

BRIEF COMMUNICATIONS

Upper Palaeolithic infant burials

Decorations on the bodies of newborns indicate that they were probably important in their community.

Several adult graves from the Stone Age (Upper Palaeolithic period) have been found but child burials seem to be rare, which has prompted discussion about whether this apparently different treatment of infants could be significant^{1,2}. Here we describe two recently discovered infant burials from this period at Krems-Wachtberg in Lower Austria, in which the bodies were covered with red ochre and decorated with ornaments and were therefore probably ritually buried. These findings indicate that even newborns were considered to be full members of these hunter-gatherer communities about 27,000 years ago.

The Upper Palaeolithic sites in eastern Austria have been reinvestigated over the past decade. The loess sequences around Krems have been of particular interest, with surveys, test trenches and drilling-core analysis yielding insight into settlement patterns between the rivers Danube and Krems. Excavations at Krems-Hundssteig³ and Krems-Wachtberg⁴ (see supplementary information) have provided detailed information about the spatial organization of these camps.

In the first campaign at Krems-Wachtberg, an extraordinarily well-preserved living floor, radiocarbon dated at $26,580 \pm 160$ years before present (specimen Poz-1290) was found. It contained items of Gravettian (Upper Palaeolithic) culture, such as lithic artefacts and ornaments, as well as faunal remains, charcoal, ochre and a fired piece of clay bearing a human fingerprint⁵. A double infant burial was discovered in 2005 ('burial 1') and a single infant burial in 2006 ('burial 2').

Each burial was recovered as a block, which was analysed by computer tomography and laser scanning of the surface layers. Burial 1 was in a 40-cm-long pit and the bodies were overlaid with an adult mammoth scapula, supported by part of a tusk. The two skeletons, which were very well preserved, were embedded in red ochre; individual A (Fig. 1a, bottom) was decorated with more than 30 ivory beads (shown enlarged in Fig. 1c). The developmental stage of a deciduous incisor of individual B (Fig. 1a, top) allowed the estimation of the age at death to be perinatal (ninth to tenth lunar month). The equal lengths of both right femora indicate that the newborns were the same age at death; their contemporaneous burial suggests that they were twins. The auditory ossicles of individual A (Fig. 1a, bottom) were also recovered.

Burial 2 (Fig. 1b), located about 1 metre north of burial 1, is of a single individual. From the degree of mineralization of the upper incisors, this infant must have died at 0–3 months after birth. The subsidence of the cultural layer above the pits provides evidence that all three infants were buried at the start of the settlement at the site.

The technology, the structure of the camp, and the evidence of ritual activities (use of red ochre, ornaments and the covering of the twin burial with a mammoth scapula) at Krems-Wachtberg attest to its close affinity with the South Moravian sites Dolní Věstonice and Předmostí⁶.

Nothing comparable to these burials of such young Upper Palaeolithic individuals has been

found before. They therefore expand the debate about Gravettian ritual(s) and add to the sparse sample of Palaeolithic human remains found so far in Europe⁷. Moreover, these well-preserved fossils of extremely young individuals will contribute important evidence to the study of the ontogeny of early modern humans.

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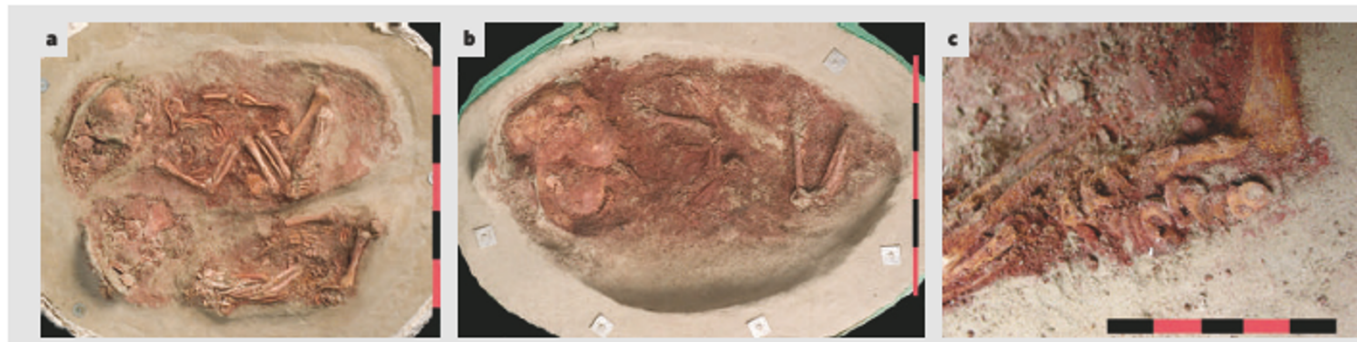


Figure 1 | Upper Palaeolithic burial site at Krems-Wachtberg in eastern Austria. **a**, Double burial of two newborns (burial 1, excavated in 2005). These are in a flexed position on their left side, with their skulls oriented to the north and facing east. More than 30 ivory beads were found near the pelvis of individual A (at the bottom of the photo; enlarged in **c**). Both were embedded in a thick layer of red ochre and covered by the scapula of

a mammoth. **b**, Burial of an infant embedded in a thick layer of red ochre (burial 2, excavated in 2006) in a flexed position on its right side; the skull is oriented to the south. (Photographs: Natural History Museum of Vienna.) **c**, Detail of ivory beads associated with individual A in burial 1 at Krems-Wachtberg. (Photograph: Prehistoric Commission, Austrian Academy of Sciences.) Scale rules marked in 5 cm (**a, b**) and 1 cm (**c**).