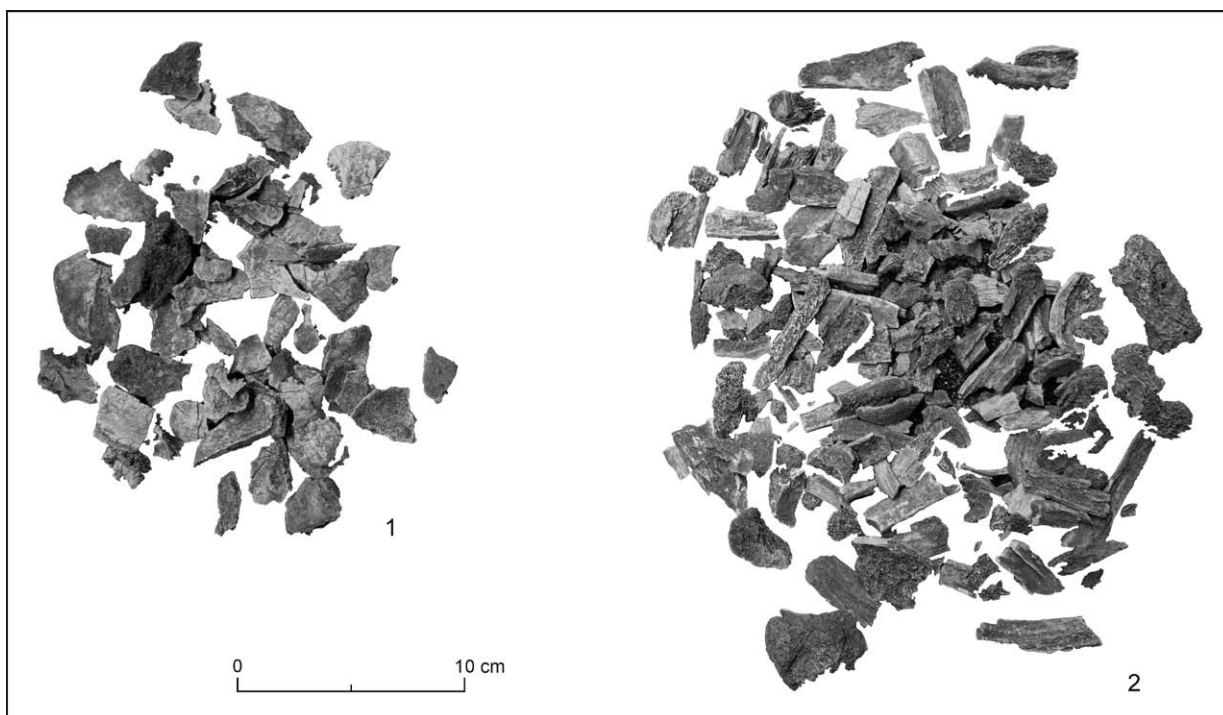


Fig. 3. Cremated remains from Grave 280.

RESULTS

Grave 53

Incomplete skeleton of a child aged 1–1.5 years. Both the skull and the postcranial elements were poorly preserved (Fig. 1). The bones did not reveal any pathological changes.

Grave 265

Incompletely burnt, slightly robust remains of an adult male (Fig. 2). The size of the fragments ranged between 0.4 cm and 6 cm, their colour varied from greyish to brownish and even bluish. Among the approximately 55 pieces of the skull, which weighed 45 g, fragments of the frontal bone, the parietal bone and the zygomatic bone could be identified. The ca. 255 elements belonging to the postcranial skeleton, which weighed 125 g, comprised parts of the vertebrae, pelvis, and the bones of the lower limbs. Based on the curved and straight transverse fracture pattern of the bones, the deceased was cremated shortly after death, while still covered by soft tissue with higher water content.

Grave 280

Incompletely burnt, robust remains of an adult male (Fig. 3). The greyish-brownish fragments ranged between 0.5 cm and 6 cm in size. Among the approximately 50 pieces of the skull, which weighed 104 g, the fragments of the parietal bone, the frontal bone, the temporal bone, the occipital bone, and parts of the mandible could be found. The ca. 295 pieces of the postcranial skeleton, which weighted 245 g, included elements of the upper and lower limbs, the spine, and the pelvis. Based on the straight transverse fracture pattern of the bones, it can be concluded that the deceased was cremated shortly after death.

