

Of lice and human history

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Dr. Stoneking recently discussed this observation during a presentation on human population history at an international symposium on “Genes, Evolution and Complex Disease,” at the NCBS in Bangalore.

Using the DNA samples of lice collected from different parts of the world, Dr Stoneking and his co-workers tried to infer when the origin of clothing among humans might have occurred. Lice are obligate parasites and there are two main species of lice- the head louse-*Pediculus humanus capitis* (which thrives and lays eggs on the scalp) and the body louse-*P.humanus corporis*, which lives and lays eggs in clothing.

Shedding light on some of the findings he said, “The ecological difference between the head louse and body louse came about when clothing became important to humans. Body lice arose around 100,000 years which implies that clothing became important during this time and the population expansion of lice also happened then.”

Dr Mark Stoneking

He also adds that archaeological evidence such as earliest needles dated back to 40,000 years, thereby almost corroborating the findings. Another discovery was the fact that there is greater diversity in African lice compared to non-African lice.

The cultural angle

Dr Stoneking has also studied the diversity of the Y chromosome and mitochondrial DNA (m-DNA) evidence, among Thai hill tribes, which illustrated interesting aspects of human population history. It was found that genetic diversity is more in the Y chromosome. This reflects the differences in migration patterns.

He attributed this phenomenon to patrilocality “a social practice where females move to the residence of their mate after

marriage. This means that females have higher migration rate. In case of matrilocal groups, it is the opposite practice. “ Within groups, the study showed m-DNA diversity to be lower in matrilocal groups and Y-chromosome diversity to be lower in patrilocal groups.”

On the other hand, between groups, the m-DNA diversity is greater in matrilocal groups and Y chromosomal divergence is greater for patrilocal groups.

Similarly, among the Hindus, with 2000 castes and five varnas, women were allowed to marry higher castes. “This reflects in the upward mobility of the m-DNA and the limited mobility of the Y-chromosome.”

Providing a big-picture perspective on the findings, Dr Stoneking said, “ It shows that cultural patterns can affect human genetic diversity.” The discovery also proves that through out history, women have migrated and moved places more than previously imagined.

Priya Padmanabhan
CyberMedia News, Bangalore