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FRACTURE TRAUMA IN SLAVONIC POPULATION FROM POHANSKO U BŘECLAVI (CZECH REPUBLIC)

ABSTRACT: Fracture trauma is a common pathological lesion observed in archaeological skeletal material and represents the accumulation of physically traumatic events in an individual´s life. The aim of this study was to document and interpret healed fractures identified in the Slavonic population from Pohansko u Břeclavi 8th – 10th centuries AD. Attention was also focused on differences in types of fracture and fracture rates between populations at Pohansko u Břeclavi from the view of social stratification. Bone fractures were analyzed from 352 adult skeletons. The bones (scapula, clavicula, humerus, ulna, radius, pelvis, femur, tibia, fibula) of each individual were examined for evidence of antemorten fracture. Each bone with macroscopic signs of possible fracture was radiographed in anterio-posterior and medio-lateral projection. The fracture frequency was calculated for the entire bone sample and each bone type. Chi-square tests were used to determine statistically significant variations in the presence of fracture between the sexes and among the sites. The long bone fracture frequency was 1.4% and the majority of fractures was related to accidents. Injuries were more common on the upper extremities (2.22%) compared to the lower (0.46%). The most fractured bone was ulna (3.94%), followed by the radius (2.92%). Males (1.7%) had more fractures than females (0.9%). Four ulnar fractures could be technically classifiable as "parry" fractures. Our findings suggest that this Slavonic population was exposed to a low risk of trauma, probably related mostly to accidents during the everyday life rather than from interpersonal violence.

KEY WORDS: Paleopathology – long bone fractures – Pohansko u Břeclavi – Slavonic population

INTRODUCTION

Pohansko hillfort (fortified settlement) was continuously occupied from the period of Slavic migration, in the 6th century, through to the first half of the 10th century AD. According to Macháček (2005) the function of Pohansko was protection, control and organization of long distance trade, and the professional artisan production was concentrated at Pohansko. Agglomeration of these functions and of this importance could be established only by the person of the highest authority in the country, the ruler, who had one of his residencies there. The centre of the Early Medieval agglomeration in Pohansko was so-called court of a magnate (Dostál 1975).

There are several burial sites at Pohansko. The biggest cemetery is the burial ground around the Church (altogether 395 skeletons). Other smaller burial sites situated within the fortified hillfort are the Forest Arboriculture (78 skeletons) and Forest Mound (34 skeletons), outside the walls two burial sites were found – the South Outer Precincts (189 skeletons) and North-East Outer Precincts (46 skeletons).

The Burial Ground around the church was used by the community occupying the court of magnate. This population, according to grave goods, belonged to the higher social rank. The grave accessories also indicate that warriors were buried at this site. Members of the similar socio-economic standing were also people buried at the South Outer Precincts, where spurs and weapons were found in graves (Macháček 2005).

At the South Outer Precincts there is also evidence of a permanent presence of large troops especially equestrian troops (findings of spurs, bits). Warriors of this military troop lived at southern outer precincts with their families and maybe also with families of their servants (for example artisans, cow-herds and horse-herds etc.). Findings of agricultural tools show that, inhabitants of the settlement partly live of farming. There is also indication of home production such as the manufacture of textiles, some woodworking, manufacturing of leather and fur, and also evidences of forge production (Vignatiová 1992).

Graves found at other burial sites did not contain weapons or equestrian equipment, but according to the finds on the settlements there different artisan activities can be proved.

Different kinds of crafts can be identified there: for example woodworking, hide treatment, broommaking, smithing, precious metal working, jewellery and textile production (Macháček 2005). As indicated by the index of masculinity, at these sites predominate females over males (Drozdová 2001). Inhabitants of these sites belonged to the personnel of the court of magnate.

Generally these graves were poorer than those of the so-called village cemeteries and probably belonged to members of the lowest social rank (Dostál 1982).

It is presumed that the incidence of trauma is affected by the lifestyle and socio-economic standing of the given population and for this reason we have decided to compare these two social ranks.

Although the paleopathological study of Slavonic population has been the subject of many studies, there are not many studies using epidemiological approach and many of them involve only case reports, which are not correlated with the number of individuals and state of preservation of the skeletons or individual bones. To the first studies, which use epidemiological approach, in the study of traumatic changes of the Slavonic population, belong Likovský *et al.* 2008.

