



Wounded to the bone: Digital microscopic analysis of traumas in a medieval mass grave assemblage (Sandbjerget, Denmark, AD 1300–1350)



Alexandra Boucherie^{a,b,*}, Marie Louise S. Jørkov^c, Martin Smith^b

^a Centre de Recherche en Archéologie et Patrimoine, Université Libre de Bruxelles, Avenue F. Roosevelt 50, 1050, Brussels, Belgium

^b Department of Archaeology, Anthropology and Forensic Science, Bournemouth University, Fern Barrow, Poole, BH12 5BB, UK

^c Laboratory of Biological Anthropology, Department of Forensic Medicine, University of Copenhagen, Frederik V's Vej 11, DK-2100 Copenhagen, Denmark

ARTICLE INFO

Keywords:

Medieval archaeology
Mass grave
Paleopathology
Traumatology
Lesion morphology
Digital microscopy

ABSTRACT

Battle-related mass burials are considered the most unequivocal evidence of past violence. However, most published studies involve only macroscopic analysis of skeletal remains, commonly arriving only at broad conclusions regarding trauma interpretation. The current study considers a possible avenue for achieving both greater detail and accuracy through digital microscopy.

Patterns of injury were investigated among 45 individuals from a Medieval Danish mass grave (Sandbjerget, AD 1300–1350). Injuries were recorded on every anatomical element, except hand and foot bones. Each was photographed and cast, facilitating remote evaluations. Macroscopic analysis was compared with digital microscopy in order to test the relative utility of the latter in characterizing skeletal injuries (mechanism, weapon class, direction, timing of injury).

The location of 201 observed injuries, mainly sharp force defects, suggested that many lesions were probably not inflicted by face-to-face opponents. Some microscopic features were indicative of a specific lesion type and weapon class. Digital microscopy was therefore demonstrated to be a complementary tool to macroscopic assessment, enhancing feature observation and quantification and serving to compensate for many of the limitations of macroscopic assessment.

1. Introduction

As a form of social interaction, violent acts serve as one option among a range of strategies open to human beings for resolving intra- and inter-group tensions (Merry, 2009). Acts of violence appear to have been ubiquitous, although highly variable in scale and frequency throughout human history. Such behaviour is also culturally specific and subject to wide variability in forms of action that are regarded as socially acceptable (Walker, 2001; Scheper-Hughes and Bourgois, 2004; Judd, 2006; Knüsel and Smith, 2014; Martin and Harrod, 2015). Until recently most attempts to understand the nature of past conflicts, especially for the Middle Ages, have relied upon historical sources (as discussed by Kelly, 2005; Fry, 2007; Livingstone-Smith, 2007). Archaeologists have favored material remains, such as fortifications and weapons, as ostensibly unbiased evidence of offensive and defensive strategies (Kenyon, 1990; Carman and Hardings, 1999; Keeley et al., 2007; Arkush and Tung, 2013). However, such material remains are open to alternative interpretations, such as symbols of wealth or status (Sutherland and Holst, 2005). In this respect, human remains constitute an alternative line of evidence as the most direct and unequivocal

indicators for the prevalence (or absence) of violence in the past (Knüsel and Smith, 2014). Evidence generally consists either of single individuals with one or more injuries consistent with violence or multiple injuries detected on groups of skeletonized remains found in association (commonly referred to as ‘mass graves’). The latter offer opportunities to look for patterns that may inform about the nature of past conflicts between groups (Fiorato et al., 2000; Erdal, 2012).

The ‘mass grave’ is in fact a surprisingly ambiguous concept with limited agreement across osteologists and forensic practitioners concerning its definition. In the current article, we adopt Komar’s (2008) definition: a ‘mass’ burial as a single burial context containing the remains of more than ten individuals. Investigations of such assemblages can provide valuable information from both archaeological and anthropological perspectives. Analysing the physical arrangement of skeletons is essential for understanding how people adapted their mortuary practices to an unusual number of individuals killed during a single event (Cunha and Silva, 1997; Kjellstrom, 2005; Duday, 2008, 2009; Castex et al., 2014; Constantinescu et al., 2015). Considering age, sex and other distinguishing features among these individuals identifies biased demographic profiles (Cunha and Silva, 1997; Fiorato et al.,

* Corresponding author at: Centre de Recherche en Archéologie et Patrimoine, Université Libre de Bruxelles, Avenue F. Roosevelt 50, 1050, Brussels, Belgium.
E-mail address: alexandra.boucherie@hotmail.fr (A. Boucherie).

Table 1
Archaeological sites presenting multiple weapon-related traumas in Europe (C: cranium, PC: postcranium, R: right side, L: left side, AM: antemortem injuries, YA: young adults, MA: middle-aged adults).

