

DNA cracks the mystery of hugging skeletons: First same-sex grave of two women who were neither sisters nor cousins

May 26 2026, by Sanjukta Mondal



Credit: *Journal of Archaeological Science: Reports* (2026). DOI: 10.1016/j.jasrep.2026.105792

Every inch dug deeper into the soil can reveal something that changes

how we perceive ancient societies. A multiyear excavation near the 13th-century Cathedral of the Exaltation of the Holy Cross in Opole, Poland, unearthed a unique burial where two skeletons were arranged to hold each other in a mutual embrace.

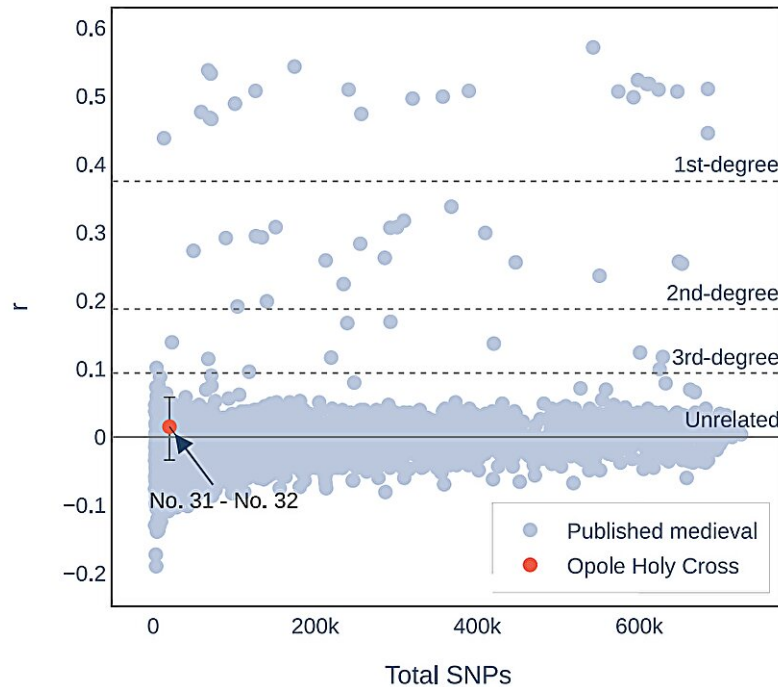
A [study](#) carried out DNA analysis on the skeletons, nicknamed the hugging skeletons, and found that they belonged to two females who were not related to each other. They were not sisters, mother and daughter, or even cousins, but what they were to each other remains a mystery.

What is clear, however, is that this grave provides the earliest genetically verified evidence of a same-sex burial in medieval Poland. The findings are published in the *Journal of Archaeological Science: Reports*.

Buried in a hug

Burial sites provide archaeologists with a historical window into the social and cultural norms of past civilizations. Scientists have long studied double and multiple burials to understand a society's funeral customs and the way people viewed social bonds in death.

To interpret the relationship between those buried together, researchers rely on contextual clues—the positioning of the skeletons relative to one another, along with their ages and sexes. [Ancient DNA](#) (aDNA) analysis, which can reveal both age and biological kinship, often becomes the deciding factor that either confirms or completely overturns those interpretations.



Genome-wide estimates of biological relatedness between the individuals from Opole. Credit: *Journal of Archaeological Science: Reports* (2026). DOI: 10.1016/j.jasrep.2026.105792