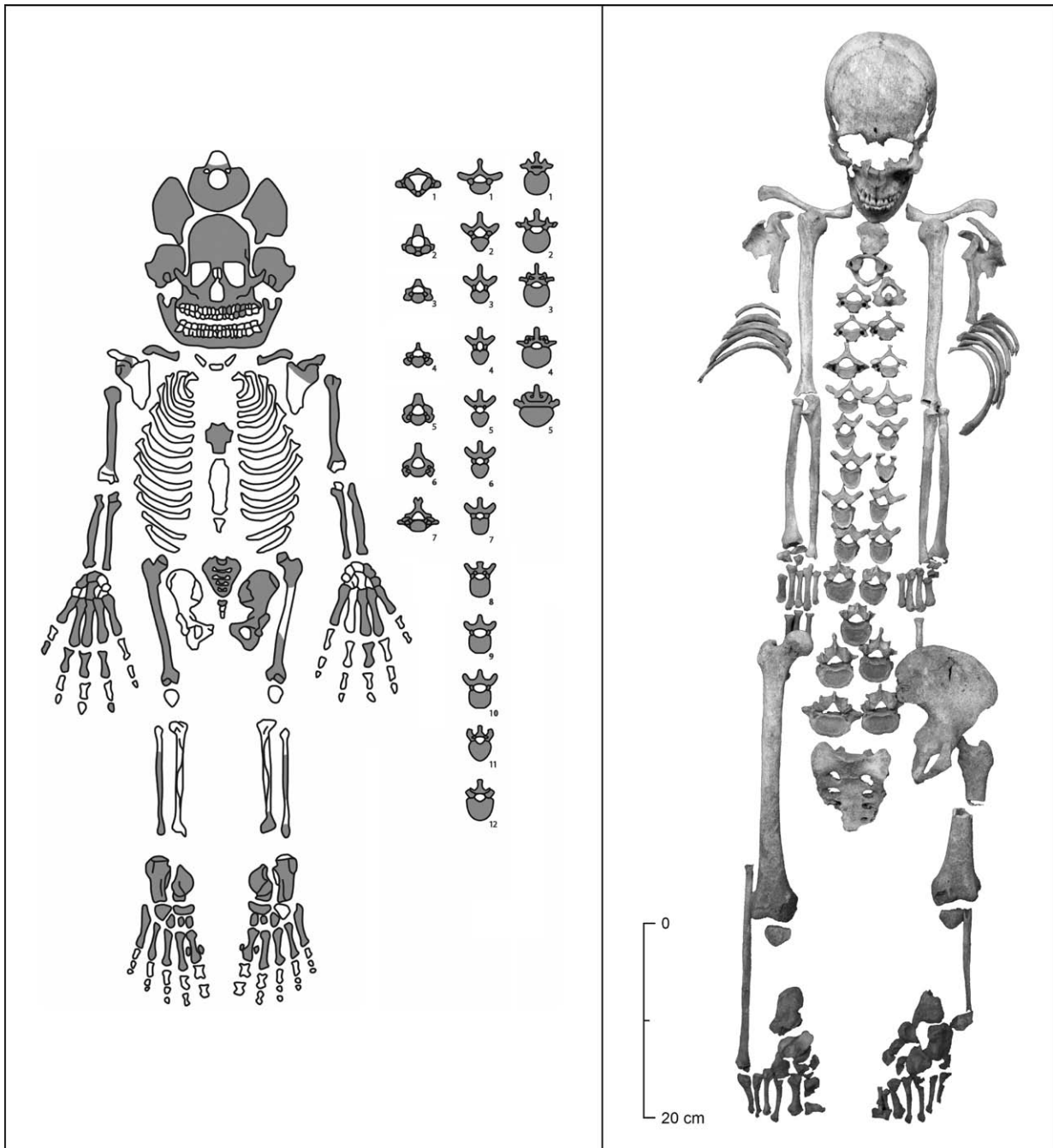


Fig. 4. Skeletal remains of a female from Grave 332.

Grave 332

Relatively well-preserved but incomplete skull and postcranial skeleton of a female aged 30–40 years (Fig. 4).

The neurocranium was very short (hyperbrachycranic), while the length-height and width-height indices were low and very low (chamaecranic and hypertapeinocranic), respectively. The forehead could be described as narrow (stenometopic). The stature of the individual was 150.74 cm, calculated from the femoral length. The lambdoid suture contained Wormian bones on each side.

Spondylarthrosis was observed in the cervical, dorsal, and lumbar spine. Traces of osteoarthritis could be seen on both shoulders, wrists, and ankle joints. Pacchionian impressions were identified on the inner surface of the parietal bones.

