Health in a Tiwanaku Colony: Analysis of Linear Enamel Hypoplasias as Indicators of Childhood Stress

Abstract: The Chen Chen site in the Moquegua Valley of Southern Peru is the source of one of the largest archaeological skeletal collections in Peru and has been the focus of significant research into the formation of the Tiwanaku state (AD 500-1100), as it impacted population movement, local identity, and quality of life. A new focus of study in this area is the impact of state and local forces on childhood health and inequality. Linear enamel hypoplasias (LEH) result from poor childhood health and provide a powerful means for addressing these issues. Analysis reveals no significant differences in LEH development by sex, age at death, burial location, or cranial modification. Developmental timing of LEH using methods from Reid and Dean (2000, 2006) indicate that the highest frequencies of LEH development occur later in childhood than that reported for the majority of studies. Using ethnographic parallels, it was concluded that the later period of stress observed in this sample may represent the period in a child’s life when they transitioned socially from a protected infant to an older child, exposed to the physical and social stressors of labor. I also present a comparison of data from previous studies using macroscopic recording of linear enamel hypoplasias to those from a new microscopic method using removable dye, which is promising for better discerning defects.