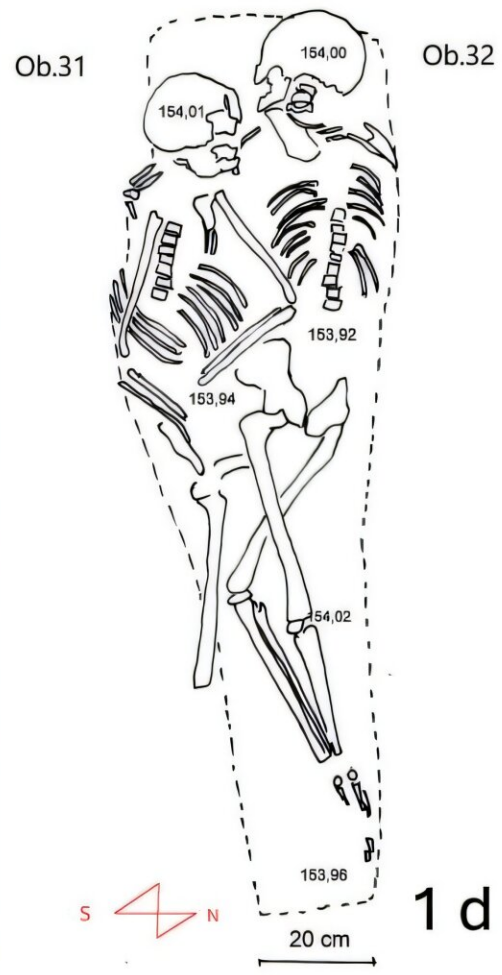
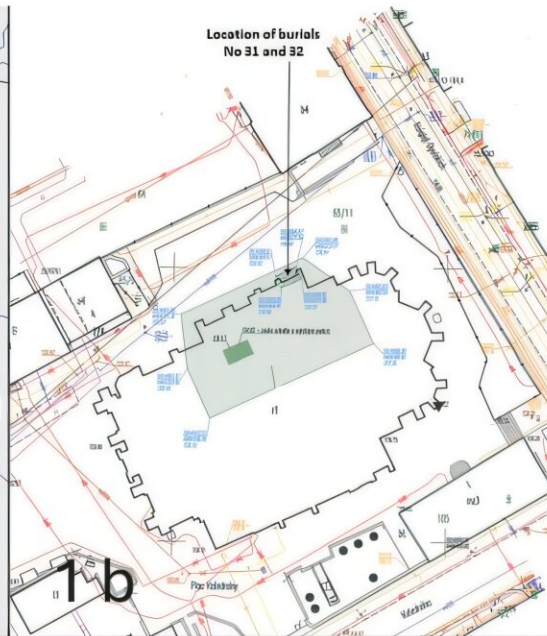
During an archaeological dig at the Cathedral in Opole, between 2022 and 2023, researchers unearthed 46 burial sites: 36 from the church cemetery and 10 inside the church premises. The one that stood out most was the burial of the hugging skeletons.

One skeleton lay flat on its back in a typical medieval burial position. The other was placed in an unusual pose—turned onto its side or stomach, with the right leg bent at the knee.

Together, their bodies were carefully arranged to resemble an embrace: the sideways skeleton's right arm tucked beneath the other's neck, while its left arm rested across the other skeleton's chest. Their grave was

located close to the temple walls, a highly desirable and prestigious resting place in the Middle Ages, mostly reserved for the elite.

When researchers first studied the remains, the shape of the bones indicated that both individuals were around 40 years old at the time of death. The embracing pose led them to believe the two were lovers. However, since the bones were in poor condition, they could not determine the sex of the skeletons with certainty from visual examination alone.



