

TRANS-MAMMALIAN PANDEMIC OF INFLAMMATORY ARTHRITIS (SPONDYLOARTHROPATHY VARIETY): PERSISTENCE SINCE THE PLEISTOCENE.

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Interpreting normal structural adaptations and behavior from the osseous record requires distinguishing the healthy from disease state, especially if disease is common. Such is the case for spondyloarthropathy, a subset of arthritis characterized by erosive joint disease, reactive new bone formation, peripheral joint fusion, and a tendency to spine and sacroiliac fusion and erosion. The osseous appearance, skeletal distribution, and distinguishing features of this disorder was therefore delineated in skeletal collections to assess the population frequency and nature of erosive arthritis present.

Erosions were associated with reactive new bone formation, manifested as smooth billowy, sclerotic peri-lesional exuberant bony overgrowth. Wrist, metacarpal phalangeal and metatarsal phalangeal joints were most commonly affected peripheral joints. Although occasional individuals had wide spread disease, less than 5 joints were usually affected.

The first groups analyzed were primates and carnivores. Spondyloarthropathy was present 9 to 31% of bears (present in all species), 4% of large cats Panthera tigris, Panthera leo, Panthera pardus, Panthera uncia, Panthera onca, Felis concolor, Felis pardalis, and Acinonyx jubatus, 10-20% of hyaenidae (independent of species), 5% Proteles cristatus, 3% of Old World monkeys and gibbons, 20% of Gorilla, 9% of Pongo, and 28% of Pan. Fusion of vertebral bodies with syndesmophytes, zygapophyseal fusion, and peripheral joint erosive arthritis and fusion were diagnostic. Spondyloarthropathy was equally represented in zoologic park and wild caught animals, in contrast to osteoarthritis (infrequently found in wild-caught, but common in zoologic park animals). Pleistocene examples include Smiledon californicus and Ursus spaelus. Spondyloarthropathy was also present in 5-8% of extant Elephas maximus, Loxodonta africana, and similarly represented in extinct Mammuthus primigenius, but not found in Mammut. Its frequency in other extant artiodactyls was variable.

Limited individual susceptibility to spondyloarthropathy in felines, aardwolfs, artiodactyls, Old World monkeys, and lesser apes, contrasts with high frequency in other groups, including great apes and bears. Factors related to this mammalian pandemic and its antiquity are explored.