Indeed, the fractures analysis throws light upon the everyday activities of the afflicted individual but before considering them, it must be take into account that the paleopathological evidence of trauma is only small part of the total spectrum of injury affecting populations.

MATERIAL

The studied collection was excavated by the Archaeological department at Masaryk University in Brno from 1959 to 2004. The skeletal remains are currently stored at the Department of experimental biology in the molecular and biological laboratory (Drozdová 2005). All bones, except subadults, were inventoried and examined for trauma. A total of 1894 complete long bones were examined, representing the remains of 352 individuals. 203 males and 149 females were observed and age at death was determined for all of them. Raw demographic distribution is in *Table 1*, and *Figure 1* and *2* show the adult mortality pattern of males and females. The adult mortality pattern by sex (*Figure 1* and *2*) indicated that the peak age at death for males occurred at 30–39 years old and at 20–29 years old for females except the North-East Precincts, where the peak age at death occurred at 40–49 years old.

METHODS

Many studies considering different methods of recording long bone trauma used in evaluation of fracture among different populations have been done. We decided to use methods created by Judd (2002) and modified by Likovský *et al*. (2008).

The long bones were divided into three segments and because some of the bones were damaged or incomplete they were considered to be “complete” and included in the bone count only if all three segments of each element were present. Incomplete traumatized bones were considered complete and included in the analysis, non fractured partial bones were excluded from the study.

Long bones (*clavicula, humerus, ulna, radius, femur, tibia, fibula*) with preserved surface were observed for

TABLE 1. Basic demographic structure of the population from Pohansko.

Site	Male	Female	Unsexed adults	Total adults	Juveniles	Total individuals	Masculine index
The Burial Ground arond the Church	145	78	5	228	167	395	**1859**
The South Outer Precincts	27	40	34	101	88	189	**675**
Higher social rank total	**172**	**118**	**39**	**329**	**255**	**584**	
The North-East Outer Precincts	11	6	3	20	26	46	**1833**
The Forest Arboriculture	16	22	0	38	40	78	**581**
Forest Mound	2	8	0	10	24	34	
Isolated Graves	7	13	1	21	34	55	
Artisan comunity total	**36**	**49**	**4**	**89**	**124**	**213**	

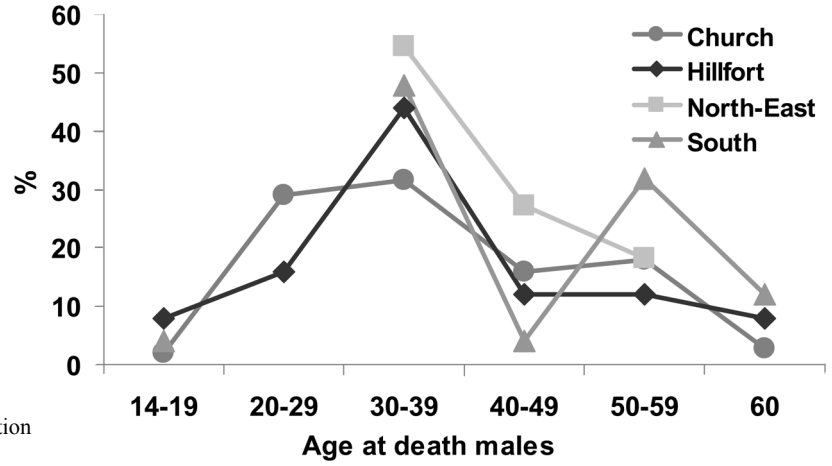

FIGURE 1. Demographic distribution of population from Pohansko (Males).

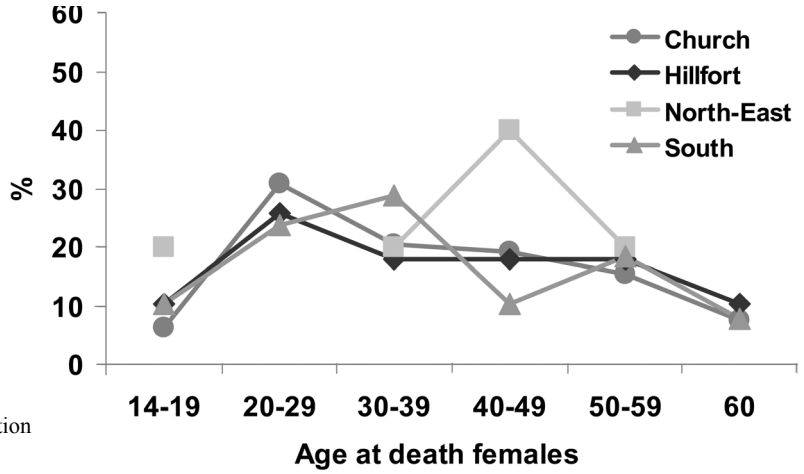

FIGURE 2. Demographic distribution of population from Pohansko (Females).

evidence of ante-morten healed fractures (peri-morten fractures could not be recorded for impossibility of distinguishing them from post-morten damage). Incomplete bones with fractures and all complete bones with preserved surface formed the observable corpus.

