

The predictive power of palaeopathology

As palaeopathologists, we could not agree more with AbdulRahman A Saied and colleagues' statement that "[a]nalysis of historical specimens will deepen our understanding of virus evolution, enhancing our ability to predict and interpret the impact of various genetic changes."¹ We also value their reference to the potential antiquity of coronaviruses, as their evolutionary history probably extends further back in time than previously estimated. However, caution should be implemented when attributing the power of such strong predictions to the field of palaeopathology, since the histories of certain infectious diseases are far from being completely elucidated; this proves even truer for ancient Egypt.

Indeed, in their list of pathogens detected in ancient human remains from Egypt, Saied and colleagues mention how RNA poliovirus was found and reference a 1900 Mitchell study.¹ It should be noted that no mention exists in that study of a successful isolation of the virus and Mitchell could hardly have done so, since the very notion of viruses had barely started to emerge in

the final decades of the 19th century, and would only be consolidated in the 20th century. The poliovirus would be discovered in 1908 by Karl Landsteiner's Viennese team, and the serotypes of the poliovirus would become immunologically known in 1931, thanks to the Australian researchers F M Burnet and J Macnamara.² Additionally, Mitchell's diagnosis was refuted by Rosellini.² The very presence of poliomyelitis in ancient Egypt remains a very heated debate and no conclusive evidence has been offered.³

Moreover, there is no certainty of the presence of smallpox in Egypt, despite studies on tissue collected from the mummy of Pharaoh Ramses V (reigned from 1150 BC to 1145 BC).⁴ An initial assessment proved inconclusive, excluding some vague clinico-dermatological confirmation, and some later evidence was gathered by electron microscopy and immunoprecipitation testing.⁴ Nonetheless, these techniques are not considered sufficient to retrospectively diagnose smallpox, as shown by the case of a 16th century Aragonese mummy.⁵ In the 1980s, dermatological presentation and viral inclusions were regarded as a sufficient body of evidence to prove the presence of ancient smallpox, but

subsequent palaeogenetic analyses proved the disease to be a cutaneous manifestation of hepatitis B.⁵

In conclusion, palaeopathological studies can yield novel information on the antiquity of diseases, but a greater degree of prudence ought to be observed when reporting on successes (some complete, others partial) and predictive potential.

We declare no competing interests.

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Published Online
March 3, 2023
[https://doi.org/10.1016/S2666-5247\(23\)00060-5](https://doi.org/10.1016/S2666-5247(23)00060-5)