

Abstract

The preservation of the bones and their appearance depends on the conditions in which the individual was buried. The aim of the diploma thesis was to explore protocols, quantify periosteal changes and try to interpret them. For quantification, we chose the upper limb – the *cingulum membri superioris* and *pars libera membri superioris* without the skeleton of the hand (*ossa manus*). We examined skeletal remains of 55 individuals (25 women, 30 men) from the burial site at the 2nd church in Pohansko. The burial site dates back to the Great Moravia period (the end of the 9th and beginning of the 10th century). We recorded periosteal changes in images that we digitized in InkScape. In InkScape, we localized periosteal changes, and using ImageCalculator, we found the area of percentage of periosteal changes on the bone surface. We observed two types of periosteal changes: bone damage (for example absence of periosteal surface, exposed spongiosis) and color changes (for example orange, black or green discoloration). By digitizing protocols and processing them in InkScape, we analyzed the areas of occurrence for individual periosteal changes and, using ImageCalculator, we found the most common area of periosteal changes. The most frequent bone damage was the absence of the periosteal surface and the most frequent discoloration was the orange color. We compared the periosteal changes with respect to the sex of individuals and we examined the difference in the absence of part of the bone (*humerus*). Periosteal changes occur approximately bilaterally symmetrically. The results of the color changes indicate that the orange discoloration localize where the muscles are tightened. We suppose that the cause of the orange color could be iron from myoglobin. In the case of black staining, we found by Raman spectrometry that the cause of the staining was birnessite (Mn-oxide) probably coming from the soil. The green discoloration is probably due to the contact of bones with artefacts containing copper.

key words: taphonomy, quantification, periosteal changes, upper limb, bone damage, discoloration, InkScape