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Short fieldwork report

Human remains from Hoseiniyeh Khanqah, Bidgol, Iran, 2017

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Arān va Bidgol is a twin town located 6km NE of Kashan, on the western flanks of the Iranian central desert. One of old cultic centres in the town is Hoseiniyeh Khanqah (34°03′21″N 51°29′20″E), located in the historical part of the old city of Bidgol (**Figure 1**). *Hoseiniyeh* refers to a specific kind of religious building in the Shi'a branch of Islam, dedicated to the mourning of Husayn ibn Ali, the third Shi'a Imam. On the other hand, *khanqah* is a central place in the Sufi tradition where major ceremonies are performed. Therefore, the name Hoseiniyeh Khanqah suggests that the building was first used by a local Sufi community and was later converted into a sacred place for the Shi'a. Timing of the construction of the building is unknown. The earliest inscription on a metal banner post for Moharram ceremonies dedicated to Hoseiniyeh Khanqah is dated to 1684 CE (AH 1095), but pottery retrieved during restoration activities in and around the building has been attributed to Ilkhanid (13th c. CE) and some sherds to the Seljuq period (11th–12th c. CE).

A crypt, used by the local women to pray and called Chehl Dokhtarān ('forty girls' in Persian), was discovered below the western side of the building. It was accessible through a door and a staircase from the main courtyard of the building, but at some point it had been filled and closed, possibly for several decades. In 2007 during construction work in the storage room near the entrance to *hoseiniyeh*, the crypt was re-discovered through a hole in the corner of its roof. After some initial cleaning it was determined that approximately one-third of the crypt, particularly along the eastern wall, contained a heap of soil with some human bone exposed on the surface.

Rescue excavations at the site were undertaken between September 30th and October 4th, 2017 by the staff of the Department of Archaeology at the University of Kashan. The aim of the operation was to understand the stratigraphy of the deposit along the wall of the crypt and to estimate the Minimum Number of Individuals (MNI) buried within.

Figure 1. Hoseiniyeh Khanqah in Bidgol; approximate location of the crypt is marked with an arrow.

Human remains from *hoseiniyeh* at Bidgol were studied on site during excavation. All individuals and disarticulated elements were measured and described using standard protocols (Buikstra & Ubelaker 1994), with some modifications (cf. Sołtysiak 2010). Sex assessment using metric measurements is based on North Mesopotamian data (Sołtysiak 2010). Stature was estimated using maximum length of the femur or tibia—if femur was not available—with ordinary least square formulae developed for a contemporary Greek population (Nikita & Chovalopoulou 2017).

The deposit contained several hundred disarticulated bones, usually complete or in large fragments and not weathered, with a few exceptions, as well as three partially articulated skeletons laying directly on the floor of the crypt (**Figure 2**). Because the skeletons were not removed from the site, only general descriptions of their elements were collected. In skeleton A, only the upper part was preserved, including the cranium, atlas, scapulae, clavicles, humeri, radii, and ulnae. All other elements were missing, although some of them may have been retrieved from the secondary deposit covering the skeletons. Postcranial elements were gracile suggesting female sex (e.g., vertical head diameter of humerus 42.4mm), but the cranium was more robust (glabella 5, supraorbital margins 4), and therefore sex could not be assessed with any confidence.

Figure 2. Articulated skeletons on the floor of the crypt.

Skeleton B belonged to a 2-year old child, age-at-death was assessed using dental development stage. In this case the mandible was present, with some fragments of the parietal and almost all long bone diaphyses (only the right humerus was missing), left clavicle and scapula, right ilium, and one metatarsal. Finally, skeleton C included the cranium and a row of seven thoracic vertebrae with partially damaged ribs. On this skeleton and around it some other skeletal elements were arranged, including bones that were placed parallel to the previously mentioned row of vertebrae. Below the original elements of skeleton C fragments of wood coffin were still visible on the crypt floor.

Total MNI was calculated as a sum of MNIs for defined age-at-death categories although such a method underestimates the number of adults as compared to the number of subadults (Sołtysiak 2013). There were at least nine adults (number of left tibiae, area of the nutrient foramen), three older children (7-14 years old, number of left femoral midshafts), one younger child (skeleton B and its possible elements retrieved from the dump), and one neonate (represented only by an occipital bone and left pubis). Therefore, the total MNI is 14.

Most Likely Number of Individuals (MLNI, Adams & Konigsberg 2004) irrespective of age-at-death is 17 for tibiae (11 left, 8 right, 5 paired), the most commonly paired element in the assemblage. All long bones were relatively well represented, but

the number of skulls was much lower than expected, with only two complete and one incomplete adult cranium. This suggests that crania were preferentially removed from the deposit.

Five right and five left *ossa coxae* were complete enough for reliable sex and age-at-death assessment. One of them belonged to a 30-35-year-old female and four to 35-50 year old males, as assessed using areas of the pubic symphysis and greater sciatic notch. The preponderance of males was also suggested by the metric data taken from the femora (**Table 1**), but not from the tibiae (**Table 2**). Therefore it seems that both sexes were buried in the crypt. The number of subadult individuals, especially infants, is however much lower compared to an attritional cemetery.