Each bone with macroscopic signs of possible fracture (visible callus formation or angular deformity) was radiographed in anterio-posterior and medio-lateral projections (*Figure 3*). Detected fractures were recorded by position along the shaft. The type of fracture, the presence and result of healing were also recorded as well as possible dislocation, shortening, rotation and angulation. Metric data were obtained by macroscopic and radiographic methods. The presence of this deformity can indicate that the fracture had not been treated or had been treated ineffectively.

Evidence of nonspecific infection (periostal reaction) was also recorded, if was associated with fracture. Photo documentation was made concurrently.

The fracture prevalence rate was calculated for each bone element, for males and females and for cemetery sites. Rates were also determined for individuals and also for long bones preserved. The whole sample was analyzed to assess the sex and age distribution of fracture observed. Age categories include: sexed skeleton to 20, 20–30 years, 30–40 years, 40–50 years, 50–60 years, 60 years and more. Skeletons of non sexed juveniles were not considered in our study also because among them there were not found bones with signs of fractures.

As a comparative sample the Slavonic population from Mikulčice (Likovský *et al.* 2008) was used. This sample was created by Likovský *et al*. (2008) and they selected burial sites located within Mikulčice castle itself where archaeologists presume the socially more powerful ranks of Great Moravien society were buried.

Chi-square tests (χ^2) were used to determine statistically significant variations in the presence of fractures between the sexes and among the sites, as well as the fracture location. Yate's correction (χ_c^2) for continuity was applied to small samples (less than 5) the level of significance chosen was 0.05.

RESULTS AND DISCUSSION

Table 2 presents the total number of bones fractured in Slavonic population from Pohansko u Břeclavi. The prevalence of fractures in the different burial sites examined in this study is shown in *Tables 3, 4* and *5*. The fracture frequency for individuals was 7.4% as 26 of the 352 individuals sustained one fracture. A total of 1.894 long bones were observed and 26 healed fractures were discovered, resulting in a long bone fracture prevalence 1.4%.

In the group of males (203 individuals), 19 fractured bones in a total of 19 individuals were found. In the population of males, this represents 9.4% individuals with fractures and 1.7% fractured bones from 1.106 long bones. In the group of females (149 individuals) a total of 7 fractures were discovered in 7 individuals. In the population of females there are 4.7% individuals with fractures and 0.9% fractured bones from a sample of 760 long bones. The distribution of fractured bones between sexes is in Table 2, 3, 4 and 5. Males comprised a greater proportion of fractures than females for all burial sites. But statistically a significant difference was not found. The statistically significant difference was identified between fractures of upper and lower limb when the upper limb was affected more often ($\chi_c^2 = 9.07$, $p = 0.0026$).

FIGURE 3. Grave No. 13 (The Burial Ground around the Church). Healed fracture of distal end of *ulna* (radiograph).

As can be seen in *Table 2*, in whole sample, *ulnae* (3.94%) and *radii* (2.92%) were the most affected bones, while *femora* (0%) were the least affected, statistically significant differences are seen in *Table 6*.

The mean age at death for individuals displaying fractures is 46.4 years and the most common age at death for males displaying fracture was 35–45 years old and 45–55 years old. Among females the most common age at death was 45–55 years old and over 60 years old (*Figure 4*).

Type of fractures

According to mechanism of injury we can distinguish direct and indirect fractures. The direct fracture in mechanical terms is transverse, which means a horizontal break across the bone. A force is applied at right angles to the small bone surface and the resulting fracture line is perpendicular to the longitudinal axis of the bone, either by accident or by direct blow (Roberts, Manchester 2005). Typically, transverse fractures are caused by a relatively small force delivered to a small area (Lovell 1997). Indirect trauma (occurs in a place other than the point of impact) or rotational force cause oblique or spiral fractures.

