History of malaria: ‘Ancient pathogen DNA’ reveals how devastating disease has impacted humans over thousands of years

Malaria, caused by protozoa parasites of the genus *Plasmodium* and transmitted by female *Anopheles* mosquitoes, is a major threat to human health worldwide. An estimated 247 million cases and 619,000 deaths were reported in 2023.

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Knowledge of the parasite’s historical infection distribution beyond its current endemic areas and evolutionary history, particularly how they spread and influenced human populations, remains largely unknown and there is currently debate over when, where and how *Plasmodium* emerged as a human pathogen.

Many factors (such as evolutionary constraints, human genetics and motility, mosquito viability, and climate) restrict the geographic distributions of these parasites, both today and historically. Biomolecular research suggests that *P. falciparum* emerged as a zoonosis from gorillas in sub-Saharan Africa somewhere between a few thousand and half a million years ago.

Extracting “ancient” DNA (aDNA) of pathogens preserved in human bones is deepening our knowledge of the evolutionary histories and global spread of key pathogens; however, retrieving ancient DNA from *Plasmodium* species has largely been unsuccessful, until now.

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