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Human Skeletal Remains from the Burial Caves at Sha'ar Efrayim

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During excavations at Sha'ar Efrayim (see van den Brink, this volume), human skeletal remains were retrieved in Burial Caves 1–5, which were in use primarily during the Chalcolithic period. Three of the caves were reused for burial purposes during EB I. The bones were largely damaged following the use of explosives during road construction, rendering it impossible to take measurements, record epigenetic traits, or discern the original posture of the burials. However, teeth were well preserved, allowing for a paleodemographic study that includes estimation of the minimum number of individuals (MNI) in each cave and their age distribution. Age estimation was based upon tooth-development stages in children (Hillson 1993:176–201) and tooth attrition rates in adults (methodology and criteria following Nagar and Winocur, forthcoming). The bones were studied on site, then taken for reburial by official authorities.

Cave 1

Two major burial phases were discerned in Cave 1 (see van den Brink, this volume: Table 1): primary use during the Chalcolithic

Table 1. Skeletal Remains from Cave 1

Period	Locus	Indicative Skeletal Remains	MNI	Age Distribution (Years)
Recent? (near surface)	100, 107, 110	Teeth; very few postcranial fragments, age/sex unknown	1	>10
Chalcolithic	108	Teeth; very few postcranial fragments	1	>20
	113, 122	Teeth	3	15–20, 20–30, 30–50
	116	Teeth; very few postcranial fragments	1	15–20
	119, 120	Very few skull and postcranial fragments	1	>15
	124	Teeth; 12 distal ends of humeri indicating 6 adults and 2 children	8	4–7, <10, 15–16, >15, 20–30, 30–40, 50–60
	102	A vault fragment and a metacarpal	1	>15
	129	Two postcranial fragments	1	?
Chalcolithic?	131	Teeth	13	3.5–4, 6–8, 9–10, 11–12, 15–20, 20–30(×3); 30–40(×2); 50–60(×3)
EB IA	114	Few metacarpal and vault fragments	1	>15
EB IA?	128, 130	Teeth	6 children 6 sub-adults 23 adults	<1, 2–4, 2–4, 4–6, 6–7, 6–8; 10–15(×6); 15–20(×4); 20–30(×4); 30–40(×6); 30–50(×3); 40–60(×5); >60

period, then partial reuse during the succeeding EB IA–B. Some of the EB I burials were separated from the Chalcolithic burials by a stone partition wall. The skeletal remains included cranial and postcranial fragments and teeth, indicating at least 57 individuals of a wide age range. Sex could not be determined. From Chalcolithic loci, at least 22 individuals were identified, the youngest aged 3.5–4.0 years. However, within the EB I and mixed loci (at least 35 individuals), infants were present (Table 1).

Cave 2

The bones from Cave 2 are dated to the Chalcolithic period. The skeletal remains included a few non-diagnostic postcranial fragments and two teeth, indicating at least two individuals whose sex could not be determined (Table 2).

Cave 3

The bones from Cave 3 are dated to the Chalcolithic period. The state of preservation was extremely poor, thus only teeth could be identified as human, representing at least six individuals (Table 3).

Cave 4

The remains from Cave 4 are dated to the Chalcolithic period, EB I, MB II and LB II. While the bones from L145 are attributed to EB I, the other remains could not be precisely dated. The skeletal remains included a few non-diagnostic fragments and teeth, indicating at least 13 individuals of a wide age range whose sex could not be determined (Table 4).