Site	Type of burial	Date	N. indiv.	Demography	N. trauma and trauma/individuals	Nature, distribution and interpretation of trauma	References
<i>The reference sample of mass graves</i>							
Visby, Sweden	Mass grave	27.07. 1361	1185	Adult males: majority of YA	n = 456, 0.38/individ.	Sharp force traumas, C: n = 182 (40%), PC: n = 274 (60%), Side: C 69% Left – PC 58% Left, Direction: from below	Ingelmark (1939)
Niesulice Poland	Mass grave	14th century	3	Adult males	NA	Traumas caused by swords, soldiers	Dziedzic et al. (2011)
Sandbjerg, Denmark	Mass grave	AD 1300-1350	45	Adult males: majority of MA	n = 201, 4.46/individ.	Sharp force traumas, C: 100% affected, n = 177, mean 3.9, PC: 6.7% affected, n = 24, mean 0.5, Side: 37.8% R, 40.8% L, 21.4% parasagittal, Direction: 63.7% above, 24.2% perpendicular, 12.1% below, AM: n = 2	The present study, Bennike (2006)
Aljubarrota, Portugal	Mass grave secondary burial	15.08. 1385	400	Adult males: between 20–60 years	NA	Sharp force traumas and a case of amputation, only located on PC, AM: high prevalence	Cunha and Silva (1997)
Towton, England	Mass grave	29.03. 1461	38	Adult males: majority of YA	n = 176, 4.63/individ.	37 sharp force traumas and 6 blunt force traumas, C: 96% affected, n = 133, mean 3.5, PC: 82% affected, n = 43, mean 1.1, Side: Left side dominant on C, Right side on PC, Direction on C: 36% anterior, 32% rear, 32% lateral, AM: 32%	Fiorato et al. (2000)
Uppsala, Sweden	Mass grave secondary burial	06.04. 1520	ca. 60	Adult males: majority of YA	n = 113, 1.88/individ.	Sharp force traumas, C: 60% affected, n = 92, mean 1.5, PC: 18% affected, n = 11, mean 0.2, Side: 43% Right, 48% Left, 9% parasagittal, Direction: 65% above, 23% perpendicular, 12% below, AM: n = 15	Kjellstrom (2005)
Mohács, Hungary	Mass grave	29.08. 1526	353	Adult males	NA	Sharp force traumas, mainly on the skulls	Zoffmann (1982)
Lützen, Germany	Mass grave	16.11. 1632	47	Adult males: majority of YA	n = 69, 1.46/individ.	32 projectile traumas, 21 blunt force traumas and 21 sharp force traumas, C: 10%, n = 40, mean 0.85, PC: 3.5%, n = 29, mean 0.6, Side: 36% right, 41% left, 23% para, Direction: NA, AM: n = 46	Nicklisch et al. (2017)
Wittstock, Germany	Mass grave	04.10.1636	125	Adult males	NA	Sharp and blunt force traumas on the skull and long bones	Eickhoff et al. (2012)
University Square Buchares, Romania	Mass grave	16–17th century	3	Adult males: 1YA – 2MA	n = 24	20 sharp force traumas, 3 blunt force traumas, 1 unknown, C: n = 14, PC: n = 10, Side: 37.5% Right, 33.3% Left, 29.2% parasagittal, Direction: 29.2% above, 62.5% perpendicular, 8.3% below, AM: n = 11	Constantinescu et al. (2015)
<i>Archaeological samples with high prevalence of violence-related injuries</i>							
Stiguna, Sweden	Mass grave	9–11th century	19	Adults: 13 males, 5 females – 1 subadult	n = 12	11 sharp force traumas and 1 blunt force trauma, C: predominating, Massacre?	Kjellström, (2014)
Turin, Italy	Cemetery: single and multiple graves	10th, 11th, 15th century	10	Adults: 7 males, 1 female – 2 subadults, Majority of MA	n > 19	Sharp and blunt force traumas localized on the skull, Side: 67% Right, 22% Left, 11% parasagittal, Direction: majority from above, Riots?	Giuffra et al. (2013)
Čepin, Croatia	Cemetery	1441	22	Adults: 12 males, 7 females – 3 subadults, Majority of YA	n = 82	Sharp force traumas, C: n = 37, PC: n = 46, Side: predominance of the right side, Distribution: 44% above, 38% perpendicular, 18% below, Turkish <i>akıncı</i> raid?	Šlaus et al. (2010)

Download English Version:

<https://daneshyari.com/en/article/6554813>

Download Persian Version:

<https://daneshyari.com/article/6554813>

[Daneshyari.com](https://daneshyari.com)