The total number of preserved teeth was 31 (16 maxillary and 15 mandibular), while the number of fully preserved alveoli was 20, of which 13 belonged to the maxilla and 7 to the mandible. The individual did not have antemortem tooth loss. Three teeth were affected by caries (RP⁴, RM¹, LM³: 9.7% of the teeth sample), while 16 teeth displayed calculus (LM³, LM¹, LP⁴, LP³, RM³, LM³, LM², LP⁴, L^c, LI², LI¹, RI¹, R^c, RP⁴, RM¹, RM²: 51.6% of the teeth sample). Four anterior teeth were impacted by linear enamel hypoplasia (LI¹, RI¹, L^c, R^c: 33.3% of the anterior teeth). The mean age of manifestation was 3.2 years old. Only one tooth exhibited abscess (RM¹: 3.2% of the teeth sample). Among the fully preserved alveoli, 12 showed periodontitis (LM³, LM², LM¹, LP³, RI¹, RI², R^c, RP³, RP⁴, RM¹, LM², LI²: 60% of the preserved alveoli sample). Five teeth revealed chipping (LI², LI¹, RI¹, RI², RI²: 16.1% of the teeth sample). Light occlusal wear (degrees 1 and 2) could be observed on 6 teeth (LM³, RP³, RM³, LM³, LP⁴, RP⁴: 21.4% of the total sample of worn teeth). Average occlusal wear (degrees 3 and 4) affected 11 teeth (LM², LM¹, LP⁴, LP³, RP⁴, RM², LM², LM¹, RP³, RM¹, RM²: 39.3% of the total sample of worn teeth). Heavy occlusal wear (degrees from 5 to 8) altered 11 teeth (L^c, LI², LI¹, RI¹, RI², L^c, LI², LI¹, RI¹, RI², R^c: 39.3% of the total sample of worn teeth).

Grave 370

Relatively well-preserved but incomplete skull and postcranial skeleton of a juvenile aged 17–19 years (Fig. 5).

Extra bones were detected in the sagittal and on both sides of the lambdoid suture.

Porotic hyperostosis exhibited cribrotic stage in the left orbit. The lesion was 2.3 cm wide and 1 cm high. In the left orbit, the alteration showed porotic level with 1.4 cm width and 0.5 cm height. The palatine process of the maxilla revealed signs of inflammation. Both the anterior, posterior, and lateral sides of the upper two-thirds of the right femur were affected by periostitis.

The total number of preserved teeth was 29 (15 maxillary and 14 mandibular). The number of fully preserved alveoli was 18 (11 maxillary and 7 mandibular). The individual was not affected by either caries, abscess, or antemortem tooth loss; however, 19 teeth exhibited calculus (LM³, LP⁴, LP³, L^c, RP³, RM², LM³, LM², LM¹, LP³, L^c, LI², RI¹, R^c, RP³, RP⁴, RM¹, RM², RM³: 65.5% of the teeth sample). Four anterior teeth revealed linear enamel hypoplasia (L^c, LI¹, RI¹, R^c: 40% of the anterior teeth). The mean age of manifestation was 3.2 years old. Among all the fully preserved alveoli, two showed periodontitis (RI², RI¹: 11.1% of the preserved alveoli sample). Two teeth were afflicted by chipping (LI¹, RI¹: 6.9% of the teeth sample). Light occlusal wear (degrees 1 and 2) could be observed on 26 teeth (LM³, LM², LM¹, LP⁴, LP³, L^c, LI², LI¹, RI¹, RI², R^c, RP³, RP⁴, RM¹, RM², LM³, LM², LP⁴, LP³, L^c, LI², R^c, RP³, RP⁴, RM², RM³: 89.7% of the total sample of worn teeth). Average occlusal wear (degrees 3 and 4) affected three teeth (LM¹, RI¹, RM¹: 10.3% of the total sample of worn teeth).

BRIEF OVERVIEW OF THE PILISMARÓT-BASAHARC CEMETERY

The anthropological material could be identified clearly in case of 57 inhumation and 33 cremation burials. In addition, skeletal remains from nine pit graves were also recovered. Only skulls were retrieved alongside the animal bones from Graves 75, 91, 155, 183, 228, and 247, whereas in Graves 173, 234, and 328 postcranial elements were also found. A grave without archaeological material was also uncovered, namely Grave 379, which only included parts of a skeleton. Graves 158 and 173 each yielded the remnants of two individuals, while Grave 183 at least four individuals. Seven graves lacked human remains, while the anthropological material of 16 graves was lost.

