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BILATERAL ASYMMETRY IN NON-METRIC TOOTH CROWN TRAITS IN A SRI LANKAN ABORIGINAL VEDDA POPULATION OF ANURADHAPURA

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Expression of bilateral asymmetry in human non-metric dental traits has been used in anthropology as a measure of population heritability. Recognition of bilateral asymmetry can be interpreted as a reflection of instability in normal development of biological forms. The purpose of the present study is to investigate the pattern of bilateral asymmetry in non-metric tooth crown traits in the Sri Lankan aboriginal Vedda population of Anuradhapura. Such data are of importance in finding reliable population markers in the dentition of Anuradhapura Vedda population of Sri Lanka.

Fifty dental plaster casts of 14 male and 36 female Anuradhapura Veddas aged from 16 to 40 years were made. The frequencies of occurrence of 17 tooth crown traits of the left and right side of the dentition of each individual cast were observed and recorded separately. The Arizona state university dental Anthropology system was adopted for classification of the 17 traits. The traits were considered in terms of just presence (P) or absence (A). The antimeres were expressed as PP, PA, AP, and AA phenotypes. The symmetry in trait expression is derived from $PP+AA/\text{total paired observations}$ while the asymmetric expression is computed as $PA+AP/\text{total paired observations}$ and are expressed as percentages. All grade expressions of observed traits were coded into either “presence” (1) or “absence” (0) categories. With these categories, the Molto’s Bilateral Index (BI) was calculated using the coefficient: $BI = (\text{Bilateral Presence} / [\text{Bilateral Presence} + \text{Unilateral Presence}]) \times 100$.

All analyzed traits presented with very high bilateral symmetry (80% to 100%) except for mandibular first molar protostylid (65.2%). The observed lower BI value of mandibular first molar protostylid suggests that it is the least reliable and stable trait expression in the dentition of the Anuradhapura Vedda and therefore, most affected by genetic and environmental factors during development. These results show the importance of analysis of bilateral asymmetry for assignment of taxonomic and population value of non-metric dental traits.