

Strontium isotope analysis on human skeletal remains of the Jomon period from Tokai and Sanyo regions in Japan.

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Ritual tooth ablation was widely practiced in Jomon societies in the Late-Final phases. Two major patterns in ritual tooth ablation, termed type 4I and type 2C, have been recognized. The meaning of this practice as well as the difference of ablation pattern is unclear although it may reflect a formation of heterogeneous social sub-structure. This study performed strontium isotope analysis on Jomon populations in Japan from the Middle to Final Jomon period (ca. 5000-2300 years BP) to identify immigrants. Then, the results were analyzed in relation to sex and type of ritual tooth ablation. The materials were human skeletal remains from four coastal sites along the Inland Sea in the Sanyo region (Ota and Tsukumo shell mounds) and along Mikawa Bay and the Pacific Ocean in the Tokai region (Yoshigo and Inariyama shell mounds). Plants in the surrounding area were also examined to illustrate the geographic $^{87}\text{Sr}/^{86}\text{Sr}$ distribution in each region. Only one immigrant was identified in each of Tsukumo and Ota sample. The large variation in the $^{87}\text{Sr}/^{86}\text{Sr}$ values of local plants in the Sanyo region probably masked potential immigrants in each group. In the Yoshigo samples, individuals with higher Sr isotope ratios in their tooth enamel than seawater Sr values (0.7092) were identified as immigrants (36% of population). The presence of these isotopically identified immigrants among type 4I and type 2C individuals contradicts with the prevailing archaeological hypothesis that type 4I and type 2C individuals are locals and immigrants, respectively. Comparing Sr isotope ratios in plants and seawater with those of tooth enamel, we identified four immigrants among Inariyama samples. Type 4I locals had significantly higher Sr isotope ratios than type 2C locals. This study demonstrated that sex and tooth ablation types had significant relationship with diet and migration of the Jomon people.

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