Regarding the inhumation burials, 9 males, 16 females, 5 juveniles, and 28 children were identified. Concerning the pit graves, from Graves 234 and 328 children were unearthed. Furthermore, fragments of male skulls were recovered from Graves 91, 155, and 228, while Grave 183 contained, in addition to the crania of two females and two males, a mandible of an adult individual and cremains with fragment sizes below 1 cm. The anthropological material of Grave 173 consisted of the skull and postcranial skeleton of a male and an additional male skull. From Graves 75 and 247 fragments of adult skulls were uncovered. Grave 379 hid the remains of a child. The majority of the skeletal burials contained subadults among whom the younger age groups were more represented. Children no older than two years old were recovered from 20 graves.

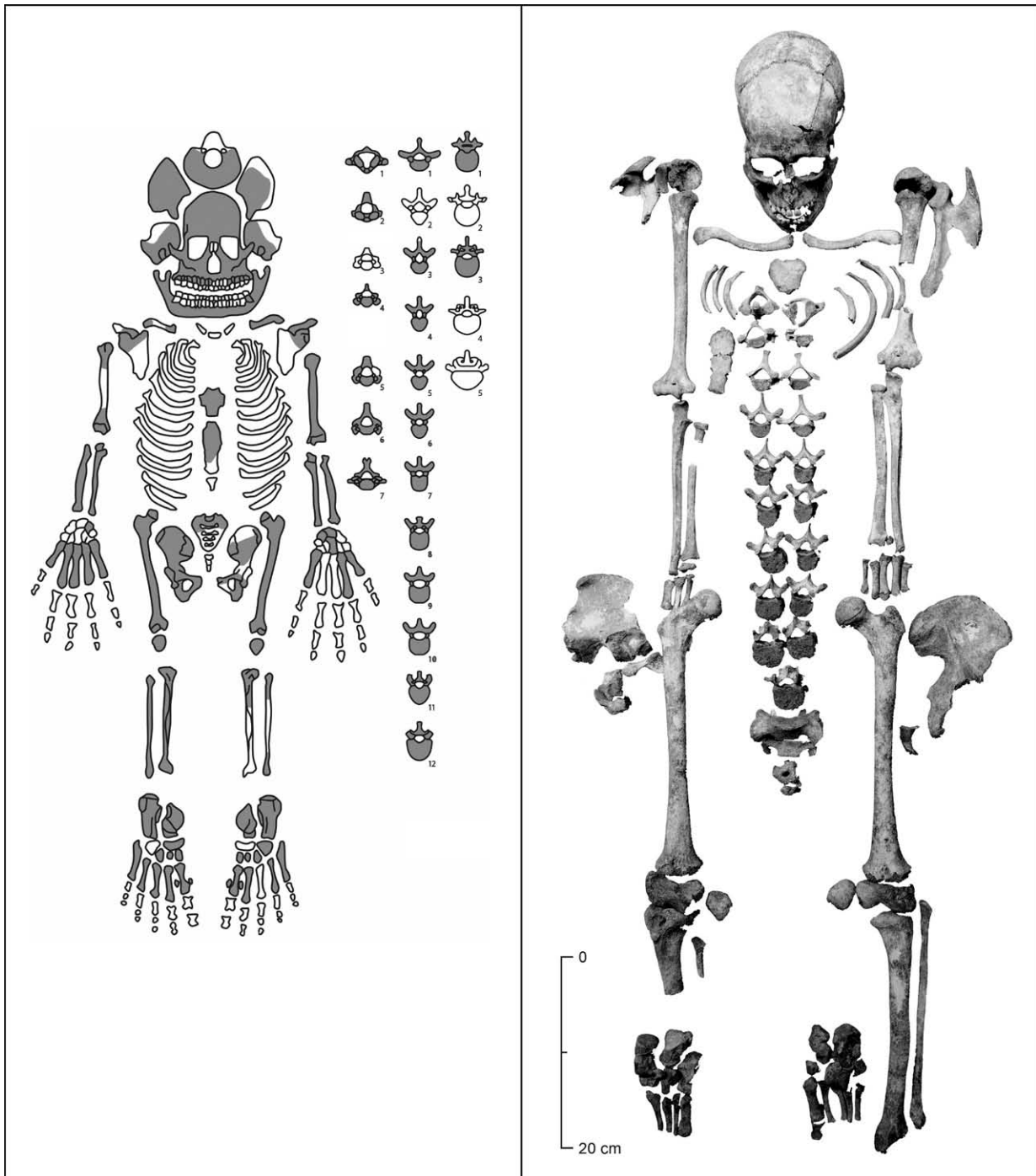


Fig. 5. Skeletal remains of a juvenile from Grave 370.