The fractures may occur haphazardly, but these injuries may also be intentional or they may occur in self-defence. But in a number of cases it is difficult to determine the difference between accidental and deliberate injuries.

Clavicula: There were identified together six clavicular fractures. More common were fractures of the left clavicle (4 fractures out of 6 on the left side) but the difference was not statistically significant ($\chi_c^2 = 0.16$, $p = 0.6863$). According to the position along the shaft 4 from 6 fractures of the clavicle occurred in the middle part of the bone (*Figures 5, 6*).

Clavicular fractures are the most common outcome of direct force applied to the point of the shoulder, which occur commonly in equestrian sports and cycling as a result of inertia when the horse or bicycle stops suddenly and the rider is thrown forward and lands on the unprotected shoulder (KashiKhan *et al.* 2009). The second peak of incidence is a fall onto an outstretched hand, typical for elderly people, and sustained during low-energy domestic falls (KashiKhan *et al.* 2009). Shaft fractures most commonly occur in young adults (approx. 76%), whereas lateral (approx. 20%) and medial-end fractures are more common in elderly individuals (KashiKhan *et al.* 2009, Višňa, Hoch 2004)). Fracture of anterior portion of the lateral end of the clavicle might have been result of direct blow to the top of the shoulder (*Figure 7*). Incidence of clavicle fractures is assumed to be higher in males and more often the left clavicle is affected (Stloukal, Vyhnánek 1976). The fracture of clavicle were among Slavonic population found almost in all cases on the left side, for example burial sites Mikulčice, Bílina and Libice and was discovered only among males, but there is not explanation for this finding (Stloukal, Vyhnánek 1976).

TABLE 2. The incidence of fractures in the whole population from Pohansko.

	Males						**Females**					
	N	**right**	**%**	**N**	**left**	**%**	**N**	**right**	**%**	**N**	**left**	**%**
clavicula	83	2	2.41	85	4	4.71	55	0	0.00	52	0	0.00
humerus	81	0	0.00	81	1	1.23	60	0	0.00	53	0	0.00
ulna	64	0	0.00	60	5	8.33	41	1	2.44	40	2	5.00
radius	84	1	1.19	65	2	3.08	47	2	4.26	46	2	4.35
femur	119	0	0.00	123	0	0.00	84	0	0.00	83	0	0.00
tibia	102	1	0.98	106	1	0.94	74	0	0.00	72	0	0.00
fibula	30	0	0.00	30	2	6.67	24	0	0.00	29	0	0.00
Total	**563**	**4**	**0.71**	**550**	**15**	**2.73**	**385**	**3**	**0.78**	**375**	**4**	**1.07**

TABLE 3. The incidence of fractures in the population from the Burial Ground around the Church.

	Males						**Females**					
	right			**left**			**right**			**left**		
	N	**n**	**%**	**N**	**n**	**%**	**N**	**n**	**%**	**N**	**n**	**%**
clavicula	66	1	1.52	66	3	4.55	33	0	0.00	25	0	0.00
humerus	61	0	0.00	57	0	0.00	29	0	0.00	24	0	0.00
ulna	43	0	0.00	41	4	9.76	16	0	0.00	12	0	0.00
radius	57	1	1.75	49	2	4.08	20	1	5.00	19	2	10.53
femur	85	0	0.00	89	0	0.00	44	0	0.00	42	0	0.00
tibia	77	1	1.30	81	1	1.23	43	0	0.00	42	0	0.00
fibula	20	0	0.00	21	0	0.00	12	0	0.00	15	0	0.00
Total	**409**	**3**	**0.73**	**404**	**10**	**2.48**	**197**	**1**	**0.51**	**179**	**2**	**1.12**

TABLE 4. The incidence of fractures in the population from the South Outer Precincts.

	Males						**Females**					
	right			**left**			**right**			**left**		
	N	**n**	**%**	**N**	**n**	**%**	**N**	**n**	**%**	**N**	**n**	**%**
clavicula	5	1	20.00	6	1	16.67	10	0	0.00	13	0	0.00
humerus	8	0	0.00	10	0	0.00	12	0	0.00	11	0	0.00
ulna	9	0	0.00	8	0	0.00	9	1	11.11	10	1	10.00
radius	12	0	0.00	9	0	0.00	11	0	0.00	12	0	0.00
femur	14	0	0.00	14	0	0.00	17	0	0.00	15	0	0.00
tibia	8	0	0.00	7	0	0.00	10	0	0.00	9	0	0.00
fibula	3	0	0.00	5	1	20.00	6	0	0.00	6	0	0.00
Total	**59**	**1**	**1.69**	**59**	**2**	**3.39**	**75**	**1**	**1.33**	**76**	**1**	**1.32**

Humerus: There was found only one fracture of the humerus situated in the distal part of medial segment.

