

Reconstruction of dog diet in Jomon period using carbon and nitrogen isotope analysis

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Dog is the earliest domesticated animal among other livestock. Dog's role as companion animal and support for hunting is different from those of other livestock (e.g. goat, sheep, cattle and horse) which are mainly exploited for foods or labor as food. Because dog diet is similar to human diet in traditional subsistence, reconstructing dog diet is important to evaluate ancient human subsistence over time and space. A number of previous study show that isotope signature (carbon and nitrogen) obtained from ancient dog remains resemble to contemporary human remains.

Recently, a number of dog remain, especially for Jomon period, was excavated and identified in Japanese archipelago. However, the study of evaluating the isotope signature of Jomon dog is very little. Gakuhari et al. (2015) demonstrated the date of two buried dogs in Jomon period using directly radiocarbon dating of dog bones, so that two buried dog were dated to ca. 7300 calBP. In addition, the carbon and nitrogen isotope analysis of bone collagen indicated that the dietary characteristic of two buried dogs is similar to those of human remains from same site.

Here, we report new data of radiocarbon dating and stable isotope analysis from other dog bones in Kamikuroiwa rockshelter site and Higashimyo shellmound. We discuss the dietary characteristic of Jomon dog in Western Japan.

As results, other dogs in Kamikuroiwa rockshelter and 11 dogs in Higashimyo shellmound showed very close ages to two buried dogs in Kamikuroiwa rockshelter, and assigned to the last Initial Jomon and the initial Early Jomon period. Although these results were not consisted with the previous archaeological interpretation, they are important because these dogs were one of the oldest evidence of certain *Canis* domestication in East Asia. In addition, based on carbon and nitrogen isotope analysis, we found that Kamikuroiwa and Higashimyo dogs could be discriminated to three populations with different isotopic patterns. This new finding is important to reconstruct ancient feeding culture of dog and human subsistence for Jomon period.

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