It was possible to score only a few pathological conditions because of the disturbed nature of this assemblage of human remains. Teeth were rarely retrieved from the deposit, but the rate of dental caries was as high as c. 30% (11 cases per 38 preserved teeth), indicating a diet rich in fermentable sugars (cf. Hillson 2005). Dental calculus and antemortem tooth loss were also relatively common and in one complete

Table 1. Adult femora from Bidgol, in order of decreasing size. MaxL – maximum length, EpicB – epicondylar breadth, HD – maximum head diameter, StAP – subtrochanteric antero-posterior diameter, StML – subtrochanteric medio-lateral diameter, MdAP – antero-posterior diameter at midshaft, MdML – medio-lateral diameter at midshaft, MdC – midshaft circumference. All measurements in mm, stature in cm. Asterisks mark uncertain measurements or scores.

No	Side	MaxL	EpicB	MHD	StAP	StML	MdAP	MdML	MdC	Sex	Stature
1	R						34.8	30.8	102.0	M	
1	L	497	86.6	49.3	27.5	34.9	33.1	31.4	100.0		178
2	L	458	85.9	50.2	28.8	31.9	32.1	28.1	94.5	M	168
3	L		85.9							M	
4	L			50.5	27.6	31.6				M	
5	R		85.7	50.7	26.5	29.9	29.5	27.6	88.5	M	
6				49.1						M	
7	L			48.6	25.1	28.6	29.4	26.1	85.0	M*	
8				*47.2						M*	
9	R	418	84.2		26.4	28.9	32.4	25.6	91.0	M**	158
9	L	422	84.9	44.6	25.8	28.5	32.9	25.2	93.5		159
10	R						31.7	26.2	89.0	M**	
11	R	418		44.6	23.8	28.4	27.2	25.4	81.0	F**	155
11	L	408		44.8	23.9	28.8	27.0	26.0	82.5		152
12	R	432		40.3	25.3	29.2	27.9	26.6	84.0	F	159
13	L	441	69.3	40.1	22.4	26.8	28.2	25.2	82.0	F	161
14	R				21.1	26.6				F	
15				*37.3						F	

mandible a large abscess was observed over the right mental foramen (**Figure 3**).

There were some cases of degenerative joint disease in various elements, most of them mild. A few joints with advanced degenerative changes perhaps belonged to the skeleton of one aged male individual. These included three vertebrae (atlas, C7, and one L), the lateral articular surfaces of the sacrum, left 1st metatarsal (eburnation on the distal articular surface), manubrium sterni, and two femora (No 9 in **Table 1**) with extremely deformed proximal epiphyses, osteophytes on the greater trochanter and degenerative joint disease also on the condyles (**Figure 4**). Both shafts were clearly bent in the antero-posterior plane, producing prominent linea aspera (pilasteric index 130.5 on left and 126.5 on right side).

In two right ribs several lytic lesions with smooth edges and no periosteal reaction were observed near the vertebral ends (**Figure 5**). Although reliable diagnosis of

Table 2. Adult tibiae from Bidgol, in order of decreasing size. MaxL – maximum length, PEB – maximum proximal epiphyseal breadth, DEB – maximum distal epiphyseal breadth, MaxNF – maximum diameter at the nutrient foramen, MinNF – minimum (medio-lateral) diameter at the nutrient foramen, CircNF – circumference at the nutrient foramen. All measurements in mm, stature in cm. Asterisks mark uncertain measurements or scores.

No	Side	MaxL	PEB	DEB	MaxNF	MinNF	CircNF	Sex	Stature
1	R		83.0					M	
2	R			56.6				M	
3	R			54.1				M	
4	L		80.0		36.7	24.4	96.0	M	
5	L			53.0	35.6	24.0	94.5	M	
6	L		78.7					M	
6	R		79.1						
7	R			52.6				M	
8	L				33.3	22.1	89.0	M**	
9	L		74.6		32.7	23.8	88.5	M**	
9	R				32.9	24.6	89.0		
10	R	372	78.0	51.3	30.9	22.3	88.0	M**	165
11	L	363	73.1	49.8	32.5	22.3	87.5	F**	160
12	L				32.9	23.6	87.0	F**	
13	L	362	73.3	48.9	32.3	22.2	87.0	F**	159
14	R	360	72.4	51.1	32.8	21.7	86.0	F**	159
15	R		70.4					F	
16	L		*64.9		29.3	19.7	79.0	F	
16	R		66.4		30.0	19.8	78.0		
17	R			*47.0				F	
18	R	344	66.6	45.3	27.4	18.9	75.5	F	154
19	L				28.0	18.6	75.0	F	

Figure 3. Complete mandible with an abscess.

Figure 4. Right femur with advanced degenerative joint disease.

pathological conditions in disarticulated elements is risky, in this case an infectious disease (e.g., tuberculosis) is less likely than a benign tumor, like single-system Langerhans cell histiocytosis (LCH, Kim & Choi 2016). A similar pattern of lytic lesions has been previously diagnosed as LCH in an Islamic skeleton from Tell Songor A in the Hamrin basin (Wada et al. 1987). Another rib, perhaps belonging to a different individual, was bifurcated at the sternal end (**Figure 6**). This is a relatively rare developmental anomaly (Barnes 2013), with a prevalence below 1% (Merks et al. 2005).

Figure 5. Lytic lesion on a rib.

Figure 6. A rib with bifurcated sternal end.

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