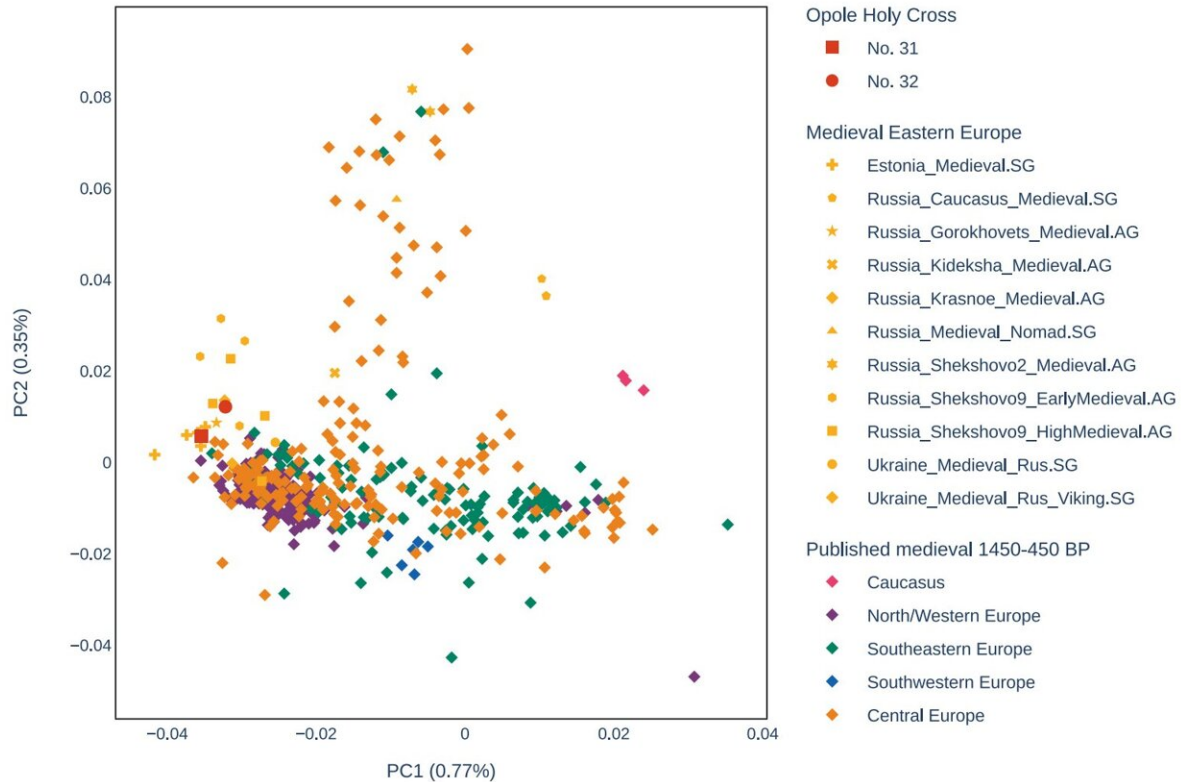
Context and spatial relationships of the double burial from the Cathedral of the Exaltation of the Holy Cross in Opole, Poland. Credit: *Journal of Archaeological Science: Reports* (2026). DOI: 10.1016/j.jasrep.2026.105792

Bond identity

For a clearer picture, the researchers turned to aDNA analysis. They extracted samples from the molar teeth and the [petrous bone](#)—a dense part of the inner ear known for preserving DNA over centuries.

The team sequenced the samples to determine the sex, kinship and ancestry. To ensure there was no cross-contamination with modern DNA, they checked for [deamination](#), a chemical process where DNA loses the amine group ($-NH_2$) over time and is a marker of aDNA.

DNA analysis proved that both individuals were genetically female and were not close blood relatives. They couldn't find signs of the plague or other infectious diseases, nor were there signs of physical violence on the bones. They were of local ancestry, as their genetic makeup was similar to that of those living in Eastern and Central Europe at that time.



Principal component analysis of two individuals from the Holy Cross Cathedral Cemetery in Opole, Poland (marked in red) and previously published medieval (1450–450 BP) populations. Credit: *Journal of Archaeological Science: Reports* (2026). DOI: 10.1016/j.jasrep.2026.105792

What connected the two individuals remains uncertain. Their relationship may have been spiritual, professional, institutional, or simply rooted in a deep social connection. Researchers also point to the possibility of fictive kinship, a practice in which unrelated people formed family-like bonds through social alliances, adoption, or communal identities.

This first genetically confirmed same-sex double burial became a groundbreaking discovery because the pair had long been assumed to be

a male-female couple. Instead, the grave revealed a far more complex picture of social relationships in medieval society.

More information: Agata Cieřlik et al, Ancient DNA analysis sheds light on two individuals buried in a mutual embrace at the Exaltation of the Holy Cross Cathedral in Opole, Poland, *Journal of Archaeological Science: Reports* (2026). [DOI: 10.1016/j.jasrep.2026.105792](https://doi.org/10.1016/j.jasrep.2026.105792)

© 2026 Science X Network

Citation: DNA cracks the mystery of hugging skeletons: First same-sex grave of two women who were neither sisters nor cousins (2026, May 26) retrieved 26 May 2026 from <https://sciencex.com/news/2026-05-dna-mystery-skeletons-sex-grave.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.