Osteological Analysis of the skeletons from Halton Castle, Cheshire

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Introduction

A community archaeological excavation was commissioned by Norton Priory Museum and Gardens to explore the ruins of Halton Castle in 2015. This Castle stands on a rocky hill above the former village of Halton and it remains to this day as a prominent feature within the landscape, overlooking the River Mersey. Halton Castle has an extensive history from its establishment and collapse in the Middle Ages and the later sieges of the Civil War. The planned excavations were intended to explore the structures of the outer bailey of the Castle and to further investigate features previously identified during the 1980's excavations. Surprisingly, a discovery during the final days of the excavations revealed two well preserved human skeletons. The bodies of two human skeletons where found buried within two meters of each other however, the results of AMS radiocarbon dating analysis suggest they were buried c.100 to 200 years apart. The discovery of these remains prove to be a mystery as very few skeletons are found in such contexts. Here, this paper presents the osteological analysis conducted on both individuals to identify their pasts, exploring the mystery of the 'bodies in the bailey'.



Figure 1: Burial HCSK001 (a) and HCSK002 (b) in situ

Osteoarchaeological Analysis

HCSK001 and HCSK002 are both reasonably complete skeletons in a reasonable state of preservation (Figure 1). Very few elements are missing. The remains of HCSK001 are that of an adult male with an estimated age of 45 to 49 years, standing at a height of 172.3cm +/- 3.2cm. HCSK002 is an adult female with an estimated age of 30 to 34 years, at a height of 171.6cm +/- 3.5cm (Buikstra and Ubelaker, 1994; Trotter and Gleser, 1952). Both individuals were macroscopically examined for any pathology or trauma on each bone and fragment. A tooth was extracted and subjected to AMS radiocarbon and stable isotopic analysis. The results are presented here.



Figure 2: Oblique fracture (a), spiral fracture (b), periosteal bone growth (c). Radiographs of oblique fracture (d), spiral fracture and Harris line (e) and periosteal bone growth (f).



Figure 3: Caries, periodontal disease and calculous formation



Figure 4: Humeral septal aperture

HCSK001: Results

The most striking pathology observed are the ante-mortem fractures sustained to both tibiae and fibulae, both displaying further complications (Figure 2a&b). The left tibia and fibula exhibit an oblique fracture whereas the right displays a spiral fracture (Lovell, 1997). Unfortunately osteomyelitis and a distinct angulation from mal-union is evident in the left tibia (Figure 2d). This misalignment has led to a shortened length of 10mm in comparison to its counterpart (Figure 2e). Relatedly, there is a focused area of new periosteal bone growth to the distal left femur likely caused by the sustained trauma to the leg (Figure 2c&f). The fracture to the right tibia and fibula is healed with little mal-union. However, healed periostitis is evident in both elements and the right femur. Other pathologies included a compression fracture to the 11th and 12th thoracic vertebrae, Schmorl's nodes and moderate to mild osteoarthritis (OA) is evident across the skeleton. OA is observed in the vertebral column, both acromioclavicular joints and ankle joints which is probably related to the sustained trauma and associated altered gait. Numerous dental pathologies are evident, including periodontal disease, ante-mortem tooth loss, dental caries and an active abscess.

AMS Radiocarbon & Stable Isotope Analysis

The left mandibular 2nd molar was selected for analysis due to minimal root exposure and lack of oral pathology (e.g. caries and calculous). HCSK001 presents a single date AD 1425-1470 which highlights that this individual is from the late Medieval period (Whittock, 2009) and has a varied diet.

HCSK002: Results

In comparison to HCSK001, the macroscopic examination identified fewer skeletal pathologies and trauma. There is evidence of periostitis on both tibiae and a very well healed rib fracture on the right side. There is some very mild linear enamel hypoplasia visible on the mandibular central incisors and using the method compiled by Reid and Dean (2006) it was calculated that the 'stress' happened when HCSK002 was 3 years of age. HSK002 has chronic periodontal disease and root exposure from the alveolar bone receding (Figure 3). There are additional caries present on the right mandibular 4th premolar, 1st molar and the left mandibular 1st molar.. There is also calculus present on the lingual side of the central lower incisors. Alongside this, HCSK002 exhibits a nonmetric trait, an humeral septal aperture to both humeri (Figure 4) which are reported more frequently in females than males (Mays, 2008).

AMS Radiocarbon & Stable Isotope Analysis

The left maxillary 2nd molar was selected due to minimal or lack of oral pathology. However, the dates for HCSK002 are AD 1520-1665 identifying a much wider time period for this individual, spanning the Tudors, Civil War and the Revolution (1485-1714). The diet of HCSK002 suggest a meat based diet, primarily with animals who are corn fed. Overall, the ^{14}C results highlight that these two burials were interred on two separate occasions during the period of use for Halton Castle. Interestingly, further stable isotopic results (Sr and O) show that both individuals were born locally to their place of burial in the northwest of England.

Discussion & Conclusions

One of the most frequently asked questions surrounding the discovery of these burials is why where they buried within the castle? The history of Halton Castle is vast and a violent one. The castle began as a Norman Motte and played an important role in William the Conqueror's efforts to impose Norman authority and was later established as a castle in c.1070 by William Fitzwilliam and remained in use until the time of the Civil War in 1643. However, it is not until the later fortification of larger castles that individuals were buried inside the walls and those who were buried within the walls were those of the prison dead or aristocracy and rich. Unfortunately, the AMS radiocarbon and stable isotope results suggest that these burials are neither. At this point and in the absence of historical burial records for Halton Castle, the presence of HCSK001 and HCSK002 will remain a mystery. Future excavations are planned to uncover archaeological evidence surrounding the theories of Halton Castle and to aim to develop and understanding of the history behind the 'bodies in the bailey'.

References

Buikstra, J.E., & Ubelaker, D.H. (1994). Standards for data collection from human skeletal remains: proceedings of a seminar at the Field Museum of Natural History. **Lovell**, N.C. (1997). Trauma analysis in paleopathology. *American Journal of Physical Anthropology*, *104*(S25), 139-170. **Mays**, S. (2008). Septal aperture of the humerus in a mediaeval human skeletal population. *American journal of physical anthropology*, *136*(4), 432-440. **Reid**, D.J., & Dean, M.C. (2006). Variation in modern human enamel formation times. *Journal of Human Evolution*, *50*(3), 329-346. **Trotter**, M., & Gleser, G. C. (1952). Estimation of stature from long bones of American Whites and Negroes. *American journal of physical anthropology*, *10*(4), 463-514.**Whittock,** M. (2009). Life in the middle ages, scenes from the town and countryside of medieval England. Running Press Book Publishers.

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