Dental Analysis of Prehistoric Populations in Coastal Ecuador

Cassandra Anne Kwy-San Boyer, M.A., Florida Atlantic University

RESEARCH GOALS

1. Determine changes in human dentition across three different populations in Salango, Ecuador.

2. Infer contextual information for each site and provide potential causes for the changes.

3. Develop osteobiographies of individuals within each population.

METHODOLOGY

Analysis of dental pathologies (Buikstra and Ubelaker, 1994).

• Caries indicates subsistence/diet
• Apical lesions (abscesses) indicate subsistence/diet
• Hypoplasia represents the disruption in childhood growth, which suggests malnutrition or disease
• Dental wear indicates subsistence/diet and behavioral/cultural practices

Other methods include morphometrics, morphological (non-metric) analysis, and osteobiographies. Statistical tests include X² and Fisher Exact Tests

BACKGROUND

Salango is a small, coastal fishing town on the western coast of Ecuador in the Manabí Province. It is located in a valley and contains the “greatest density of prehistoric occupation” in Ecuador (Allan, 1988).

Site 141C

• Guangala Culture
• 100 B.C. – A.D. 600 (Lunniss, 2017)
• N= 12 individuals, 124 teeth

Site 035

• Early Manteño Culture
• A.D. 645 +/- 45 and A.D. 430 (Martinez and Jastremski, 2012).
• N= 14 individuals, 51 teeth

Site 140

• Late Manteño occupation after Spanish contact
• A.D. 1300 – 1600 (Carter, 2008).
• N= 6 individuals, 61 teeth

RESULTS, DISCUSSION, and OSTEObIOGRAPHIES

Site 141C

The individuals in this site have relatively flat wear with a significantly lower prevalence of caries [X= 11.29%; P(0.008)] and abscesses [X= 6.37%; P(0.006)] compared to Site 35, and no difference with Site 140 [P(0.167); P(0.332)]. This suggests this site did not rely on agriculture as the dominant food source. However, there is slight scraping in some individuals’ dentine, which suggest marine resources may have taken precedent over meat consumption.

Individual 141C-8E-1/2/3 (below) did not rely primarily on agricultural food sources, and no hypoplasia is present. However, there is special wear not seen in another individual from any of the other sites (below, left).

Site 35

The individuals in this site have oblique teeth with a significant increase and difference in caries [X= 27.45%; P(0.008)] and abscesses [X= 14.84%; P(0.006)] from Site 141C. This suggests that agriculture is the dominant food source and is causing the increase in caries and subsequent abscesses. There is also a low incidence of hypoplasia [X= 3.92%; P(1)], suggesting the increased agricultural reliance is not affecting childhood development in a significant manner.

Individual 35-2-46 (below) is an adult and has a total of seven (7) abscesses, several of them quite advanced. Of the five (5) present teeth, four (4) presented at least one carious lesion. The pathologies, in conjunction with the oblique wear, suggests this individual relied on agriculture as the dominant food source.

ACKNOWLEDGEMENTS & REFERENCES

Special thanks to la Museo and community in Salango, Dr. Meredith Ellis, Prof. Valentina Martinez and family, Dr. Nicole Jastremski, Dr. Michael Harris, Bryan Coviello, Joshua Giron, Victor Rogers-Phillips, Danielle Simon, and the Department of Anthropology at Florida Atlantic University.