In the region of the diaphysis, fractures occur due to direct intense force (violent blow to the arm) or due to fall.

Radius: There was found altogether 7 fractures of the radius, 4 of them occurred on the left side. Four fractures could be assigned as Colle's fractures (two of them occurred among females) (*Figure 8*) and one of them as Smith´s fracture (female, *Figure 9*). There was also found oblique fracture of proximal part of middle segment and indeterminable fracture (because of poor preservation) of distal end.

The fractures of the forearm are considered to be the most frequent localisation of fractures at Pohansko, but simultaneous fractures of both bones of the forearm were not found. Isolated fractures of radius and ulna are most often the result of a direct blow or impact. The most common radius fracture is Colles´fracture. The break usually occurs about 2 cm above the distal end and distal fragment is posteriorly displaced and usually impacted. In Smith's fracture (sometimes called reverse Colle's fracture) is the fracture line angled that the ventral side is more proximally located (Galloway 1999) and usually is the result of falling on the forearm in supination but rotation into the pronation

TABLE 5. The incidence of fractures in the population of lower social rank.

	Males						Females					
	right			left			right			left		
	N	n	%	N	n	%	N	n	%	N	n	%
clavicula	14	0	0.00	13	0	0.00	14	0	0.00	14	0	0.00
humerus	12	0	0.00	15	1	6.67	21	0	0.00	20	0	0.00
ulna	12	0	0.00	13	1	7.69	17	0	0.00	19	1	5.26
radius	15	0	0.00	9	0	0.00	17	1	5.88	19	0	0.00
femur	20	0	0.00	19	0	0.00	22	0	0.00	25	0	0.00
tibia	17	0	0.00	18	0	0.00	21	0	0.00	21	0	0.00
fibula	7	0	0.00	6	1	16.67	7	0	0.00	9	0	0.00
Total	**97**	**0**	**0.00**	**93**	**3**	**3.23**	**119**	**1**	**0.84**	**127**	**1**	**0.79**

TABLE 6. Statistically significant differences between the fracture prevalence of bones.

	clavicula	humerus	ulna	radius	femur	tibia	fibula
	χ^2 p-value	χ^2 p-value	χ^2 p-value	χ^2 p-value	χ^2 p-value	χ^2 p-value	χ^2 p-value
clavicula		2.24	1.17	0.25	6.56	2.04	0.08
		0.1343	0.2800	0.6143	0.0104	0.1535	0.7759
humerus			5.92	3.73	0.04	0.05	0.61
			0.0150	0.0534	0.8401	0.8178	0.4361
ulna				0.33	12.87	6.25	0.48
				0.5661	0.0000	0.0124	0.4897
radius					9.19	3.71	0.07
					0.0240	0.0541	0.7946
femur						0.65	3.30
						0.4202	0.0693
tibia							0.38
							0.5388
fibula							

