



The hand of Lunow-verification of an ancient tale using DNA analysis

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1. Introduction

Verifying (or refuting) tales and legends, like that of the Tsar family [1] or Kaspar Hauser [2] is one side aspect of forensic genetics. We have employed sex determination of mummified muscle tissue to investigate an ancient tale from Lunow, a small village in the north-east of Germany.

2. The tale of the hand of Lunow

In the church of Lunow, a mummified hand is kept in the sanctuary. According to an ancient tale, the hand once belonged to a man who lived in the village some centuries ago: after having been a good father and husband for many years, a strange disease killed his wife and nearly himself. After having recovered his personality was completely changed: he started drinking and neglected his farm. When his father reminded him of his duties, the drunken man attacked him with his fists and seriously injured him. When his sister realized what he had done, she cursed her brother. The man left his house and was never seen alive again: the next morning he was found lying dead in the street. The father of the deceased man survived his ill-begotten son for some weeks only. His daughter buried the father to the right of his son. The next day, when she came to attend to the graves she noticed with terror that the hand of her brother reached menacingly out of the grave. Several attempts to bury the hand were without avail: every morning the villagers found

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the hand of the evil man reached out of his grave. The villagers became afraid and decided to chop the hand off the arm of the body. After having accomplished that, the horror was over and the villagers could live on peacefully. The hand was kept in the sanctuary of the church, where it is still exhibited as a warning for the youth.

3. Materials and methods

One gram of mummified muscle tissue was cleaned with ethanol, cut into small pieces, and extracted using the QIAamp tissue kit (Qiagen, Hilden, FRG).

The extracts were concentrated using microcon spin devices (Amicon, Beverly, USA) and 5 μ l of the remaining extract was used for PCR for the Amelogenin locus as published [3]. The only modification was that 35 instead of 30 cycles were used. Moreover, two STR loci, TH01 and VWA, were typed as described [4].

4. Results and discussion

It is out of question that this ancient legend is beyond scientific reasoning. In the present case however, one additional aspect made the story even less plausible: the mummified hand is very slim (Fig. 1) and could very well be that of a woman rather than a man. The parson of the community thus approached us, and we agreed to perform a gender



Fig. 1. The mummified “Hand of Lunow”.

determination of the hand. As we were not allowed to use bone, we had to confine our study to the mummified soft tissues. Using PCR for the amelogenin locus, the recovered DNA was sufficient to confirm the male origin of the mummified hand, whereas no amplification was possible for the two longer STR loci. We were therefore able to confirm at least one aspect of an ancient tale of horror.

Mummified soft tissue is rarely used for DNA typing as in most cases bone substance, which is a much better protected environment for DNA, is available. Some of the rare cases in which soft tissue was used for typing ancient DNA was the case of the heart of the alleged son of Louis XVI and Marie Antoinette [5] and the Tyrolean Ice Man [6]. However, in most cases only mitochondrial DNA can be typed from such highly degraded tissues. To achieve the goal of the present study, gender discrimination, we nevertheless had to concentrate on nuclear DNA. The handling of material containing ancient DNA is extremely prone to contamination with modern DNA. We therefore tried to minimize this risk by having the typing procedure performed by female technicians and taking extreme caution to avoid contamination. The fact that only the very small and robust amelogenin locus was successfully amplified, but not longer STR systems appears to support the assumption that the DNA typed in that case is highly degraded, as expected for mummified soft tissues.

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