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# The Justinianic Plague's Origins and Consequences

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## **Authors' contributions**

*This work was carried out in collaboration between both authors. Author GBC designed the study and wrote the first draft of the manuscript. Author IC managed the literature searches. Both authors read and approved the final manuscript.*

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## **ABSTRACT**

The bubonic plague is an extremely old disease (apparently from the late Neolithic era). The so-called "Justinianic plague" of the sixth century was the first well-attested outbreak of bubonic plague in the history of the Mediterranean world. It was thought that the Justinianic Plague, along with barbarian invasions, contributed directly to the so-called "Fall of the Roman Empire."

*Keywords: Plague; pandemics; history.*

## **1. INTRODUCTION**

The bubonic plague is an extremely old disease, and scientists have detected the DNA of the pathogen that causes it—the bacterium *Yersinia pestis*—in the remains of late Neolithic era [1]. The limited details in historical texts have led scholars to question whether the causative agent of Justinianic Plague was truly *Yersinia pestis*, a

debate that was only resolved recently through ancient DNA analysis [2-4].

Three major plague epidemics have been recorded worldwide so far: the "Justinian" plague in the 6th century, the "Black Death" in the 14th century and the recent 20th century pandemic [5].

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The plague first hit cities in the southeastern Mediterranean, and moved swiftly through the Levant to the imperial capital of Constantinople. It seems that the plague arrived in Constantinople in 542 CE and the outbreak continued to sweep throughout the Mediterranean world for another 225 years, finally disappearing in 750 CE [1,6].

It is difficult to approximate the overall mortality rate due to the 542 plague, because of the lack of demographical data. Still, all the evidence suggest that no other plague in antiquity was so deadly [1,6].

By the spring of 542 CE, it had found its way to Constantinople, the capital of the Roman Empire. Syria, Anatolia, Greece, Italy, Iberia and North Africa: none of the lands bordering the Mediterranean escaped it [1].

## 2. DISCUSSION

The so-called “Justinianic plague” of the sixth century was the first well-attested outbreak of bubonic plague in the history of the Mediterranean world [6].

Because there have been multiple pandemics of bubonic plague in history, scholars sometimes refer to the Justinianic Plague as the “First Plague Pandemic” so we can distinguish it from the “Second Plague Pandemic” in the 14<sup>th</sup> century (also known as the “Black Death”) and the “Third Plague Pandemic” in the 19<sup>th</sup> century [7,8].

Our best ancient historical source is Procopius of Caesarea (in modern Israel), a high official in the Roman government, who lived in Constantinople during the first wave of plague from 542-543 CE. Procopius offers many insights into the plague’s causes and symptoms, describing the telltale buboes, or swollen lymph nodes, as well as its extensive death toll and its social and psychological impact [6].

Another great plague source is John of Ephesus (in modern Turkey), a Christian bishop living in Syria who lived at the same time as Procopius. He wrote about the plague in Palestine and Syria, and his narrative aligns with Procopius’ account in interesting ways; it’s clear that they are both discussing the same disease [1,7].

We learn, for instance, that the number of dead from the disease quickly outpaced families’

capacity to bury their relatives properly. Strikingly, both witnesses report that the situation became so bad in Constantinople that Justinian’s government had to direct the removal of bodies from the city and their mass burial outside the city [1,5].

Judging from the symptoms described by Procopius and John of Ephesus, the plague of 542 was mainly bubonic, but of a strain particularly open to complications [1,3].

The emperor Justinian, who resided in the imperial capital of Constantinople, was himself reportedly a casualty of the disease, although he did not die from it [1,5].

For many centuries, historians could only speculate that the disease that sickened Justinian and caused so much suffering in Constantinople and Syria was truly bubonic plague. Scientists, however, have helped historians answer this question by developing techniques for extracting and analyzing DNA samples from ancient human remains [7].

Thanks to the recent work of palaeogeneticists, who were able to isolate and identify the DNA of *Yersinia pestis* from the dental pulp of 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> century human teeth, we now know definitely that bubonic plague circulated around the Byzantine and former western Roman Empire at this time [9].

The first effects of the plague were famine and inflation. Justinian’s legislation of price control in 544 seems to have been successful. But, in an economy that was largely agricultural, the lack of workers at harvest time had disastrous consequences. The shortage of labour caused by deaths of plague victims and by the protracted convalescence of survivors must have been acute [10].

## 3. CONCLUSIONS

It was thought that the Justinianic Plague, along with barbarian invasions, contributed directly to the so-called “Fall of the Roman Empire”.

This catastrophic event had a global, totalizing impact (it killed millions of inhabitants, paralyzed the economy, destabilized the army and probably brought the end of Antiquity) [11].

For more than two centuries, the plague epidemics paralyzed most trade and commercial exchanges. Moreover, the Justinian plague, halting the consolidation of the influence of the

Eastern Roman empire over some Western regions (including Italy and Northern Africa, which were ruled by Barbarians), supported the development and rise of a number of Roman-Barbarian kingdoms. It may therefore be suggested that the Justinian plague occurred at a very critical historical moment, which represents a real watershed between the Ancient World and the upcoming Middle Ages [10].

## CONSENT

It is not applicable.

## ETHICAL APPROVAL

It is not applicable.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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