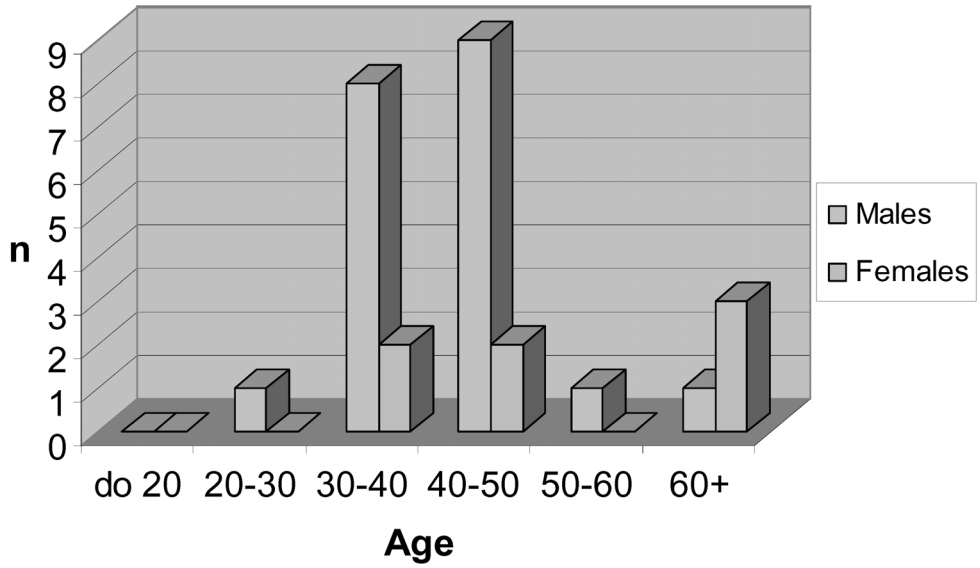

FIGURE 4. Distribution of injured males and females in age categories.

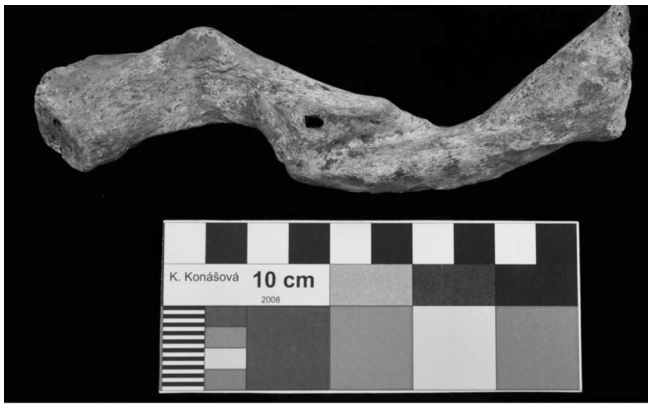

FIGURE 5. Grave No. 224 (The Burial Ground around the Church). Comminuted fracture of middle segment of clavicle.

FIGURE 6. Grave No. 110 (The Burial Ground around the Church). Simple fracture of middle segment of clavicle.

FIGURE 7. Grave No. 82 (The South Outer Precincts). Fracture of acromial end of clavicle.

with a fixed dorsiflexed hand (Ellis 1965) and it may also be due to a direct blow to the back of the hand (Galloway 1999). Specific injuries, such as femoral head injuries or Colles'fractures (nearly always due to a fall upon an outstretched hand), increased with age and were the outcome of fall-related injuries due to physiological factors, such as weakened eyesight and arthritis, which endangered mobility (Judd 2004). On the other hand we have to take into account that Colles´ fracture as result of a fall could also be the consequence of an intentional push during warfare. A simple fracture of the radial shaft is usually a result of direct trauma (Lovell 1997).

Localized periostal reaction was present in one case with fractures of distal radius. Periostal reaction is evidence of nonspecific infection, which is usually a complication of compound fractures and can delay or prevent healing.

In three cases arthrotic changes of distal articular facet associated with fractures were found.

Ulna: 8 ulnar fractures were found altogether at Pohansko and 7 of them occurred on the left side. Four of them could be assigned as "parry" fractures *(Figure 10*), one of them is on the right side and occurred to females. One possible green stick fracture of diaphysis was also found. Other *ulnar* fractures were oblique and situated in the distal part of the bone.

Diaphyseal fractures of the *ulna* can result from either direct or indirect trauma. The fracture of the proximal shaft associated with the dislocation of the *radial* head referred to Monteggia fracture is the most common result of a direct blow to the dorsal part of the forearm or by falling onto an outstretched hand with forced pronation (Višňa, Hoch *et al.* 2004, Lovell 1997). Injuries most frequently associated with interpersonal violence and apparent in archaeological skeletal remains comprise, for example, of distal ulnar shaft fractures with transverse or slightly oblique fracture lines (parry fractures) deemed to be the outcome of defending a blow intended for the head (Smith 1996, Lovell 1997, Judd 2008).

Tibia and fibula: One spiral fracture of the *tibia*, one condylar compression and two oblique fractures of the *fibula* were identified (*Figure 11*).

Diaphyseal fracture of the tibia may be caused by direct or indirect mechanism. If the mechanism of injury is an angular force it will lead to transverse or short oblique fractures of the shaft. Spiral fractures are the result of a twisting force applied to a bone (Gallowey 1999). Crush or compression fractures of the joint surface are often associated with osteoporosis causing weakness of the bone structure (Roberts, Manchester 2005, 91), but in our case is more likely that the origin was traumatic. A fibular fracture is due to its anatomical position vulnerable to direct blow. A fibular shaft fractures without associated tibial fractures are not considered to be serious because they unite easily for the natural splint that the tibia provides (Grauer, Roberts 1996).