Due to the poor preservation and fragmentation of the anthropological material, both skull and long bone measurements could only be taken in a small proportion.

Most of the identified pathological conditions such as degenerative changes of the spine (spondylosis deformans, spondylodiscitis, spondylarthrosis) and the joints (osteoarthrosis) as well as periosteal alterations are commonly found among prehistoric populations. Moreover, porotic hyperostosis, which is the osteological manifestation of various haematological disorders and endocranial lesions, the alteration resulting from inflammation or vascular reaction around the meninges, occurred to a greater extent among subadults. These alterations are more common among younger

individuals and are considered a general sign of physiological stress and infections, respectively (Lewis 2006). Regarding the oral pathologies, antemortem tooth loss, attrition, caries, dental cyst, and abscess, as well as developmental disorders of the enamel such as linear enamel hypoplasia were observed frequently. However traumatic lesions like fractures rarely occurred, and all of them were healed. On the right clavicle of a male individual (Grave 286) a fracture possibly caused by an accident was detected with slight axial deviation. The distal end of the left radius of a juvenile individual (Grave 309) as well as a phalanx of a female (Grave 275) were also broken. On the right fibula of a male individual periosteal reaction of traumatic origin occurred (Grave 301). Besides, the abnormal curvature of the right radius of a male individual (Grave 56) indicated a greenstick fracture. Developmental disorders were identified in the forms of partial sacralisation and lumbalisation. In the case of the former, the last lumbar vertebra is connected to the sacrum, while regarding the latter, the first segment of the sacrum formed a separate vertebra. Among the hormonal-metabolic diseases, *hyperostosis frontalis interna* (HFI) was identified in a female over the age of 40 (Grave 101). HFI is characterized as bony overgrowth on the inner surface of the frontal bone, and it mainly affects older females (Ortner 2003).

Finally, it should be stressed that the anthropological analysis is still unfinished therefore only preliminary results are presented here. We must emphasize this also in connection with the most recent DNA sampling. These data have not yet been evaluated but results are expected in the near future which can provide better understanding of the Iron Age population of Pilismarót-Basaharc.

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Biologický antropologický výskum niekoľkých hrobov z pohrebiska doby železnej Pilismarót-Basaharc

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Súhrn

Pilismarót-Basaharc je birituálne pohrebisko z doby železnej v Maďarsku. V tejto štúdii sú zhrnuté predbežné výsledky antropologického výskumu. Vybrali sme niekoľko hrobov, na ktorých ilustrujeme výpovedné možnosti analýzy ľudských pozostatkov. Pri analýze sme sa zamerali predovšetkým na biologický vek, morfológické pohľadie a paleopatologické zmeny, ktoré možno pozorovať na kostiach, ako aj na anatomické odchýlky.

V hrobe 53 sa nachádzala zle zachovaná, neúplná kostra dieťaťa vo veku 1–1,5 roka. Hroby 265 a 280 obsahovali kremačné pozostatky dospelých mužov. V hrobách 332 a 370 sa našla pomerne dobre zachovaná, ale neúplná lebka a postkranialny skelet ženy vo veku 30–40 rokov a mladistvého vo veku 17–19 rokov.

Antropologický materiál bolo možné jednoznačne identifikovať pre 57 kostrových a 33 žiarových hrobov. Okrem toho sa kostené pozostatky našli aj v deviatich jamových hrobách. Odkrytý bol aj jeden hrob bez archeologického materiálu. V kostrových hrobách bolo identifikovaných 9 mužov, 16 žien, 5 mladistvých a 28 detí. V jamových hrobách sa našli pozostatky detí, ale aj dospelých mužov a žien. Väčšina zistených patologických stavov sa u pravekého obyvateľstva vyskytuje bežne, okrem *hyperostosis frontalis interna* (HFI), ktorá bola rozpoznaná u ženy vo veku nad 40 rokov (hrob 101).

Obr. 1. Kostené pozostatky dieťaťa z hrobu 53.

Obr. 2. Žiarové pozostatky z hrobu 265.

Obr. 3. Žiarové pozostatky z hrobu 280.

Obr. 4. Kostené pozostatky zo ženského hrobu 332.

Obr. 5. Kostené pozostatky mladistvého z hrobu 370.

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