Cave 5

The remains from Cave 5 are dated to the Chalcolithic period. Human bones from Loci

Table 2. Chalcolithic Skeletal Remains from Cave 2

Locus	Indicative Skeletal Remains	MNI	Age Distribution (Years)
111	Few postcranial fragments; upper 3rd molar	1	30–40
117	Few postcranial fragments; upper 3rd molar	1	>20

Table 3. Chalcolithic Skeletal Remains from Cave 3

Locus	Indicative Skeletal Remains	MNI	Age Distribution (Years)
112	Teeth	5	15–20, 20–30, 30–40, 30–50, >60
123, 127	Teeth	3	5–6, 15–20, 30–40

Table 4. Skeletal Remains from Cave 4, Mixed Loci

Locus	Indicative Skeletal Remains	MNI	Age Distribution (Years)
133	Teeth	3	5–6, 20–30, 40–60
138	Few fragments	?	>10
141	Teeth	4	2–4, 15–20, 20–40, >40
142	Teeth	2	2–5, 15–20
143	Teeth	2	15–20, 30–40
144	Teeth	3	15–20, 20–30, 50–60
145	Teeth	5	4, 15–20, 20–25, 30–40, >40
147	Few fragments	?	>35
152	Teeth	1	40–50

139, 148 and 151 were recovered alongside ossuary fragments, although it was impossible to associate specific bones to each ossuary. The state of preservation was extremely poor, thus only teeth were considered. These represented at least eleven individuals whose sex could not be determined. The youngest individual was aged ~4 years (Table 5).

Conclusions

The anthropological study of the human skeletal remains from the five burial caves at Sha'ar Efrayim was severely limited, as in most cases only teeth were available for examination. The skeletal population in the Chalcolithic and Early Bronze Age burials included children, sub-adults and adults covering a wide age range. Thus, the human remains can be viewed as representing a regular village population (see Table 6).

In a sample of 48 individuals from the Chalcolithic loci, the youngest age was estimated at 3.5–4.0 years old. The youngest individual from another cave excavated earlier in this region was also 4 years old (Smith and Horwitz 1998). The absence of infants in defined cemeteries is a burial practice characteristic of the Chalcolithic period. It is thus concluded that the Chalcolithic inhabitants of the nearby settlement practiced age-dependent burial, typical of their culture, and the infants were most probably buried inside the dwelling site, which has not yet been discovered (Nagar and Eshed 2001). In contrast, from EB I and mixed loci at least five children under the age of three were identified, as is the norm in other EB I burial sites (Nagar and Winocur, forthcoming).

The importance of the Sha'ar Efrayim skeletal assemblage is the discovery of two succeeding burial phases in Cave 1, from the Late Chalcolithic period and EB I. Continuous burial from the Chalcolithic through the Early Bronze Age was also reported at 'Ein Huderah in northern Sinai (Bar-Yosef et al. 1977). However, unlike the 'Ein Huderah case, the apparent continuous burial tradition in Sha'ar Efrayim Cave 1 does not necessarily indicate population continuity between these two succeeding periods. On the contrary, the archaeological and anthropological evidence

Table 5. Chalcolithic Skeletal Remains from Cave 5

Locus	Indicative Skeletal Remains	MNI	Age Distribution (Years)
139, 148, 151	Teeth	9	4, 9–10, 11–13, 20–25, 30–40, 30–40, 40–50, 50–60, >60
146	Teeth	2	13–16, >60

Table 6. Summary of the Demographic Analysis of the Sha'ar Efrayim Populations

Cave	Period	Total No. of Individuals	Age Distribution (Years)									
			0–4	5–9	10–14	15–19	20–29	30–39	40–49	50–59	>60	?
1	Chalcolithic	29	1	4	1	4	5	3	1	4		>15 (×4), >20
	EB IA and Mixed Loci	36	4	2	6	4	4	7	4	3	1	>15
2	Chalcolithic	2						1				>20
3	Chalcolithic	6		1		1	1	1	1		1	
4	EB I	5	1			1	1	1				>40
	Chalc., EB, LB	8	1	1		2	1	1		2		
5	Chalcolithic	11	1	1	1	1	1	2	1	1	2	

from this cave indicates the opposite. Firstly, EB I people separated their burial ground from the previous cemetery with a small wall, suggesting that they viewed themselves as different from the earlier population. Secondly, while infants were absent in the Chalcolithic skeletal sample, they were present in the EB I sample. At ‘Ein Huderah, where continuity of the population from the Chalcolithic to EB I is evident, the absence of infant burials is characteristic of both periods (Bar-Yosef et al. 1977).

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