According to the definition of open fracture, that the skeletal evidence for open fracture is the superficial infection, osteitic pitting and irregularity of bone surface around the fracture site, or osteomyelitis (Roberts,

FIGURE 8. Grave No. 7 (The Burial Ground around the Church). Fracture of distal end of radius.

Manchester 2005), could be said that there were only two individuals with open fracture (males from grave 7 and 224 from The Burial Ground around the Church) at Pohansko. But it also should be taken into account that infection may have been present before the fracture occurred.

COMPARING

The sample from Mikulčice evaluated by Likovský *et al.* (2008) according to grave accessories, have given rise to the assumption that skeletons belonged to the people of elite status of the Slavonic population. Vyhnánek (1999) supposed that traumatic changes discovered at Mikulčice are probably of accidental origin. According to the Likovský *et al.* (2008) most of the fractures at Mikulčice could be explained by the natural conditions of the area, which was surrounded by many branches of the Morava river, that are frozen over in the winter and so represented a higher risk of falls. The fracture frequency at Pohansko was similar to at Mikulčice except the bone fractured most often, which was the clavicula at Mikulčice and the ulna at Pohansko. At Mikulčice individuals with fractures, represented 7.91% and at Pohansko 7.4%, the difference is not statistically significant. We get similar results from comparing fracture prevalence rates calculated for bone elements, at Mikulčice the fracture frequency without scapula and pelvis is 1.78% and at Pohansko 1.37% but the difference is not statistically significant.

Other comparing was possible only with the British Medieval cemetery population of St. Helen-on-the-Walls and with Late Medieval skeletal populations from Serbia, which are "closest" to our group (Grauer, Roberts 1996, Djurić *et al.* 2006). The frequency of affected individual bones is very low (St. Helen-on-the-Walls was 4.04% individuals with fracture and 0.8% fractured bones and skeletal population from Serbia 0.7% fractured bones) and statistically there is not a significant difference between

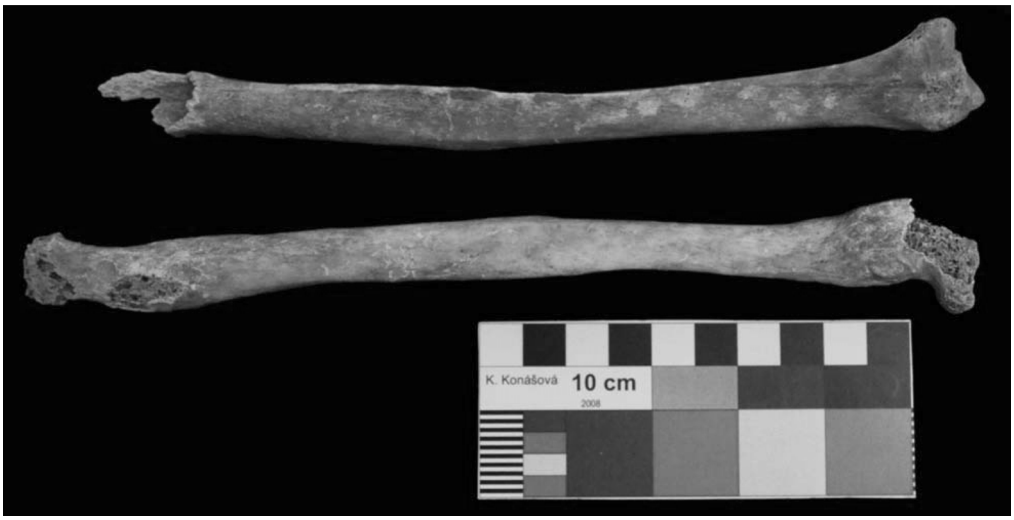

FIGURE 9. Grave No. 190 (The Burial Ground around the Church). Fracture of distal end of radius. (Smith's fracture).

