

First genetic evidence from medieval plague victims suggests Black Death reached Southern Italy

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Graves containing the remains of two men (aged between 30 and 45 years) are the first evidence of *Yersinia pestis* infection, the bacteria responsible for plague, in 14th-century Southern Italy, according to new

research being presented at the European Congress of Clinical Microbiology & Infectious Diseases (ECCMID).

"The retrieval of plague ancient DNA from the teeth of two adults buried at the Abbey of San Leonardo in Siponto is a discovery of national importance, as it is the first related to the second plague pandemic (Black Death) in Southern Italy", says Dr. Donato Raelle from the Istituto Zooprofilattico Sperimentale of Puglia and Basilicata in Foggia, who led the research.

"We were very suspicious when we unearthed 14th-century coins from the clothing of one victim and more hidden in a bag tied around the waist of the other, which suggests that the bodies were not inspected to confirm cause of [death](#)."

In the mid-14th century Europe was devastated by the Black Death, a major plague pandemic that wiped out up to 60% of the population. The plague reached the shores of Sicily in 1347, and ravaged large cities and towns in northern and central Italy. When the first wave of Black death had been concluded in the winter of 1348, more than a third of Italy's population had died. Although cases of Black Death are reported in several historical documents no [burial sites](#) have undergone DNA analysis in the South of Italy.

The Abbey of San Leonardo in Siponto (Apulia, Southern Italy) was an important religious and medical centre during the Middle Ages where traders and travellers stopped to rest and recuperate. It was a crossroads for pilgrims heading along the Via Francigena to the Sanctuary of Monte Sant'Angelo, and for merchants passing through the harbour of Manfredonia.

The two single graves were discovered during an excavation of a section of the Abbey's cemetery that was used for burial at the end of the 13th

beginning of the 14th century.

The first victim was a male (30-35 years old). He wore a belt with a rectangular iron buckle with a shaft, found flattened on his right femur. Most likely tied to this belt was a small bag which contained 12 denarii (Roman silver coins) found still stacked under his leg.

The second victim was an adult male (45 years old). He was buried fully clothed and had some personal items on him including iron and bronze rings, one with pitting, and the end of a lace; and numerous grains of dark vitreous material in his left hand that could be a rosary.

The man guarded 99 alloy Deniers tournois coins from Frankish Greece (last decades of the 13th century—the first quarter of the 14th century) and one silver Gigliato issued in name of Robert of Anjou (1309-1343), found in piles, probably inside bags hidden in various parts of his clothes.

Given that the dating of the burial and coins fits the arrival of the Second Pandemic in Europe, the experts suspected that the adults might have died during the Black Death or from other [infectious diseases](#) that were prevalent at the time, such as malaria, tuberculosis, or epidemic typhus and Malta fever (brucellosis).

To provide more evidence, three teeth from each individual were sent to the Istituto Zooprofilattico Sperimentale della Puglia e della Basilicata for DNA analysis, along with two additional unrelated human teeth (negative controls).

Four teeth of the adults in the graves tested positive for *Y. pestis*, and were highly similar to previously investigated plague victims from other parts of Italy and had identical strains of *Y. pestis*.

"The Abbey of San Leonardo was a key point along a system of pathways that formed part of The Via Francigena, a major medieval pilgrimage route to Rome from the north, and was an ideal site from which plague could be spread", says Raele.

"We haven't yet fully figured out the extent of pandemic waves during the Black Death in the south of Italy. In fact, the DNA of *Y. pestis* is about 300 years older than the previous one linked to a mass grave dating back to the late 1600s and reported by our researchers in Foggia. Consequently, our results contains precious details to better understand the magnitude of [plague](#) throughout Italy."

Provided by European Society of Clinical Microbiology and Infectious Diseases

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