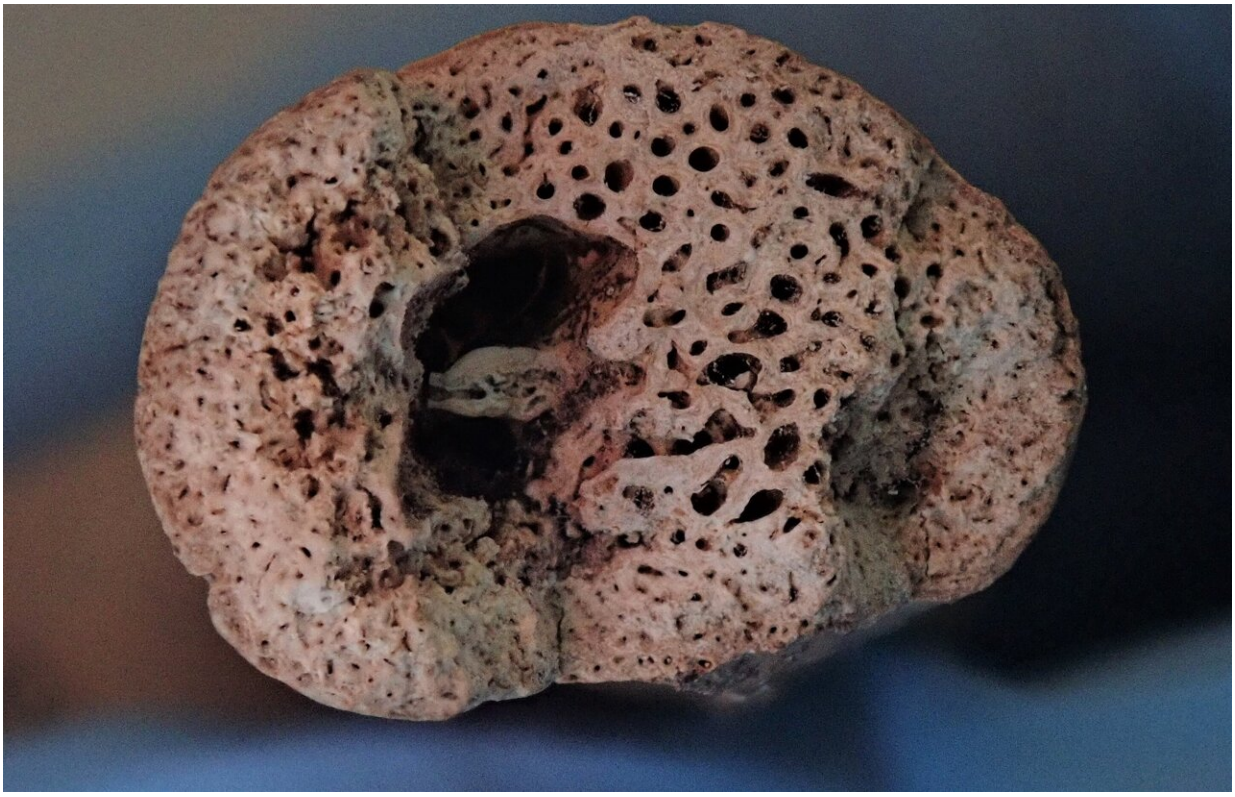
Evidence of bone disease found in medieval skeletons

April 30 2019, by Bob Yirka



Macroscopic changes of PDB like pathology to the right clavicle of SK37 Gr35. Credit: Paul Quigley (photographer)

A large team of researchers from across the U.K. has found evidence of Paget's disease of the bone in multiple medieval skeletons uncovered in northwest Britain. In their paper published in *Proceedings of the National*

Academy of Sciences, the team describes their study of the skeletons and what they found.

Paget's disease of the bone (as opposed to other body parts) is a condition in which one or more bones produce new bone cells faster than normal—the result is deformation, pain and other symptoms, depending on where it occurs. The most common sites are femur, pelvis, lumbar vertebra and the skull. The cause of the disease is unknown, though it is suspected to have both inherited and environmental roots. It cannot be cured, but it can be treated. In this new effort, the researchers studied skeletons excavated at a Norton Priory site in Cheshire—a medieval abbey dating back to between the 12th and 16th centuries.

The study was focused on learning more about the history of Paget's disease of the bone because the disease is most prevalent in people of British descent, and especially so in the area around the Norton Priory site. Earlier evidence has hinted that the disease may have originated there.

The researchers report finding evidence of the disease in 16 percent of the 130 skeletons under study, a very high percentage. In Britain today, the rate is just 2 percent. They also found that the disease impacted more of the skeleton than is typical of modern patients. It also appeared to be more lethal, with many of those afflicted dying as young as 35 years old. For these reasons, the team suspects that the form of the disease found in the skeletons was slightly different from that seen in modern patients. They also report that they found sequences of a protein called p62, which is abnormal in patients with the disease. They also conducted RNA sequencing on the skeletons, and found a malignant tumor in one of the bones, which had a greater expression of a particular RNA molecule—also commonly seen in modern patients.

Normal cortical and trabecular structure of a healthy right clavicle from SK50 Gr48. Credit: Paul Quigley (photographer)

The researchers say their work has led to insights into the history of Paget's disease of the bone, and that more research is required to gain an even better perspective.

More information: Barry Shaw et al. Molecular insights into an ancient form of Paget's disease of bone, *Proceedings of the National Academy of Sciences* (2019). DOI: 10.1073/pnas.1820556116