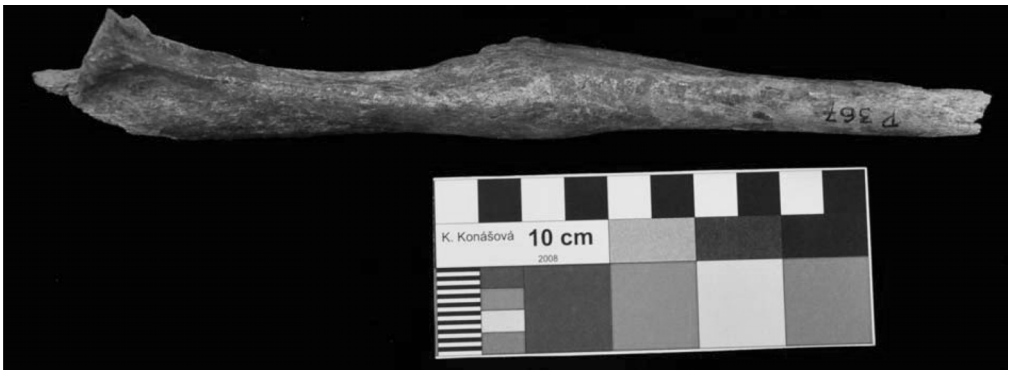

FIGURE 10. Grave No. 367 (The Burial Ground around the Church). Fracture of middle segment of ulna (Parry fracture).

these two samples. On the other hand a statistically significant difference was found between these two samples and population from Pohansko, where the fracture frequency was significantly higher. The difference could be the result of differences in selected sample, because Grauer and Roberts (1996) as well as Djurjć *et al.* (2006) also included non-adult individuals in their analysis.

The analysis of the type of fracture suggests that trauma was not attributed to violent activities. Males display more long bone fractures than females. As in our group fracture of the radius and ulna are considered to be the most frequent in population from St. Helen-on-the-Walls and from Serbia, but Grauer and Roberts (1996) did not focus on the frequency of fractures of the clavicle. Upper extremities were more frequently affected than lower extremities and this statistically significant difference was also observed at Pohansko.

A statistically significant difference between the population of higher and lower social rank at Pohansko was not identified. The difference between sexes of these two social ranks was not statistically significant either.

There could be several reasons why there were no differences found between the lower and higher social ranks. The identification of two different social ranks is very difficult because at the burial ground around the church and also at the South Outer precincts were found graves with abundant accessories as well as poor graves. It is possible that there were buried people of higher social rank and also their servants. It could be interesting and worthwhile to also use the presence of grave accessories for identification of social ranks. And a portion of injuries are attributed to falls over the family pet that usually result in fractures to the upper extremities; more aggressive damage is associated with falls from horses, bovine assaults and falls from animal-drawn vehicles (Judd, Roberts 1999, Björnsting *et al.* 1991) and it is highly probable that the members of higher and lower social ranks were both in contact with small animals as well as with horses or bovines. Also the natural condition of the area was identical for both groups.

It has to be said, that a difference between the fracture frequencies of the urban and rural samples also exists. The life at Pohansko could be comparable rather to life at urban sites than to the rural population. According to the finds at settlements farming was not common at Pohansko and also the natural conditions (floodplain of the Dyje) were not suitable for agriculture production. There arose a network of agricultural settlements in the environs of the Pohansko (Macháček 2005). As at Pohansko, trauma among townspeople was minimal as already suggested Grauer and Roberts (1996).

FIGURE 11. Grave No. 51 (The Forest Arboriculture). Fracture of distal part of fibula.

CONCLUSION

The aim of this study was to document and interpret healed fractures identified in the Slavonic population from Pohansko u Břeclavi 8th – 10th centuries, with a focus on differences in type of fracture and fracture rates between populations at Pohansko from the view of social stratification. Bone fractures were analyzed from 352 individuals. The fracture frequency for individuals was 7.4% as 26 of the 352 individuals sustained one fracture. Of the 26 traumatized persons, 19 were males and 7 females. A statistically significant difference was not found between males and females. In the whole sample the ulnae (3.94%) and the radii (2.92%) were the most affected bones, while the femora was the least affected. A statistically significant difference was identified between fractures of the upper and lower limbs when the upper limb was affected more often. The mean age at death for individuals displaying fractures is 46.4 years.

A statistically significant difference between the two social ranks at Pohansko was not found. The reason for this could be similar natural conditions for both groups and inappropriate identification of members of the two different social ranks.

Life at Pohansko could be comparable rather to life at urban sites than to a rural population. The analysis of the type of fractures, suggest that trauma was not attributed to violent activities.

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